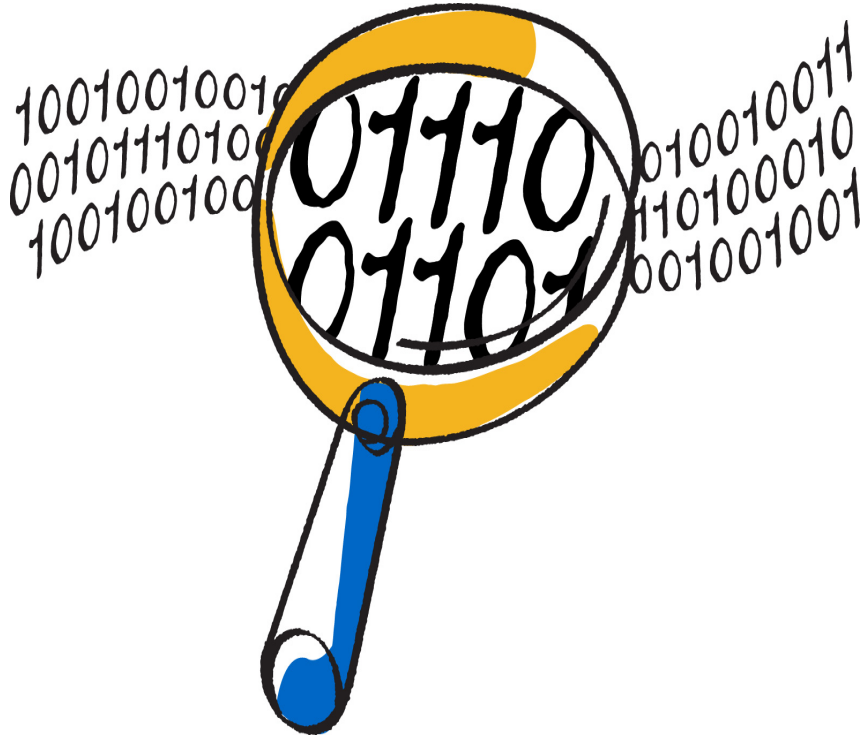




Mars™ OS 1.0.2

Command Reference Guide



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Operational Mode Commands

This chapter describes Mars OS operational mode commands. Commands in this section operate at either normal or diag privilege level relative to operational mode.

autosupport callhome disable

Disable the AutoSupport callhome feature

Privilege Level: normal

Description

This command disables the sending of AutoSupport messages to NetApp. This does not disable AutoSupport, but disables the sending of AutoSupport messages to NetApp. Custom destinations that you have configured will continue to receive AutoSupport messages.

Examples

Disable AutoSupport messages from being sent to NetApp.

```
autosupport callhome disable
```

See also

[autosupport callhome show](#)

[autosupport callhome enable](#)

autosupport callhome enable

Enable the AutoSupport callhome feature

Privilege Level: normal

Description

This command enables the sending of AutoSupport messages to NetApp. Information in AutoSupport messages enables NetApp technical support to help you solve problems or prevent future problems.

Examples

Enable the sending of AutoSupport messages to NetApp.

```
autosupport callhome enable
```

See also

[autosupport callhome show](#)

[autosupport callhome disable](#)

autosupport callhome show

Show whether or not the AutoSupport callhome feature is enabled or disabled

Privilege Level: normal

Description

This command shows the AutoSupport callhome status.

Examples

Show AutoSupport callhome status.

```
autosupport callhome show
```

```
Callhome Enabled: True
```

See also

[autosupport callhome enable](#)

[autosupport callhome disable](#)

autosupport destination add

Add a destination to the AutoSupport destination list

Privilege Level: normal

Description

This command adds a destination to the list of destinations that AutoSupport messages are sent to. When adding the destination, you specify the URI, payload-type, and whether the destination is enabled or disabled. Disabled destinations will not be sent AutoSupport messages, but can be quickly enabled when needed. Valid payload types are COMPLETE and NOTE (not yet supported). The contrary command to `autosupport destination add` is `autosupport destination remove`.

Parameters

-uri <string>

Uniform Resource Identifier (URI) of the AutoSupport destination.

[**-enabled** [{ **true** | **false** }]]

Destination is enabled (true) or disabled (false).

Examples

Add a destination which will receive AutoSupport messages.

```
autosupport destination add -uri https://example.com -payload-type COMPLETE
```

See also

[autosupport destination remove](#)

[autosupport invoke](#)

autosupport destination factory-reset

Reset the AutoSupport destination list back to the factory default

Privilege Level: normal

Description

This command resets the list of destinations to the default configuration. This removes any destinations that you have configured, leaving only the factory default destinations.

Examples

Reset AutoSupport destinations to default factory values.

```
autosupport destination reset
```

See also

[autosupport destination show](#)

autosupport destination modify

Modify a destination in the AutoSupport destination list

Privilege Level: normal

Description

This command modifies a destination that is configured to receive AutoSupport messages.

Parameters

[**-uri** <string>]

Uniform Resource Identifier (URI) of the AutoSupport destination.

-uuid <string>

Universally Unique ID (UUID) of the AutoSupport destination to modify.

[**-enabled** [{ **true** | **false** }]]

Destination is enabled (true) or disabled (false).

Examples

Change the destination with UUID c71f822a-6cde-11e3-b259-00a0984fded6 to have the URI https://example.com.

```
autosupport destination modify -uuid c71f822a-6cde-11e3-b259-00a0984fded6 -  
uri https://example.com
```

See also

[autosupport destination add](#)

[autosupport destination remove](#)

autosupport destination remove

Remove a destination from the AutoSupport destination list

Privilege Level: normal

Description

This command removes a destination from the list of destinations that AutoSupport messages are sent to. When removing the destination, you specify the UUID of the destination to be removed. The contrary command to `autosupport destination remove` is `autosupport destination add`.

Parameters

-uuid <string>

Universally Unique ID (UUID) of the AutoSupport destination to remove.

Examples

Remove a destination from the AutoSupport destination list.

```
autosupport destination remove -uuid cf6f74d4-680c-11e3-95f0-00a0984fded6
```

See also

[autosupport destination add](#)

[autosupport invoke](#)

autosupport destination show

Retrieve the AutoSupport destination list

Privilege Level: normal

Description

This command shows the list of destinations that are configured to receive AutoSupport messages.

Parameters

[**-uuid** <string>]

Universally Unique ID (UUID) of the AutoSupport destination to show.

Examples

Show destinations configured to receive AutoSupport messages.

```
autosupport destination show
```

Enabled	Default	URI	Payload
Destination	UUID		
-----	-----	-----	-----
True	True	https://testbed.netapp.com/put/AsupPut	COMPLETE
4bde8080-65f2-11e4-b48d-00a0984358d8			

See also

[autosupport destination add](#)

[autosupport destination remove](#)

autosupport history show

Report the history of AutoSupport messages

Privilege Level: normal

Description

This command displays the history of AutoSupport messages.

Parameters

[**-max-entries** <integer>]

Maximum number of AutoSupport message entries to return.

[**-verbose** [{ **true** | **false** }]]

Flag if verbose details should be returned.

[**-uuid** <string>]

Universally unique ID of an AutoSupport message to get details on.

Examples

Get a detailed history of AutoSupport messages (the following display shows only a partial list).

```
autosupport history show -verbose
```

```
AutoSupport UUID      : b762f3e0-9c85-11e3-a6b1-000c295d8b4d
Subject               : FlashRay Cluster Notification from marsdev (MARS BOOT
SUCCESS) NOTICE
Date Triggered        : 2014-02-23T12:26:26Z+0000
Collection State       : SUCCESS
Payload State         : SUCCESS
Destinations          :
    Target URL         : https://testbed.netapp.com/put/AsupPut
    Payload Type       : COMPLETE
    Redacted           : False
    Destination UUID   : 5ea8d62e-9c72-11e3-a6b1-000c295d8b4d
    Last Sent          : 2014-02-23T12:27:03Z+0000
```

autosupport invoke

Create and send an AutoSupport message

Privilege Level: normal

Description

This command invokes an AutoSupport message that gets sent to enabled AutoSupport destinations.

Parameters

[**-subject-note** <string>]

Adds a note to the subject of the invoked AutoSupport message.

Examples

Invoke a user-triggered AutoSupport message.

```
autosupport invoke -subject-note TESTING
```

autosupport triggers show

List events that trigger AutoSupport messages

Privilege Level: diag

Description

This command shows the list of events that are configured to trigger AutoSupport messages. The set of events that trigger AutoSupport messages is set by default and is not configurable.

Examples

Show events configured to trigger AutoSupport messages.

```
autosupport triggers show
```

Event Name	Severity	AutoSupport Reason
-----	-----	-----

callhome.battery.low	EV_ERR	BATTERY_LOW
callhome.battery.overchg	EV_ALERT	BATTERY
OVERCHARGED		
...		
...		
...		

cluster create

Create a cluster

Privilege Level: normal

Description

This command creates a cluster with the current node.

NOTE: Use of this command is discouraged. It is recommended to use the browser-based Setup Wizard.

The contrary command to `cluster create` is `cluster destroy`.

Parameters

-name <string>

Human-readable name given to the cluster. This is typically the (unqualified) DNS name assigned to the management interface.

[**-node-serialnums** <string>,...]

Array of serial numbers of the nodes to form the new cluster. If this parameter is specified, the serial number of the node on which the request is being made must be included. If this parameter is not specified, or if it is specified with an empty array, a cluster will be created using all the eligible nodes seen on the cluster network.

[**-password** <string>]

New password for the `admin` account. This new password replaces the default password. If this parameter is not provided, a password prompt appears.

Examples

Create a cluster named *clus0*.

```
cluster create -name clus0
```

See also

[cluster destroy](#)

cluster destroy

Destroy the cluster

Privilege Level: diag

Description

This command destroys the cluster, including all configuration and user data, and returns the nodes to a state where they can form a new cluster or join an existing cluster. The cluster is first shut down, then the configuration is deleted on all nodes. The cluster destroy operation does not zero the SSDs, and does not change the installed software version.

The contrary command to `cluster destroy` is `cluster create`.

This command is only available after a cluster has been created.

Parameters

[**-force** [{ **true** | **false** }]]

Force the destruction of the cluster without confirmation.

Examples

```
cluster destroy
```

See also

[cluster create](#)

cluster management-interface modify

Change cluster management interface

Privilege Level: normal

Description

This command sets or updates the cluster's management interface.

This command is only available after a cluster has been created.

Parameters

-ip-address <string>

IPv4 address of cluster management interface.

-netmask <string>

IPv4 netmask of cluster management interface.

-gateway <string>

IPv4 gateway address for cluster management interface.

Examples

Update the management interface settings.

```
cluster management-interface modify -gateway 192.168.1.1 -ip-address  
192.168.1.101 -netmask 255.255.255.0
```

See also

[cluster management-interface show](#)

cluster management-interface show

Show the cluster management IP address, netmask, and gateway

Privilege Level: normal

Description

This command displays the cluster's management interface.

This command is only available after a cluster has been created.

Examples

```
cluster management-interface show
```

IPv4 Address

--
192.168.1.101
IPv4 Netmask

--
255.255.255.0
IPv4 Gateway

--
192.168.1.1

See also

[cluster management-interface modify](#)

cluster reboot

Reboot the cluster

Privilege Level: normal

Description

This command reboots the cluster, gracefully shutting down the system and restarting the nodes. Optionally, the `-maintenance` parameter can be used to restart all nodes in maintenance mode.

Parameters

[**-maintenance** [{ **true** | **false** }]]

Reboot into maintenance mode after shutdown.

[**-force** [{ **true** | **false** }]]

Force the reboot of the cluster without confirmation.

Examples

```
cluster reboot
```

cluster show

Show cluster information

Privilege Level: normal

Description

This command displays cluster- and node-specific information.

Examples

```
cluster show
```

Cluster Name	

clus0	
Node Serial Number	OS Version

928911996	(not promoted)

See also

[cluster create](#)

cluster shutdown

Shut down the cluster

Privilege Level: normal

Description

This command shuts down the cluster. Optionally, you can use the `-power-off` parameter to power-off the cluster hardware after shutdown.

WARNING: In some cases, you might want to shut down the cluster during cluster start-up. In this case, use the `-override-startup` parameter to force the cluster to shut down. Use this parameter only under guidance from technical support as it can result in potential data loss or other undefined behavior.

Parameters

[**-power-off** [{ **true** | **false** }]]

Power off all nodes in the cluster after shutdown.

[**-override-startup** [{ **true** | **false** }]]

Force shut down even when cluster is starting up. Use this parameter only under guidance from technical support.

[**-force** [{ **true** | **false** }]]

Force the shut down of the cluster without confirmation.

Examples

Shut down the cluster.

```
cluster shutdown
```

cluster startup show

Show the status of the cluster startup

Privilege Level: normal

Description

This command displays the start-up status of the cluster. Use this command to view how long the cluster has been starting up, or when cluster startup completed.

Examples

```
cluster startup show
```

```
Status
```

```
-----
```

```
--
```

```
Startup completed successfully at 20Dec2013 20:31:50
```

consistency status show

Show the status of consistency checker

Privilege Level: diag

Description

This command displays the status of the Mars OS consistency checker (CC). The output shows the type of mode (scanner or fixer) CC is currently running, start time and elapsed time, estimated time when CC will finish and more detailed information on the progress of each layer (Extent store, Volume) involved in consistency checking. Consistency checker is run when inconsistencies are observed in the Mars OS filesystem and the system drops to maintenance mode. It can also be run to ensure the correctness of filesystem.

NOTE: This command is for technical support use only. Contact technical support for assistance.

This command is available when the system is running consistency checker (either scanner or fixer).

This command is only available after a cluster has been created.

Examples

Command to get status of consistency checker.

```
consistency status show
```

```

-----
--
                                CONSISTENCY CHECKER STATUS
-----
--
                                CC Mode :   Fixer
                                Start Time : Mon Jan  5 17:59:07 2015
                                Elapsed Time :  10 secs
                                Estimated Remaining Time :  1 min 15 secs
-----
--
                                Extent Store Status
-----
--

```

State Description	Elapsed Time	Progress(in %)
Checking superblock	<1 secs	100
Checking replay log	<1 secs	100

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	Checking hashtables	5 secs	100
	Initiating checkpoint	3 secs	100
	Updating superblock	<1 secs	100

--	Volume Status		

--	No consistency checker status info for Volume layer yet		

event log show

Dump event log entries to screen

Privilege Level: normal

Description

This command dumps a default of the last ten event log entries to the screen. If the lines argument is negative, the first events in the event log are dumped to the screen. If it is positive, the last events in the event log are dumped to the screen.

Parameters

[**-lines** <integer>]

Number of lines to display.

Examples

Display the first three events in the log.

```
event log show -lines -3
```

Event Timestamp	Host Name	Process Name	Event Name
Severity Level	Event Message		
Thu Jun 12 2014 18:23:51 GMT	mars	/mars/sbin/mdiradm	star-
tup.shutdown.module.succeeded	NOTICE	Mars module Event Mgr Init	
startup completed successfully. Duration was 1050250 microseconds.			
Thu Jun 12 2014 18:23:51 GMT	mars	/mars/sbin/mdiradm	star-
tup.init.started	NOTICE	The Mars OS startup sequence	
has begun.			
Thu Jun 12 2014 18:23:51 GMT	mars	/mars/sbin/mdiradm	star-
tup.shutdown.module.succeeded	NOTICE	Mars module MK Trace Init	star-
startup completed successfully. Duration was 1068 microseconds.			
3 entries were displayed.			

See also

[event mark](#)

event mark

Create a marker event in the event log

Privilege Level: normal

Description

This command creates a marker event in the event log. The event name is `evmgr.event.mark`, the severity level is INFO, and the event message is the string specified by the `-comment` argument.

Parameters

-comment <string>

Note describing this event: for example, "perf test 01 begin" or "perf test 01 end."

Examples

Create a marker event.

```
event mark -comment "Finished Configuration"
```

See also

[event log show](#)

event suppression modify

Modify event suppression level

Privilege Level: diag

Description

This command modifies the current level of event suppression. You can specify three levels of suppression:

- off: No event suppression occurs.
- normal: Event suppression occurs when duplicate events are sent in a short period of time.
- chatter: Event suppression occurs when duplicate events are sent in a short period of time. In addition, if the event log rotates too fast, the time period for suppression will increase for "chatty" events that are causing this rotation.

Parameters

-level <event-suppression-level>

Level of event suppression desired.

The *event-suppression-level* must be one of the following:

- off
- normal
- chatter

Examples

Set suppression level to normal.

```
event suppression modify -level normal
```

See also

[event suppression show](#)

event suppression show

Show the suppression configuration for event manager

Privilege Level: diag

Description

This command shows the current level of event suppression.

Examples

Show suppression level.

```
event suppression show
```

```
Suppression Level: NORMAL
```

See also

[event suppression modify](#)

fcv adapter modify

Modify the Fibre Channel adapter

Privilege Level: normal

Description

This command modifies the Fibre Channel adapter, including speed and state.

The adapter argument is in the form Xy or Xy_z where X and z are integers and y is a letter. An example is 0g or 4a_1.

You cannot bring an adapter down until all interfaces connected to that adapter are also down. Use the `fcv interface modify` command to take your Fibre Channel target (FCP) interfaces offline.

The speed option sets the Fibre Channel link speed of an adapter. You can set adapters that support 16Gb/s to 4, 8, 16, or auto. By default, the link speed option is set to auto for auto negotiation. If you set the link speed to a specific value, this change disables the auto negotiation. Under certain conditions, a speed mismatch can prevent the adapter from coming online.

NOTE: The system reports the actual link speed with the "Data Link Rate" parameter in the output of `fcv adapter show -v` command.

This command is only available after a cluster has been created.

Parameters

[**-state** <configured-state>]

Specifies the state of an FC adapter. If up, the FC adapter is online. If down, the FC adapter is offline.

The *configured-state* must be one of the following:

- down
- up

-name <string>

Name of the adapter.

[**-speed** <config-speed>]

Speed for the adapter to use. Adapter must be offline to change the speed.

The *config-speed* must be one of the following:

- auto
- 4G
- 8G
- 10G
- 16G

Examples

Bring adapter *0g* down and set the speed to *8Gb*.

```
fcpx adapter modify -name 0g -state down -speed 8g
```

See also

[fcpx adapter show](#)

[fcpx interface modify](#)

fcv adapter reset

Reset a Fibre Channel target (FCP) adapter

Privilege Level: diag

Description

This command resets the specified Fibre Channel target adapter. This will cause the adapter to log out of the fabric, and all logged in initiators will need to re-login to the adapter.

This command is only available after a cluster has been created.

Parameters

-name <string>

Fibre Channel target adapter name.

Examples

Reset Fibre Channel target adapter *0e*.

```
fcv adapter reset -name 0e
```

See also

[fcv adapter show](#)

[fcv adapter modify](#)

[event log show](#)

fcv adapter show

Show Fibre Channel target (FCP) adapter details

Privilege Level: normal

Description

This command displays Fibre Channel target adapter information. You can use this information to determine if adapters are active and online.

Parameters

[-v [{ true | false }]]

Verbose mode flag.

[-names <string>,...]

Names of Fibre Channel target adapters to show.

Examples

Display information about all Fibre Channel target adapters.

```
fcv adapter show
```

Node	Adapter	Connection Established	Port Address
-----	-----	-----	-----
mars_cluster_01	0e	ptp	123000
mars_cluster_01	0f	ptp	123001
mars_cluster_01	0g	ptp	123002
mars_cluster_01	0h	ptp	123003

See also

[fcv adapter modify](#)

fcv adapter sramdump

Save a diagnostic dump for a Fibre Channel target (FCP) adapter

Privilege Level: diag

Description

This command generates a diagnostic dump file for the specified Fibre Channel adapter. This creates an SRAM dump file that can be sent to NetApp technical support along with trace files that show the state of the driver at the time of the dump.

The Event Log, accessible through the `event log show` command, has information about the location of the SRAM dump file.

This command is only available after a cluster has been created.

Parameters

-name <string>

Fibre Channel target adapter name.

Examples

Generate a diagnostic dump for adapter *0e*.

```
fcv adapter sramdump -name 0e
```

See also

[fcv adapter show](#)

[event log show](#)

fcv adapter stats

Display current statistics about the Fibre Channel target (FCP) adapters

Privilege Level: normal

Description

This command displays statistics about the Fibre Channel adapters.

This command has both a regular and a verbose mode. The verbose mode displays all the statistics available for each port, while normal mode shows information about operations, bytes, and latency until you press Ctrl-C.

Parameters

-count <integer>

Number of times the statistics is displayed. If not specified, the command runs until Ctrl-C is pressed.

-interval <integer>

Interval between statistics display. The default is 1 second.

-verbose <boolean>,...

Enable verbose mode. This prints all statistics once.

-all <boolean>,...

Display idle adapters in addition to active adapters.

Examples

Display statistics for all adapters.

```
fcv adapter stats -all
```

port	r ops	w ops	r kbytes	w kbytes	r lat (us)	w lat (us)
--						
0h	0	0	0	0	0	0
0g	0	0	0	0	0	0
0f	9266	9475	148478	152039	1006	213
0e	9353	9388	149868	150647	989	220
--						
0h	0	0	0	0	0	0

```

0g          0          0          0          0          0          0
0f          9613       9737       154036      156245      871        210
0e          9749       9598       156208      154021      868        210
--
0h          0          0          0          0          0          0
0g          0          0          0          0          0          0
0f          9557       9781       153141      156949      897        206
0e          9803       9537       157071      153045      857        207
--
^C

```

Display verbose statistics about the adapters.

```
fcf adapter stats -verbose
```

```

0e
      reset-count :
      active-npiv :          1
      pdb-changed :          6
      nsdb-changed :         3
      login-auths :
      auth-failures :
      loss-of-sync :
      loss-of-signal :
      link-down :
      link-up :             2
      virtual-link-down :
      fcf-advertisement-timeout :
      lip-received :
      lip-reset :
      lip-f8-received :
      loop-init-err :
      lr-sent :
      lr-received :
      nos-received :
      ols-received :         1
      prim-seq-err :
      lip-occurred :
      p2p-topology :         1
      invalid-crc :
      read-ops :      2962643
      write-ops :     2965174
      other-ops :           114
      read-latency :    2586271177
      write-latency :   733423147
      other-latency :     4369

```

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```
read-data : 48609848384  
write-data : 48723617816
```

fcplib initiator show

Display a list of initiators

Privilege Level: normal

Description

This command displays a set of initiators, a set of their attributes, the Fibre Channel target interface the initiator is logged in to, and their initiator group (igroup) associations.

Optionally, the list of initiators can be limited to a set of FCP interfaces as identified by a comma separated list of their names with the `-names` parameter or their universally unique IDs (UUIDs) with the `-uuids` parameter, but not both.

This command is only available after a cluster has been created.

Parameters

{ [**-uuids** <string>,...]

Optional list of interface universally unique IDs (UUIDs). This allows you to filter down the list of initiators being returned to just those that are logged in to the given interfaces. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

| [**-names** <string>,...]

Optional list of interface names. This allows you to filter down the list of initiators being returned to just those that are logged in to the given interfaces.

}

Examples

List initiators logged in to interfaces fc1 and fc4.

```
fcplib initiator show -names fc1,fc4
```

Interface	Adapter	Node	WWPN	Igroups
fc1	0e	mars_cluster_01	21:00:00:24:ff:32:55:9c	esx1
fc1	0e	mars_cluster_01	21:00:00:24:ff:32:55:9d	esx1
fc4	0h	mars_cluster_01	21:00:00:24:ff:32:55:9c	esx1
fc4	0h	mars_cluster_01	21:00:00:24:ff:32:55:9d	esx1

See also

[igroup create](#)

igroup add

fc interface modify

Modify the Fibre Channel target (FCP) interface

Privilege Level: normal

Description

This command changes administrative state of a Fibre Channel target interface to either UP or DOWN.

An interface can be identified by its name with the `-name` parameter or its universally unique IDs (UUIDs) with the `-uuid` parameter. It is not legal to use both identification parameters, one and only one may be used.

NOTE: Both "-name" and "-uuid" parameters are in singular-context and expect only one interface to be identified as its argument.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name of the FCP interface to modify.

| **-uuid** <string>

UUID of the FCP interface to modify. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

-status-admin <interface-admin-state>

Administrative state of the FCP interface.

The *interface-admin-state* must be one of the following:

- down
- up

Examples

Modify the administrative state of Fibre Channel target interface name *fc1* to up.

```
fc interface modify -name fc1 -status-admin up
```

See also

[fcp start](#)

[fcp stop](#)

fcf interface ping

Ping a Fibre Channel target (FCP) port

Privilege Level: normal

Description

This command sends an echo request to the specified FC WWPN or port ID (FCID). The echo is sent from the interface specified with the `-name` parameter.

The command sends a payload based on the speed of the port to test the FC connection. You can override this payload by specifying one with the `-payload` parameter.

When using the `-verbose` parameter, the system keeps high, low, and average latency statistics.

If you specify the `-series` parameter, the command sends a single echo every second until you press Ctrl-C.

Parameters

-verbose <boolean>

Turns verbose mode on.

-series <boolean>

Send a series of pings until Ctrl-C is pressed.

-name <string>,...

Name of the source interface.

-wwpn <string>,...

WWPN of the destination port.

-fcid <string>,...

FCID of the destination port. This is a 6 digit hexadecimal number.

-payload <string>,...

Payload to send to the interface. The payload can be made of A-Z, a-z, 0-9, space, / and - characters and can be up to 255 characters long.

Examples

Ping 21:00:00:24:ff:32:55:9d from interface fc1 until you press Ctrl-C. The `-verbose` flag will enable statistics about the pings.

```
fc1 interface ping -name fc1 -wwpn 21:00:00:24:ff:32:55:9d -verbose -series
```

```
96 bytes from 21:00:00:24:ff:32:55:9d (0x123456): seq=0 time=0.020 ms
96 bytes from 21:00:00:24:ff:32:55:9d (0x123456): seq=1 time=0.060 ms
96 bytes from 21:00:00:24:ff:32:55:9d (0x123456): seq=2 time=0.040 ms
96 bytes from 21:00:00:24:ff:32:55:9d (0x123456): seq=3 time=0.050 ms
96 bytes from 21:00:00:24:ff:32:55:9d (0x123456): seq=4 time=0.030 ms
^C
--- 21:00:00:24:ff:32:55:9d ping statistics ---
5 frames transmitted, 5 frames received, 0 frames corrupt, 0% frame loss
round-trip min/avg/max = 0.020/0.040/0.060 ms
```

fc interface show

Show the Fibre Channel target (FCP) interfaces

Privilege Level: normal

Description

This command displays a set of Fibre Channel target interfaces and their attributes.

Optionally, the list of interfaces to be displayed can be filtered by specifying exactly which interfaces to display. A set of interfaces can be specified by either a comma separated list of their names with the `-names` parameter or their universally unique IDs (UUIDs) with the `-uuids` parameter, but not both.

This command is only available after a cluster has been created.

Parameters

{ [**-uuids** <string>,...]

Universally unique IDs (UUIDs) of the interfaces to show. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

| [**-names** <string>,...]

Names of the interfaces to show.

}

Examples

Display information for interfaces named *fc1* and *fc3*.

```
fc interface show -names fc1,fc3
```

Name	Adapter	Node	RTPID	Admin	Oper	Speed	WWNN
WWPN							
fc1	0e	mars_cluster_01	0x1	up	up	16	
20:01:00:a0:98:40:14:0a 20:02:00:a0:98:40:14:0a							
fc3	0g	mars_cluster_01	0x3	down	down	0	
20:01:00:a0:98:40:14:0a 20:04:00:a0:98:40:14:0a							

See also

[fc interface show](#)

fcv show

Report the Fibre Channel target (FCP) service status

Privilege Level: normal

Description

Get information about the Fibre Channel service.

By default, the Fibre Channel target (FCP) service is running on the system. In some cases, such as for troubleshooting, the service might be shut down to isolate the storage system from the network.

This command is only available after a cluster has been created.

Examples

Get information about the Fibre Chancel service.

```
fcv show
```

Status	Target Name
-----	-----
up	20:01:08:00:27:a4:12:f0

See also

[fcv stop](#)

[fcv start](#)

fcg start

Enable all the Fibre Channel target (FCP) interfaces that are not explicitly down

Privilege Level: normal

Description

This command starts the Fibre Channel service.

All Fibre Channel interfaces that do not have a state that is set to down will be brought online.

This command is only available after a cluster has been created.

Examples

Start the Fibre Channel service.

```
fcg start
```

See also

[fcg stop](#)

[fcg show](#)

[fcg interface modify](#)

fcv stats

Display current statistics about the Fibre Channel target (FCP) service

Privilege Level: normal

Description

This command displays statistics about the Fibre Channel service, providing information about operations, bytes, and latency until Ctrl-C is pressed.

You can change the time interval between statistics displays with the `-interval` argument. If a value greater than 1 is specified, the statistics are averaged over the given number of seconds and displayed as the average per second performance after the interval has elapsed.

Parameters

-count <integer>

Number of times to display statistics. If not specified, the command runs until Ctrl-C is pressed.

-interval <integer>

Interval between statistics displays. The default is 1 second.

Examples

Display statistics about the Fibre Channel service, stopping the process with Ctrl-C.

fcv stats

	r ops	w ops	r kbytes	w kbytes	lat (us)	r lat (us)	w lat
(us)							
--							
	18797	18846	301193	302418	226	272	
181	19123	19039	306414	305518	635	650	
620	19111	19163	306225	307506	768	751	
784	19254	19425	308519	311704	803	854	
753	19016	19093	304703	306381	273	344	
203	19007	19111	304559	306669	437	671	
204							

185	19126	19134	306464	307040	300	416
193	19107	19294	306164	309604	431	671
^C						

fcg stop

Disable all the Fibre Channel target (FCP) interfaces

Privilege Level: normal

Description

This command stops the Fibre Channel service, which stops all Fibre Channel target I/O operations.

All Fibre Channel interfaces are placed in the DOWN state. This does not change an individual interface's state. For example, if interface *fc1* is already set to DOWN, stopping and starting the Fibre Channel service does not cause *fc1* to be in the UP state.

This command is only available after a cluster has been created.

Examples

Stop the Fibre Channel service.

```
fcg stop
```

See also

[fcg start](#)

[fcg show](#)

[fcg interface modify](#)

igroup add

Add an initiator to an initiator group

Privilege Level: normal

Description

This command adds one or more initiators to an existing initiator group (igroup). Initiators can only be added to an igroup if there are no LUN mapping conflicts. Mapping conflicts occur when an initiator is already paired with a LUN.

NOTE: An initiator cannot be a member of two igroups of different operating system types.

The contrary command to `igroup add` is `igroup remove`.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name of initiator group for which to add initiators.

| **-uuid** <string>

Universally unique ID (UUID) of the initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

-initiators <string>,...

World Wide Port Names (WWPNs) of initiators to add.

Examples

Add initiator 00:11:22:33:44:55:66:77 to igroup *my_igroup*.

```
igroup add -name my_igroup -initiators 00:11:22:33:44:55:66:77
```

See also

[igroup remove](#)

igroup create

Create an initiator group

Privilege Level: normal

Description

This command creates a new initiator group (igroup). Use igroups to control which hosts have access to specific LUNs.

While creating an igroup, optionally, multiple existing initiators can be added to the new igroup by specifying them in a comma separated list. The `igroup add` command can be used to add more initiators. The `igroup remove` command can be used to remove an initiator from the igroup. The `-initiators` parameter is not required to create a new igroup.

The name assigned to an igroup is independent of the hostname that is used by the operating system, host files, or Domain Name Service (DNS). An igroup name is case-sensitive and must meet the following requirements:

- Contain 1 to 96 characters
- Start with a letter or number
- Valid characters are letters A through Z, a through z, numbers 0 through 9, hyphen (-), underscore (_), colon (:), and period (.)

The contrary command to `igroup create` is `igroup destroy`.

This command is only available after a cluster has been created.

Parameters

-name <string>

Name for the initiator group.

[**-initiators** <string>,...]

List of Fibre Channel World Wide Port Names.

-ostype <os-type>

Operating system for initiator group.

The *os-type* must be one of the following:

- solaris
- windows
- hpux
- aix
- linux
- netware
- vmware
- openvms
- xen
- hyperv

Examples

Create an igroup named *my_igroup* on a Linux operating system with two initiators.

```
igroup create -name my_igroup -ostype linux -initiators  
00:11:22:33:44:55:66:77,77:66:55:44:33:22:11:00
```

See also

[igroup add](#)

[igroup remove](#)

[igroup destroy](#)

igroup destroy

Destroy an initiator group

Privilege Level: normal

Description

This command deletes an existing initiator group (igroup). By default, an igroup cannot be destroyed if one or more LUNs are mapped to it. All LUNs associated with an igroup must be unmapped before an igroup can be destroyed. Use the `lun unmap` command to remove LUNs from an igroup.

Optionally, the `-force` parameter can be used to forcefully destroy an igroup regardless of the number of LUNs that are currently mapped to it.

The contrary command to `igroup destroy` is `igroup create`.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the initiator group.

| **-uuid** <string>

Universally unique ID (UUID) of the existing initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

[**-force** [{ **true** | **false** }]]

Skip checks for mapped LUNs.

Examples

Destroy the initiator group named *my_igroup*.

```
igroup destroy -name my_igroup
```

See also

[lun unmap](#)

[igroup create](#)

igroup modify

Modify initiator groups

Privilege Level: normal

Description

This command modifies initiator group (igroup) attributes. When changing the operating system (OS) type attribute of an igroup, be aware that initiators can only belong to igroups that are all of the same os type. When changing the OS type of igroups that contain initiators that are members of multiple initiator groups, all of those initiator groups must be specified so that there never exists any conflict.

For example, if igroup 1 contains initiators A and B with OS type set to `linux`, and igroup 2 contains initiators B and C, igroup 2 must have OS type `linux`. To change the OS type of igroup 1, you must also change the OS type of igroup 2 to avoid initiator B belonging to igroups of differing OS types.

This command is only available after a cluster has been created.

Parameters

{ **-uuids** <string>,...

Universally unique IDs (UUIDs) of the initiator groups. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

| **-names** <string>,...

Names of the initiator groups to modify.

}

-ostype <os-type>

New operating system type for the initiator groups.

The *os-type* must be one of the following:

- solaris
- windows
- hpux
- aix

- `linux`
- `netware`
- `vmware`
- `openvms`
- `xen`
- `hyperv`

Examples

Change the OS type of igroup named *igroup1* to *linux*.

```
igroup modify -names igroup1 -ostype linux
```

See also

[igroup create](#)

[igroup add](#)

[igroup show](#)

igroup remove

Remove an initiator from an initiator group

Privilege Level: normal

Description

This command removes one or more initiators from an initiator group (igroup). An initiator can only be removed if no existing LUNs are mapped to the igroup. Use the `lun unmap` command to remove LUNs from an igroup.

The `-name` and `-uuid` parameters are mutually exclusive. One of the two parameters must be used to identify the igroup to be operated upon.

The contrary command to `igroup remove` is `igroup add`.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name of initiator group to remove initiators from.

| **-uuid** <string>

Universally unique ID (UUID) of the initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

-initiators <string>,...

World Wide Port Names (WWPNs) of initiators to remove.

Examples

Remove initiator 00:11:22:33:44:55:66:77 from igroup *my_igroup*.

```
igroup remove -name my_igroup -initiators 00:11:22:33:44:55:66:77
```

See also

[lun unmap](#)

[igroup add](#)

igroup rename

Rename an initiator group

Privilege Level: normal

Description

This command renames an existing initiator group (igroup). Renaming an igroup will not affect access to the LUNs that are mapped to it.

An igroup name is case-sensitive and must meet the following requirements:

- Contain 1 to 96 characters
- Start with a letter or number
- Valid characters are letters A through Z, a through z, numbers 0 through 9, hyphen (-), underscore (_), colon (:), and period (.)

The `-name` and `-uuid` parameters are mutually exclusive. One of the two parameters must be used to identify the igroup that is being renamed.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name of the existing initiator group.

| **-uuid** <string>

Universally unique ID (UUID) of the existing initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

-new-name <string>

New name for the initiator group.

Examples

Rename igroup named *my_igroup* to *my_renamed_igroup*.

```
igroup rename -name my_igroup -new-name my_renamed_igroup
```

See also

[igroup create](#)

[igroup show](#)

igroup show

Display initiator group details

Privilege Level: normal

Description

This command displays status information for initiator groups (igroups). By default, the command displays the status for all igroups.

Optionally, the list of igroups to be displayed can be filtered by specifying exactly which igroups to display. A set of igroups can be specified by either a comma separated list of their names with the `-names` parameter or their universally unique IDs (UUIDs) with the `-uuids` parameter, but not both.

This command is only available after a cluster has been created.

Parameters

{ [**-uuids** <string>,...]

Universally unique ID (UUID) of the initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

| [**-names** <string>,...]

Names of the initiator groups to display.

}

Examples

Display all of the initiator groups.

```
igroup show
```

Igroup Name	OS Type	Initiators

ig_1	windows	21:00:00:24:ff:32:55:9c
		21:00:00:24:ff:32:55:9d
web	linux	21:00:00:24:ff:32:55:45
		21:00:00:24:ff:32:55:46

See also

[igroup create](#)

loadgen show

Display LUNs with load generator I/O requests running on them

Privilege Level: diag

Description

This command displays all LUNs with load-generator I/O running on them.

This command is only available after a cluster has been created.

Examples

```
loadgen show
```

```
Name   IOs completed
-----
lun1    1713
lun2    1870
2 entries were displayed.
```

loadgen start

Start generating I/O requests on specified LUNs

Privilege Level: diag

Description

This command starts load-generator I/O on specified luns. The internal load generator is intended for diagnostics only. It is not recommended to run the load generator simultaneously with an active user workload, as system behavior, including performance, may become unpredictable.

This command is only available after a cluster has been created.

Parameters

-name <string>,...

List of LUN names to generate load on.

Examples

Start generating I/O requests on LUNs named lun1 and lun2.

```
loadgen start -name lun1,lun2
```

loadgen stop

Stop generating I/O requests

Privilege Level: diag

Description

This command stops generating I/O on all LUNs.

This command is only available after a cluster has been created.

Examples

Stop load-generator I/O requests on all LUNs.

```
loadgen stop
```

loadgen2 create

Define a load test for LUNs and drives

Privilege Level: diag

Description

This command creates a load test that runs on LUNs or drives. This includes the test name, specified LUNs or drives, and a traffic pattern. Use this command to simulate traffic for system functional testing.

NOTE: Use this command only under guidance from technical support.

This command is only available after a cluster has been created.

Parameters

[**-load** <load_type>]

Type of load to run. The default is pers-write.

The *load_type* must be one of the following:

- pers-write
- pers-read
- pers-write-ver
- pers-read-ver
- vol-write
- vol-read
- vol-write-ver
- vol-read-ver
- store-read
- store-write

[**-iosize** <integer>]

Record size in multiples of 512 bytes. The default is 64 KiB. The maximum is 64 KiB.

[**-es_seq** <integer>]

Extent Store (ES) data generation mode: 0 for sequential or 1 for round robin.

[**-disks** <string>,...]

List of disk names on which to generate load. Use only with storage-related workloads.

[**-dedup_ratio** <integer>]

Deduplication ratio that defines the level of deduplication. A value of 1 means no deduplication. A value of maxios, which equivalent to the LUN size divided by I/O size (as defined by the `-iosize` parameter), means full deduplication.

[**-es_refs** <string>]

String of non-zero reference counts indicating the maximum number of references for any unique I/O data extent. The Ref Count of a data extent specifies the number of duplicates of the extent. For example, if you want data extents to be duplicated one, four, or five times, you specify "1 4 5." The maximum number of reference counts supported is 5.

[**-es_dist_types** <string>]

Data content specific to the Extent Store (ES) layer. Use 'h' to generate unique data for a given key and hash. Use 'k' to generate a unique hash and data for a given key. Disabled by default.

[**-maxios** <integer>]

Maximum number of I/O operations to perform. The default is 0 (unending).

[**-lba_size** <integer>]

This parameter specifies the size in bytes of the lba/disk.

[**-start_offset** <integer>]

This parameter specifies the starting offset (byte) into the lun.

[**-order** <load_order>]

Sequential or random. The default is sequential.

The *load_order* must be one of the following:

- sequential
- random

[**-flog** <string>]

Without Filename specified, when data verification issue is seen, loadgen2 will panic. When a filename to log verify errors is specified, log only. The default is no logging, to panic on error.

[**-fiopat** <string>]

This specifies the filename containing the I/O pattern. The default is no pattern.

[**-rseed** <string>]

Random number seed for uniqueness. The default is 0.

-name <string>

Test name.

[**-luns** <string>,...]

List of LUN names on which to generate load. Use only used with non-storage related workloads.

[**-start_seqnum** <integer>]

This parameter specifies the starting sequence number for uniquifying.

Examples

Create a test named lunwrite that generates sequential writes to LUN 1 and LUN 2 via the persistence software layer.

```
loadgen2 create -name lunwrite -luns lun1,lun2
```

loadgen2 delete

Delete a test

Privilege Level: diag

Description

This command deletes the named test.

This command is only available after a cluster has been created.

Parameters

-name <string>

Test name.

Examples

```
loadgen2 create -name testname
```

loadgen2 set

Change load and I/O pattern of a test

Privilege Level: diag

Description

This command changes an existing test with new parameters. You cannot change parameters while an existing test is running.

NOTE: Use this command only under guidance from technical support.

This command is only available after a cluster has been created.

Parameters

-name <string>

Set the name of test to new name.

-load <load_type>

Set the load type of this test to new load.

The *load_type* must be one of the following:

- pers-write
- pers-read
- pers-write-ver
- pers-read-ver
- vol-write
- vol-read
- vol-write-ver
- vol-read-ver
- store-read
- store-write

-order <load_order>

Sequential or Random. Set the order of this test.

The *load_order* must be one of the following:

- sequential
- random

Examples

Modify a test named lunwrite to use random ordering of I/Os.

```
loadgen2 set -name lunwrite -order random
```

loadgen2 show

Display load generation tests, resources, and statistics

Privilege Level: diag

Description

This command displays information for all load generation tests. It shows the test name, test state, associated resources (LUNs and Disks), and I/O operation statistics.

This command is only available after a cluster has been created.

Examples

```
loadgen2 show
```

A list of Tests loadgen2 load.

loadgen2 start

Start generating I/O requests

Privilege Level: diag

Description

This command starts load-generator I/O on specified LUNs and drives.

This command is only available after a cluster has been created.

Parameters

-names <string>,...

List of names on which to start generating load.

Examples

```
loadgen2 start -name lun1,lun2
```

loadgen2 stop

Stop generating I/O requests

Privilege Level: diag

Description

The command stops generating I/O requests for a specified test.

This command is only available after a cluster has been created.

Parameters

-names <string>,...

List of names on which to stop generating load.

Examples

```
loadgen2 stop
```

lun create

Create a LUN

Privilege Level: normal

Description

This command creates a new empty LUN of a specified size. LUN names must be unique.

A LUN's size is specified in bytes and can optionally use a multiplier. All of the multipliers are based on powers of two; refer to the following table for more information on multipliers.

Multiplier	Expression	Value	Binary Prefix
k or K	2 ** 10	1,024	Ki
m or M	2 ** 20	1,048,576	Mi
g or G	2 ** 30	1,073,741,824	Gi
t or T	2 ** 40	1,099,511,627,776	Ti

Binary prefixes are defined and explained in the [IEC 60050 112-01-27](#) specification.

By default, when a LUN is created it will automatically be in the online state.

This command is only available after a cluster has been created.

Parameters

-size <string>

Size for the LUN with an optional multiplier. The multipliers are:

- k/K (1024)
- m/M (1024k)
- g/G (1024m)
- t/T (1024g)

The size can be specified with a fractional number, for example: *15.75g*. Once the multiplier is applied, the final size is rounded to a whole number of bytes. That size is then rounded to a multiple of the LUN's block size.

[**-max-extent-size** <max-extent-size>]

This setting affects how large writes are broken up into smaller writes or how small writes are combined into large writes before being stored.

The *max-extent-size* must be one of the following:

- default
- 8K
- 16K
- 32K
- 64K

-name <string>

Name for the LUN.

Examples

Create a LUN named *lun1* of size 100 MiB.

```
lun create -name lun1 -size 100M
```

See also

[lun delete](#)

[lun modify](#)

[lun show](#)

lun delete

Destroy a LUN

Privilege Level: normal

Description

This command removes a LUN from the system.

If a LUN is mapped to an initiator group (igroup), the LUN must first be unmapped using `lun unmap` or `lun mapping delete`, or offlined using `lun modify` before it can be deleted. A LUN that is mapped to an igroup can be deleted without being unmapped or offlined if the `-force` flag parameter is used.

A LUN can be identified by its name with the `-name` parameter or its universally unique ID (UUID) with the `-uuid` parameter, but one and only one must be used.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the LUN.

| **-uuid** <string>

Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

[**-force** [{ **true** | **false** }]]

Force the LUN destroy operation.

Examples

Delete a LUN named *lun1*.

```
lun delete -name lun1
```

See also

[lun create](#)

[lun modify](#)

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`lun mapping delete`

`lun unmap`

lun map

Map a LUN to an initiator group

Privilege Level: normal

Description

This command associates a LUN to all of the initiators of an initiator group (igroup). After a LUN is mapped to an igroup, the LUN becomes visible to all initiators of the igroup. The `lun map` command is aliased as the `lun mapping create` command.

To associate a LUN to an igroup, both objects must be identified. A LUN can be identified by either its name with the `-name` parameter or its universally unique ID (UUID) with the `-uuid` parameter, but one and only one must be used. An igroup can be identified by either its name with the `-igroup` parameter, or its UUID with the `-igroup-uuid` parameter, but one and only one must be used.

NOTE: A LUN ID is not the same as a LUN. A LUN ID is an attribute of the mapping between a LUN and an initiator; the LUN ID is not an attribute of the LUN itself.

An initiator uses a LUN ID to uniquely identify and access a LUN within a target. An initiator can not identify multiple LUNs with the same LUN ID that has been assigned through any igroup of which the initiator is a member. Additionally, an initiator can not be mapped to the same LUN through multiple igroups.

If a LUN ID is not manually specified by the `-lun-id` parameter, then the lowest available LUN ID that satisfies all the LUN ID rules is selected automatically.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the LUN

| **-uuid** <string>

Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

[**-lun-id** <integer>]

LUN ID to map the LUN to with the given initiator group. If no LUN ID is specified then the lowest available LUN ID will be selected.

Valid values are in the range 0 to 4095.

{ **-igroup** <string>

Name for the initiator group.

| **-igroup-uuid** <string>

Universally unique ID (UUID) of the initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

Examples

Create a mapping between a LUN named *lun1* and an igroup named *igroup1*, and assign it LUN ID 25.

```
lun map -name lun1 -igroup igroup1 -lun-id 25
```

See also

[lun mapping create](#)

[lun mapping show](#)

[lun mapping delete](#)

[lun unmap](#)

lun mapping create

Map a LUN to an initiator group

Privilege Level: normal

Description

This command associates a LUN to all of the initiators of an initiator group (igroup). After a LUN is mapped to an igroup, the LUN becomes visible to all initiators of the igroup. The `lun mapping create` command is aliased as the `lun map` command.

To associate a LUN to an igroup, both objects must be identified. A LUN can be identified by either its name with the `-name` parameter or its universally unique ID (UUID) with the `-uuid` parameter, but one and only one must be used. An igroup can be identified by either its name with the `-igroup` parameter, or its UUID with the `-igroup-uuid` parameter, but one and only one must be used.

NOTE: A LUN ID is not the same as a LUN. A LUN ID is an attribute of the mapping between a LUN and an initiator; the LUN ID is not an attribute of the LUN itself.

An initiator uses a LUN ID to uniquely identify and access a LUN within a target. An initiator can not identify multiple LUNs with the same LUN ID that has been assigned through any igroup of which the initiator is a member. Additionally, an initiator can not be mapped to the same LUN through multiple igroups.

If a LUN ID is not manually specified by the `-lun-id` parameter, then the lowest available LUN ID that satisfies all the LUN ID rules is selected automatically.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the LUN

| **-uuid** <string>

Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

{ **-igroup** <string>

Name for the initiator group.

| **-igroup-uuid** <string>

Universally unique ID (UUID) of the initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

[**-lun-id** <integer>]

LUN ID to map the LUN to with the given initiator group. If no LUN ID is specified then the lowest available LUN ID will be selected.

Valid values are in the range 0 to 4095.

Examples

Create a mapping between a LUN named *lun1* and an igroup named *igroup1*, and assign it LUN ID 25.

```
lun mapping create -name lun1 -igroup igroup1 -lun-id 25
```

See also

[lun map](#)

[lun mapping show](#)

[lun mapping delete](#)

[lun unmap](#)

lun mapping delete

Un-map a LUN from an initiator group

Privilege Level: normal

Description

This command removes the association between a LUN and an initiator group (igroup). After this command is executed, the LUN will no longer be visible to any of the initiators in the igroup. The `lun mapping delete` command is aliased as the `lun unmap` command.

To disassociate a LUN from an igroup, both objects must be identified. A LUN can be identified by either its name with the `-name` parameter or its universally unique ID (UUID) with the `-uuid` parameter, but one and only one must be used. An igroup can be identified by either its name with the `-igroup` parameter or its universally unique ID (UUID) with the `-igroup-uuid` parameter, but one and only one must be used.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the LUN

| **-uuid** <string>

Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

{ **-igroup** <string>

Name for the initiator group.

| **-igroup-uuid** <string>

Universally unique ID (UUID) of the initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

Examples

Delete the mapping between a LUN named *lun1* and an igroup named *igroup1*.

```
lun mapping delete -name lun1 -igroup igroup1
```

See also

[lun mapping show](#)

[lun unmap](#)

lun mapping show

Display a set of LUN maps given the options provided

Privilege Level: normal

Description

This command displays all of the mappings between LUNs and initiator groups (igroups).

Optionally, the list of LUN maps to be displayed can be filtered by specifying a comma separated list of values for one, and only one, of the following parameters `-names`, `-uuids`, `-igroups`, or `-igroups-uuids`.

This command is only available after a cluster has been created.

Parameters

{ [**-uuids** <string>,...]

Universally unique IDs (UUIDs) of the LUNs for which to show maps. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired. If not specified, show all maps.

| [**-names** <string>,...]

Names of the LUNs for which to show maps. If not specified, show all LUNs.

}

{ [**-igroups** <string>,...]

Names of the initiator groups for which to show maps. If not set, return all LUN maps.

| [**-igroups-uuids** <string>,...]

Universally unique IDs (UUIDs) of the initiator groups for which to show maps. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired. If not set, return all LUN maps.

}

Examples

Display a list of all LUN mappings.

```
lun mapping show
```

LUN Name	Igroup Name	LUN ID
-----	-----	-----
lun1	igroup1	25
lun2	igroup2	26
lun3	igroup3	27

lun modify

Modify a LUN's attribute

Privilege Level: normal

Description

This command modifies LUN attributes. Because LUN modifications can result in data corruption or other problems, we recommend that you call NetApp technical support if you are unsure of the possible consequences of modifying a LUN.

The `lun modify` command changes only one attribute of the LUN at a time. You can specify one of these parameters: `-serial`, `-comment`, `-nvfail`, `-max-extent-size`, or `-state`.

When modifying the serial number of a LUN, that LUN must be offline, the serial number must be 12 characters long and made up of A-Z, a-z, 0-9, '/' or '-', and must be unique within the cluster.

When modifying the comment, the max comment length is 255 characters. The LUN does not have to be offline to change the comment.

When modifying the nvfail status, clear is the only option.

When modifying the max-extent-size, you can select one of the following values: default, 8K, 16K, 32K, or 64K.

When modifying the state, you can specify either online or offline.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the LUN

| **-uuid** <string>

Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

{ **-comment** <string>

Comment about this LUN.

| **-serial** <string>

New serial number for the LUN. Serial numbers use same character set as the LUN name plus the '/' character, and must be 12 characters long.

| **-state** <lun-state>

If the LUN is online, the state can be changed to offline. If the LUN is offline, the state can be changed to online.

The *lun-state* must be one of the following:

- online
- offline

| **-nvfail** <nvfail-action>

If a LUN is in the nvfail state, this command will clear that state.

The *nvfail-action* must be one of the following:

- clear

| **-max-extent-size** <max-extent-size>

This setting affects how large writes are broken up into smaller writes or how small writes are combined into large writes before being stored.

The *max-extent-size* must be one of the following:

- default
- 8K
- 16K
- 32K
- 64K

}

Examples

Modify a LUN.

```
lun modify -name lun1 -serial ABC123xyz789
```

lun rename

Rename a LUN

Privilege Level: normal

Description

This command renames a LUN without changing any of its settings, properties, or attributes.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name of the LUN.

| **-uuid** <string>

Universally unique ID (UUID) of the existing LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

-new-name <string>

New name for the LUN.

Examples

Rename a LUN named *lun1* to *lun001*.

```
lun rename -name lun1 -new-name lun001
```

See also

[lun show](#)

lun resize

Resize a LUN

Privilege Level: normal

Description

This command changes the size of a LUN. The size must be larger than the current size of the LUN. Reducing the size of a LUN is not supported at this time.

The new size is specified in bytes and optionally can use a multiplier. All of the multipliers are based on powers of two; refer to the following table for more information on multipliers.

Multiplier Expression	Value	Binary Prefix
k or K	2 ** 10	1,024 Ki
m or M	2 ** 20	1,048,576 Mi
g or G	2 ** 30	1,073,741,824 Gi
t or T	2 ** 40	1,099,511,627,776 Ti

Binary prefixes are defined and explained in the [IEC 60050 112-01-27](#) specification.

The new size will be rounded up to a multiple of the LUN's disk block size.

This command is only available after a cluster has been created.

Parameters

```
{ -name <string>
  Name for the LUN
| -uuid <string>
  Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal
  characters with as many or as few hyphens as desired.
}
-size <string>
  Size for the LUN with an optional multiplier. The multipliers are:
```

- k/K (1024)
- m/M (1024k)
- g/G (1024m)
- t/T (1024g)

The size can be specified with a fractional number, for example: *15.75g*. Once the multiplier is applied, the final size will be rounded to a whole number of bytes. That size is then rounded to a multiple of the LUN's block size.

Examples

Resize a LUN named *lun1* to 50G.

```
lun resize -name lun1 -size 50G
```

See also

[lun create](#)

lun set

Set an internal option on LUN

Privilege Level: diag

Description

This command modifies the internal behavior of a LUN. For example by default if a LUN gets an out of space error, the LUN is taken offline. By changing this behavior, you can set the default behavior to keep the LUN online.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the LUN.

| **-uuid** <string>

Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired. Name for the LUN.

}

-out-of-space-offline <out-of-space-offline>

Change the out-of-space action for an offline LUN.

The *out-of-space-offline* must be one of the following:

- false
- true

Examples

Set an internal behavior of a LUN.

```
lun set -name lun1 -out-of-space-offline false
```

See also

[lun modify](#)

lun show

Display a set of LUNs given the options provided

Privilege Level: normal

Description

This command displays a list of all LUNs and their attributes.

Optionally, the list of LUNs to be displayed can be filtered by specifying exactly which LUNs to display. A set of LUNs can be specified by either a comma separated list of their names with the `-names` parameter or their universally unique ID (UUID) with the `-uuids` parameter, but not both.

A LUN's size will be displayed using binary prefixes. Binary prefixes are defined and explained in the [IEC 60050 112-01-27](#) specification.

The LUN state, which can be online or offline, indicates whether the LUN is accessible to client applications. The LUN status describes the condition of the LUN, which might have an effect on the LUN's online or offline state. Taking corrective actions can clear a LUN's status. LUNs can have the following status:

- **normal:** LUN status is normal; there is no problem with the LUN.
- **nvfail:** An NVRAM failure has occurred and read/write operations are disabled until nvfail status is cleared.
- **no-space:** LUN encountered a no-space condition from the underlying storage. The LUN state is set to offline.

This command is only available after a cluster has been created.

Parameters

{ [**-uuids** <string>,...]

Universally unique IDs (UUIDs) of the LUNs to show. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

| [**-names** <string>,...]

Names of the LUNs to show. If not specified, show all LUNs.

}

[**-v** [{ **true** | **false** }]]

Verbose mode flag.

Examples

Display all LUNs.

lun show

Name	Size	State	Status	Serial Number	Igroups
lun1	50.00 GiB	online	normal	CpsHU01IRn-h	my_igroup
lun2	40.00 GiB	online	nvfail	CpsHU01IRn-i	my_igroup

2 entries were displayed.

See also

[lun create](#)

[lun mapping create](#)

lun unmap

Un-map a LUN from an initiator group

Privilege Level: normal

Description

The `lun unmap` command will remove the association between a LUN and an initiator group (igroup). After this command is executed, the LUN will no longer be visible to any of the initiators in the igroup. The `lun unmap` command is aliased as the `lun mapping delete` command.

To disassociate a LUN from an igroup, both objects must be identified. A LUN can be identified by either its name with the `-name` parameter or its universally unique ID (UUID) with the `-uuid` parameter, but one and only one must be used. An igroup can be identified by either its name with the `-igroup` parameter or its UUID with the `-igroup-uuid` parameter, but one and only one must be used.

This command is only available after a cluster has been created.

Parameters

{ **-name** <string>

Name for the LUN

| **-uuid** <string>

Universally unique ID (UUID) of the LUN. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

{ **-igroup** <string>

Name for the initiator group.

| **-igroup-uuid** <string>

Universally unique ID (UUID) of the initiator group. The UUIDs are formatted with 32 hexadecimal characters with as many or as few hyphens as desired.

}

Examples

Delete the mapping between the LUN named *lun1* and the igroup named *igroup1*.

```
lun unmap -name lun1 -igroup igroup1
```

See also

[lun mapping show](#)

[lun mapping delete](#)

network dns-server clear

Clear DNS server settings

Privilege Level: normal

Description

This command clears the network DNS server settings.

This command is only available after a cluster has been created.

Examples

Clear the DNS server configuration.

```
network dns-server clear
```

See also

[network dns-server modify](#)

[network dns-server show](#)

network dns-server modify

Set the network DNS server

Privilege Level: normal

Description

This command sets, or updates, the network DNS server configuration. You can configure up to two IPv4 addresses.

This command is only available after a cluster has been created.

Parameters

-domain <string>

DNS domain name.

-ipv4-address-list <string>,...

IPv4 addresses of one or two DNS Servers.

Examples

Set network DNS server configuration, including both a primary and secondary address.

```
network dns-server modify -ipv4-address-list 10.0.0.1,10.0.0.2 -domain
example.com
```

See also

[network dns-server show](#)

[network dns-server clear](#)

network dns-server show

Show the network DNS server

Privilege Level: normal

Description

This command display the details of the network DNS server configuration.

This command is only available after a cluster has been created.

Examples

Show the network DNS server settings.

```
network dns-server show
```

```
Primary IPV4 Address  : 10.0.0.2
Secondary IPV4 Address: 10.0.0.1
Domain Name           : www.example.com
```

See also

[network dns-server modify](#)

[network dns-server clear](#)

network fcp adapter modify

Modify the Fibre Channel adapter

Privilege Level: normal

Description

This command modifies the Fibre Channel adapter, including speed and state.

The adapter argument is in the form `Xy` or `Xy_z` where `X` and `z` are integers and `y` is a letter. An example is `0g` or `4a_1`.

You cannot bring an adapter down until all interfaces connected to that adapter are also down. Use the `fcp interface modify` command to take your Fibre Channel interfaces offline.

The speed option sets the Fibre Channel link speed of an adapter. You can set adapters that support 16Gb/s to 4, 8, 16, or auto.

By default, the link speed option is set to auto for auto negotiation. If you set the link speed to a specific value, this change disables the auto negotiation. Under certain conditions, a speed mismatch can prevent the adapter from coming online.

NOTE: The system reports the actual link speed with the "Data Link Rate" parameter in the output of `{fcp adapter show -v}` command.

This command is only available after a cluster has been created.

Parameters

-name <string>

Name of the adapter.

[**-state** <configured-state>]

Specifies the state of an FC adapter. If up, the FC adapter is online. If down, the FC adapter is offline.

The *configured-state* must be one of the following:

- down
- up

[**-speed** <config-speed>]

Speed for the adapter to use. Adapter must be offline to change the speed.

The *config-speed* must be one of the following:

- auto
- 4G
- 8G
- 10G
- 16G

Examples

Bring adapter *0g* down and set the speed to *8G*.

```
fcv adapter modify -name 0g -state down -speed 8g
```

See also

[network fcv adapter show](#)

network fcp adapter reset

Reset a Fibre Channel target (FCP) adapter

Privilege Level: diag

Description

This command resets the specified Fibre Channel adapter. This will cause the adapter to log out of the fabric and all logged in initiators will need to re-login to the adapter.

This command is only available after a cluster has been created.

Parameters

-name <string>

Fibre Channel target adapter name.

Examples

Reset Fibre Channel target adapter *0e*.

```
network fcp adapter reset -name 0e
```

See also

[network fcp adapter show](#)

[event log show](#)

network fcp adapter show

Show Fibre Channel target (FCP) adapter details

Privilege Level: normal

Description

Displays Fibre Channel target adapter information. You can also use this information to determine if adapters are active and online.

Parameters

[**-v** [{ **true** | **false** }]]

Verbose mode flag.

[**-names** <string>,...]

Names of Fibre Channel target adapters to show.

Examples

Display information about all Fibre Channel target adapters.

fcp adapter show

Node	Adapter	Connection Established	Port Address
-----	-----	-----	-----
mars_cluster_01	0e	ptp	123000
mars_cluster_01	0f	ptp	123001
mars_cluster_01	0g	ptp	123002
mars_cluster_01	0h	ptp	123003

See also

[network fcp adapter modify](#)

network fcp adapter sramdump

Save a diagnostic dump for a Fibre Channel target (FCP) adapter

Privilege Level: diag

Description

This command generates a diagnostic dump for the Fibre Channel adapter specified. This will create an SRAM dump file that can be sent to NetApp technical support along with trace files that show the state of the driver at the time of the dump.

The Event Log, accessible through the `event log show` command will have information about the location of the SRAM dump file.

This command is only available after a cluster has been created.

Parameters

-name <string>

Fibre Channel target adapter name.

Examples

Generate a diagnostic dump for adapter *0e*.

```
network fcp adapter sramdump -name 0e
```

See also

[network fcp adapter show](#)

[event log show](#)

network port show

Show network port information

Privilege Level: normal

Description

This command displays network port details including port name, IP address, and MAC address.

Examples

Display network port information.

```
network port show
```

```
Port Name      : e0M
IPV4 Address   : 10.0.0.2
MAC Address    : 00:a0:98:54:dd:a8
MTU            : 1500
Port Status    : UP
Netmask        : 255.255.254.0
```

nvrnm dimm-spd show

Show data in DIMM SPD EEPROM

Privilege Level: diag

Description

This command displays the contents of the Serial Presence Detector (SPD) EEPROM for use as persistent store for the NVRAM DIMM uncorrectable error count monitored by Mars OS. This information can help to determine whether the NVRAM DIMM has exceeded the tolerable threshold count for allowing operation to continue.

SPD supports the Joint Electron Device Engineering Council (JEDEC) SPD format which also contains pertinent information including, but not limited to, timing parameters, manufacturer, serial number and other useful information about the DIMM module.

Examples

Display NVRAM DIMM information in the SPD EEPROM.

```
nvram dimm-spd show
```

```
NVRAM DIMM SPD Information:
```

```
Type of SPD EEPROM : 0
SPD flags : 0
SPD Module Ranks : 2
ECC bus width : 8
SPD data bus width : 64
SPD capacity in MB : 16384
SPD binary serial number : AD-01-1238-30214CCB
SPD SDRAM type : 3
SPD SDRAM banks : 8
SPD SDRAM number of rows : 16
SPD SDRAM number of columns : 11
SPD SDRAM bus width : 4
SPD SDRAM capacity in Mbit : 4294967296
SPD SDRAM clock rate in Hz : 800000000
Serial Number : AD-01-1238-30214CCB
Part Number : 69003141-I00-NTA-T
DIMM name : 16GB DDR3-1600 RDIMM
CRC16 checksum : 53553
SPD signature : MES
Version Number : 1
Platform MES flag : 4
```

```

Platform specific DIMM ID           : 0
Uncorrectable error0 temperature in centigrade: 0
Uncorrectable error1 temperature in centigrade: 0
Number of log writes                : 0
DIMM serial number                  : 00000000B90B0000
Partner DIMM serial number          :
Uncorrectable error count           : 0
First uncorrectable error address   : 0
Second uncorrectable error address  : 0
Time of first UECC in seconds       : 0
Time of second UECC in seconds      : 0
Correctable error count             : 0
First correctable error address     : 0
Second correctable error address    : 0
First CECC error DRAM address       : 0
Second CECC error DRAM address      : 0
Last CECC time in seconds           : 0
Monthly Error Count                 : 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0
Weekly Error Count                  : 0
Daily Error Count                   : 0

```

nvrflash firmware show

List NVRAM firmware files in system

Privilege Level: diag

Description

This command displays the NVRAM9 Field Programmable Gate Array (FPGA) firmware that is persistently stored in Mars OS. This firmware package is functional firmware used to drive internal read and write operations to the NVRAM9 DIMM among other critical operations.

Examples

Display the NVRAM firmware files.

```
nvrflash firmware show
```

```
NV Firmware File Names: /config/etc/nvrflash_fw/nvrflash9_b8_1.1.0.mric
```

nvrflash program

Program firmware from file into NVRAM device

Privilege Level: diag

Description

This command stores the Field Programmable Gate Array (FPGA) firmware image in flash memory. The firmware image stored in flash memory is the functional firmware used drive internal read and write operations to the NVRAM9 DIMM among other critical operations.

Parameters

[**-filename** <string>]

NVRAM flash file name. Without a filename, the default file selected for flashing is the one with the highest firmware version number.

[**-skip-switch** [{ **true** | **false** }]]

Skip switching to new image after programming.

[**-verbose** [{ **true** | **false** }]]

Setting this parameter outputs status in non-boolean format. It displays erase cycle, followed by write of metadata, data sections of the firmware and the selected image.

Examples

Write the firmware image fw-file to NVRAM9 flash memory without switching to the new image after programming.

```
nvrflash program -filename fw-file -skip-switch true -verbose true
```

See also

[nvrflash firmware show](#)

nvrflash select

Select firmware for boot

Privilege Level: diag

Description

This command commits the newly selected firmware partition on NVRAM9 flash where the NVRAM9 Field Programmable Gate Array (FPGA) firmware image is stored. After a Peripheral Component Interconnect (PCI) reset, the NVRAM9 firmware is selected from the active partition (default partition 0) to be loaded and used as functional firmware for internal read and write operations to the NVRAM9 DIMM among other critical operations.

The newly selected firmware partition will not be committed as the active partition until Mars OS has been shutdown using the `cluster shutdown` command or `cluster reboot` command. An abrupt shutdown due to power loss will result in loss of the pending selected firmware partition.

Parameters

-image <integer>

NVRAM flash block/image ID to select.

[**-verbose** [{ **true** | **false** }]]

Setting this parameter outputs status in non-boolean format. It indicates successful verification and selection of firmware image block.

Examples

Select firmware for boot.

```
nvrflash select -image 0 -verbose
```

See also

[cluster shutdown](#)

nvrflash show

Display NVRAM flash information

Privilege Level: diag

Description

This command displays NVRAM9 Field Programmable Gate Array image information, flash memory voltage parameters, manufacture information, currently selected firmware partition, and flash memory bad block count. NVRAM9 flash memory bad block count monitored by Mars OS can help determine whether the NVRAM NAND device has exceeded the tolerable threshold count for allowing operation to continue. The flash memory NAND device is the functional hardware component used to persistently store the NVRAM9 DIMM contents on a power loss or power failure.

Parameters

[**-verbose** [{ **true** | **false** }]]

Setting this parameter, outputs status in non-boolean format. It displays the state transition, read configuration, and firmware file read.

Examples

Display NVRAM flash information.

```
nvrflash show -verbose
```

```
Board Information      :
    NVRAM Type       : NVRAM9
    Physical Slot: 0
    PCI Revision  : 1
FRU Information       :
    Manufacturer  : NetApp, Inc.
    Product Name  :
    Part Number   : 110-00297
    Version       : 60
    Serial Number: 941323001316
    Asset Tag     :
    File ID       :
    Custom String:
```

.

.

.

```
FPGA Information          : FPGA Revision: 1.1.0 [02/18/2014 04:12 0]
FW Information            :
    Firmware partitions   : 2
    Firmware partition size: 33554432
    Firmware image size   : 31457280
    Firmware block size   : 131072
Image Information         : Active : 0   Selected: 0
.
.
.

NVRAM DIMM Information    :
    DIMM Attribute       : Module: 16GB DDR3-1600 RDIM  Ranks: 2   Width: 64
    ECC: 8
    SDRAM Attribute      : SDRAM: Cap: 4g   Width: x4   Banks: 8   Rows: 16
Cols: 11

    Serial Information: Serial: 94-01-1326-0000046F   Part:
SGB722GABBA28P2-SB

NVRAM Lane Information    :
    Lane Attributes      : Maker: 21h   Device: 00h   Size: 2.25g
    Lane Details         : Dies: 0      Cell: 0      Planes: 2   SimProg:
0
    Lane Chip Information: Page: 8192   Sector: 512   Block: 1m   Plane:
1.12g
    Lane bad Blocks      : Chips: 4      Blocks: 2304  Pages: 128

NVRAM Lane Information    :
    Lane Attributes      : Maker: 21h   Device: 00h   Size: 2.25g
    Lane Details         : Dies: 0      Cell: 0      Planes: 2   SimProg:
0
    Lane Chip Information: Chip 0   Bad Blocks: 6           Max Permissible:
256
    Lane bad Blocks      : Chips: 4      Blocks: 2304  Pages: 128
.
.
.

NVRAM NAND Information    : Total NAND Capacity: 18g   Lanes: 2
Firmware Image Information :
    Number of Firmware images : 2
```

```

Current loaded Firmware image : 0
Current selected Firmware image: 0
Boot backup image             : no

```

```
Header Type : Valid
```

```

Section Information :
  Section number      : 0
  PCI vendor ID       : 4725
  PCI device ID       : 10
  PCI revision ID     : 1
  PCI component ID    : 8
  Section Data format : raw binary
  Section flags       : 4
  Section compressed image: yes
  Section debug image  : no
  Section release image : no
  Section build version : no
  Section build date   : no
  Section original size : 7688901
  Section original crc  : 1277897342
  Section pkg size     : 5199440
  Section pkg crc      : 3554245189

```

```

.
.
.

```

See also

[nvram nand bad-block show](#)

[nvram flash select](#)

nvrnand bad-block show

Show NVRAM bad block information

Privilege Level: diag

Description

This command displays the NVRAM9 flash memory bad block count count monitored by Mars OS. This information can help to determine whether the NVRAM NAND device has exceeded the tolerable threshold count for allowing operation to continue. The flash memory NAND device is the functional hardware component used to persistently store the NVRAM9 DIMM contents on a power loss or power failure.

Parameters

-chip-id <integer>

Get bad block count of this chip. Chip ID ranges from 0 to 7.

Examples

Show NVRAM bad block information.

```
nvrnand bad-block show -chip_id 0
```

NAND Chip ID	NAND Lane	Bad Block Count	Max Bad Block Count
0	0	6	256

1 entry was displayed.

See also

[nvrnand flash show](#)

nvrnand unwipe

Reset and wipe persistent data out of NAND

Privilege Level: diag

Description

This command resets an issued `nvrnand wipe` command so the contents of flash memory NAND continue to remain persisted during a power loss or a power failure. This command can only be used before a reboot or shutdown of Mars OS.

Examples

Reset the action of the `nvrnand wipe` command.

```
nvrnand unwipe
```

nvrnand wipe

Wipe persistent data out of NAND

Privilege Level: diag

Description

This command erases the contents of the flash memory NAND device where user data remains persisted when power is lost or during a power failure. This command ensures customer data is erased before performing a controller swap.

Examples

Wipe persistent data out of NAND.

```
nvrnand wipe
```

raid segment show

Get information about extent store segments

Privilege Level: diag

Description

This command displays segment specific information associated with the RAID groups. It also includes the state of the segment and the chunk specific details internal to RAID.

Examples

Display details of RAID segment state and health for the cluster.

```
raid segment show
```

```
Segment Details:
  ESID      : 54ad58ce-fe75-11e3-a234-0025649ab9c1
  RAID Groups:
    RGID     : 1
    Segments:
      Segment ID      : 0
      State            : degraded
      RAID Group       : 1
      ESID             : 54ad58ce-fe75-11e3-a234-0025649ab9c1
      GenID            : 8
      Offset           : 20971520
      Parity Chunks    : 0b.0.16, 0c.0.9
      Free Healthy Chunks :
      Free Unhealthy Chunks:
      Used Healthy Chunks : 0c.0.6, 0c.0.20, 0b.0.16, 0c.0.9, 0a.0.23,
0d.0.21, 0a.0.18, 0c.0.12, 0c.0.15, 0b.0.13, 0a.0.14, 0a.0.19, 0d.0.2,
0a.0.17, 0d.0.4, 0d.0.8, 0d.0.3, 0b.0.7, 0d.0.1, 0b.0.22, 0c.0.10, 0b.0.11
      Used Unhealthy Chunks: 5:000:000000:050002
      Unknown Chunks    :
```

See also

[raid topology show](#)

raid topology show

Get RAID topology details

Privilege Level: diag

Description

This command displays detailed information about the Extent Store (ES) and RAID Groups (RG) associated with each ES.

This command also displays disk specific information for the RG.

Examples

Display extent store and RAID information for the cluster.

```
raid topology show
```

```
ES:
  ESID           : 54ad58ce-fe75-11e3-a234-0025649ab9c1
  Storable (in B) : 1878220800
  Purchased (in B): 2516588544
  RAID Group     :
    ID           : 1
    RG State      : double_degraded
    Usable Disk Size (in B): 187822080
    Disk Size (in B) : 209715712
    Sector Size (in B) : 512
    Disks         :
      Disk Names: 0b.0.0
      Disk WWN  : 5:000:000000:050006
      Disk State: normal
```

See also

[raid segment show](#)

security certificate modify

Modify the HTTPS certificate

Privilege Level: normal

Description

This command modifies a certificate. Every time this command is run, a new self-signed certificate is generated with the new information and unchanged information.

WARNING: Your browser might display an error when modifying the certificate since the keys changed. Simply accept the new certificate.

This command is only available after a cluster has been created.

Parameters

[**-cluster-name** <string>]

Cluster name, default: "Mars OS Cluster"

[**-state** <string>]

Full state or province name, default: "California"

[**-key-size** <integer>]

RSA key size, default: 2048

[**-city** <string>]

Locality name or city, default: "Sunnyvale"

[**-organization-unit** <string>]

Organization unit name, default: "Flashray"

[**-active-days** <integer>]

Certificate active days, default: 365

[**-email-address** <string>]

Email address, default: "support@netapp.com"

[**-organization** <string>]

Organization name, default: "NetApp, Inc."

[**-country** <country-code>]

Country code in 2 letters, default: "US"

The *country-code* must be one of the following:

- US
- AX
- AD
- AE
- AF
- AG
- AI
- AL
- AM
- AN
- AO
- AQ
- AR
- AS
- AT
- AU
- AW
- AZ
- BA
- BB
- BD
- BE
- BF
- BG

- BH
- BI
- BJ
- BM
- BN
- BO
- BR
- BS
- BT
- BV
- BW
- BZ
- CA
- CC
- CF
- CH
- CI
- CK
- CL
- CM
- CN
- CO
- CR
- CS
- CV
- CX

- CY
- CZ
- DE
- DJ
- DK
- DM
- DO
- DZ
- EC
- EE
- EG
- EH
- ER
- ES
- ET
- FI
- FJ
- FK
- FM
- FO
- FR
- FX
- GA
- GB
- GD
- GE

- GF
- GG
- GH
- GI
- GL
- GM
- GN
- GP
- GQ
- GR
- GS
- GT
- GU
- GW
- GY
- HK
- HM
- HN
- HR
- HT
- HU
- ID
- IE
- IL
- IM
- IN

- IO
- IS
- IT
- JE
- JM
- JO
- JP
- KE
- KG
- KH
- KI
- KM
- KN
- KR
- KW
- KY
- KZ
- LA
- LC
- LI
- LK
- LS
- LT
- LU
- LV
- LY

- MA
- MC
- MD
- ME
- MG
- MH
- MK
- ML
- MM
- MN
- MO
- MP
- MQ
- MR
- MS
- MT
- MU
- MV
- MW
- MX
- MY
- MZ
- NA
- NC
- NE
- NF

- NG
- NI
- NL
- NO
- NP
- NR
- NT
- NU
- NZ
- OM
- PA
- PE
- PF
- PG
- PH
- PK
- PL
- PM
- PN
- PR
- PS
- PT
- PW
- PY
- QA
- RE

- RO
- RS
- RU
- RW
- SA
- SB
- SC
- SE
- SG
- SH
- SI
- SJ
- SK
- SL
- SM
- SN
- SR
- ST
- SU
- SV
- SZ
- TC
- TD
- TF
- TG
- TH

- TJ
- TK
- TM
- TN
- TO
- TP
- TR
- TT
- TV
- TW
- TZ
- UA
- UG
- UM
- UY
- UZ
- VA
- VC
- VE
- VG
- VI
- VN
- VU
- WF
- WS
- YE

- YT
- ZA
- ZM

Examples

Modify the certificate email address.

```
security certificate modify -email-address support@netapp.com
```

See also

[security certificate show](#)

security certificate show

Show the certificate

Privilege Level: normal

Description

This command shows the current certificate.

This command is only available after a cluster has been created.

Examples

Show the installed certificate.

```
security certificate show
```

See also

[security certificate modify](#)

security login get

Get the attributes of a user login account

Privilege Level: diag

Description

This command displays the attributes of a user login account, including the name and last update. To display information for a specific user, use the `-name` parameter.

Parameters

-name <string>

Name of the user account.

Examples

Display account information for admin user.

```
security login get -name admin
```

```
{
  "attributes": {
    "name": "admin",
    "last-updated": 1403141991
  }
}
```

security login modify

Modify a user password

Privilege Level: normal

Description

This command modifies the password for the current user account. Passwords are case-sensitive and must meet the following requirements:

- Contain at least 8 characters.
- Start with a letter or a number.
- Valid characters are letters A through Z, a through z, numbers 0 through 9, hyphen (-), underscore (_), colon (:), and period (.).
- It requires the current password to change the password to a new one.
- If the passwords are not provided on the command line, they will be prompted.

This command is only available after a cluster has been created.

Parameters

[**-newpassword** <string>]

New password. No spaces allowed.

[**-password** <string>]

Current password. No spaces allowed.

Examples

Change the password for the current user.

```
security login modify -password old_pwd -new-password new_pwd
```

[security marsdiag disable](#)

Disable the marsdiag user

Privilege Level: diag

Description

This command disables the marsdiag user, thereby removing access to SFTP on this controller.

Examples

Disable the marsdiag user.

```
security marsdiag disable
```

See also

[security marsdiag enable](#)

[security marsdiag show](#)

security marsdiag enable

Enable the marsdiag user

Privilege Level: diag

Description

This command enables the marsdiag user. Access to the system is granted only after providing the marsdiag password. The marsdiag user has SFTP capabilities on the system, notably to retrieve cores and logs.

The marsdiag user stays enabled until the system reboots.

Parameters

[**-password** <string>]

Password for the marsdiag user.

Examples

Enable the marsdiag user.

```
security marsdiag enable
```

```
New password :
```

```
Confirm new password :
```

See also

[security marsdiag disable](#)

[security marsdiag show](#)

security marsdiag show

Show the status of the marsdiag user

Privilege Level: diag

Description

This command shows if the marsdiag user is enabled.

Examples

Display the status of the marsdiag user.

```
security marsdiag show
```

```
Marsdiag is enabled.
```

See also

[security marsdiag enable](#)

[security marsdiag disable](#)

stats explain

Explain counters with a description

Privilege Level: normal

Description

Explain the counters associated with a particular object. You can use the `stats list` command to view all objects, counters, and instances that exist in the system.

Parameters

-object <string>

Object name for which to explain counters.

[**-counters** <string>,...]

List of counters.

Examples

Display the `r_ops` counter explanation for the LUN object.

```
stats explain -object lun -counters r_ops
```

Counter Name	Type	Description	Scope
r_ops	Rate	read operations	INSTANCE

1 entry was displayed.

See also

[stats list](#)

[stats show](#)

stats list

List all objects, counters, or instances

Privilege Level: normal

Description

This command lists all objects that exist in the system. You can also use this command to view all counters and counter descriptions for a specific object using the `-object` parameter. Additionally, this command can be used to list all instances of a particular object using the `-instances` parameter.

Parameters

[**-instances** <string>]

Object name for which to list instances.

[**-object** <string>]

Object name for which to list counters.

Examples

List all counters for the capacity object.

```
stats list -object capacity
```

Name	Description
-----	-----
storable	Storable bytes for the Extent Store
after reservations removed	
stored	Stored/used bytes currently
dedupedsavings	Bytes saved due to dedup
precompression	Bytes that passed through com-
pression	
postcompression	Bytes that are output after
compression was tried	
purchased	Raw capacity of all disks
provisioned	Provisioned
written	Written capacity of all disks
space_savings	Space savings of all disks
estimated_writable	Estimated Writable

See also

[stats explain](#)

[stats show](#)

stats show

Get the current statistics for an object

Privilege Level: normal

Description

This command displays the counter values for the instances specified for a particular object. You can use the `stats list` command to view all objects, counters, and instances that exist in the system. When the `-raw` parameter is specified, the raw counter values are displayed. Without the `-raw` parameter, the counter values displayed are those calculated over the duration specified with the `-duration` parameter. If no duration is specified, the default value of one second is used. These calculations are done based on the types of the counters being displayed.

Parameters

[**-sort-order** <string>]

This parameter is for NetApp internal use only.

[**-instances** <string>,...]

Specify the list of instances for which to display counter values. Separate the instance names by a comma.

[**-top** <integer>]

Specify the top 'n' number of instances for the counter specified in the `-sort-by-counter` parameter.

[**-interval** <integer>]

Specify the interval (in seconds) at which counter values will be collected. Must be used in conjunction with `-duration` parameter.

[**-sort-by-counter** <string>]

Specify the counter name for sorting. This must be a single counter subset of the counters specified in the `-counters` parameter.

[**-iterations** <integer>]

This parameter is for NetApp internal use only.

-object <string>

Specify the object for which to display counter values.

[**-scope** <aggregate-scope>]

Specify the scope for which to aggregate statistics.

The *aggregate-scope* must be one of the following:

- cluster

[**-bottom** <integer>]

Specify the bottom 'n' number of instances for the counter specified in the `-sort-by-counter` parameter.

[**-duration** <integer>]

Specify the total duration (in seconds) over which the counter values will be collected. Must be used in conjunction with `-interval` parameter.

[**-raw** [{ **true** | **false** }]]

Display the raw counter values taken at the time the command is executed. Without the `-raw` parameter, the command displays computed counter values.

[**-counters** <string>,...]

Specify the list of counters for which to display values. Separate the counter names by a comma.

Examples

Display the total number of read operations for drive 0a.0.1.

```
stats show -object disk -instances 0a.0.1 -counters total_reads
```

```
"Session ID : c475064c-0e02-11e4-a970-00a09854f784
Object Name : disk
```

```
Timestamp : 1405636577
Instance Name : 0a.0.1
```

```
-----
disk:0a.0.1:total_reads:377.00"
```

See also

[stats list](#)

[stats start](#)

[stats stop](#)

stats start

Start collecting statistics for the specified counters

Privilege Level: normal

Description

This command takes a snapshot of the counter values for the specified object. A session ID is returned by this command. That ID is used in the `stats stop` command to get a second snapshot which can then display the counter values observed between the `stats start` and `stats stop` commands. The counter values between the snapshots are calculated based on the type of counter.

Parameters

[**-counters** <string>,...]

Specify the list of counters for which to display values. Separate the counter names by a comma.

[**-scope** <aggregate-scope>]

Specify the scope for which to aggregate statistics.

The *aggregate-scope* must be one of the following:

- cluster

[**-instances** <string>,...]

Specify the list of instances for which to display counter values. Separate the instance names by a comma.

-object <string>

Specify the object for which to display counter values.

Examples

```
stats start -object disk -instances 0a.0.1 -counters total_reads
```

```
ID: e6966540-0e02-11e4-a970-00a09854f784
```

See also

[stats stop](#)

[stats show](#)

[stats list](#)

stats stop

Stops collecting statistics

Privilege Level: normal

Description

This command must be run after first executing the `stats start` command. It uses the session ID returned by the `stats start` command to identify which counters, instances, and objects to consider.

The `stats stop` command takes a snapshot of the counter values corresponding to the session ID. It then displays the counter values calculated between the execution of the `stats start` and the `stats stop` commands. The counter values between the snapshots are calculated based on the type of counter.

Parameters

[**-id** <string>]

Identifier for the sample to stop collecting statistics.

Examples

Stop collecting statistics for the specified session ID.

```
stats stop -id e6966540-0e02-11e4-a970-00a09854f784
```

Object:

```

Name      : disk
Session ID: e6966540-0e02-11e4-a970-00a09854f784
Instances :
    Instance Name: 0a.0.1
    Counters      :
        Values    :
            Counter Name : total_reads
            Counter Value : 377

```

Timestamp: 1405636679

See also

[stats start](#)

[stats show](#)

[stats list](#)

storage disk path show

Give information about all paths of the given SSD

Privilege Level: normal

Description

This command displays all path-related information for a specified storage device.

The display includes the following information:

- path name
- path type
- path Physical device handle
- path UID
- path port
- path has seen how many active I/Os

Parameters

{ [**-uid** <string>]

If provided, returns only information for the specified drive.

| [**-name** <string>]

If provided, returns only information for the specified drive.

}

Examples

Display paths for all drives.

```
storage disk path show
```

Disk Name Count	Type	Dev Handle	UID	Port	Active IO
-----	-----	-----	-----	-----	-----
0a.21.0	primary	0x40001	5:00a:098001:bbfe01	A	65
0d.21.0	secondary	0x10050001	5:00a:098001:bbfe02	B	0
0d.21.1	primary	0x10070002	5:00a:098001:bc0546	B	62

0a.21.1	secondary	0x60002	5:00a:098001:bc0545	A	15
0a.21.2	primary	0x90003	5:00a:098001:bc0001	A	62
0d.21.2	secondary	0x10080003	5:00a:098001:bc0002	B	15
0d.21.3	primary	0x100b0004	5:00a:098001:bc0602	B	61
0a.21.3	secondary	0xa0004	5:00a:098001:bc0601	A	15
0a.21.4	primary	0xc0005	5:00a:098001:bc002d	A	77
0d.21.4	secondary	0x100d0005	5:00a:098001:bc002e	B	0
0d.21.5	primary	0x100f0006	5:00a:098001:bc058a	B	61
0a.21.5	secondary	0xe0006	5:00a:098001:bc0589	A	15
0d.21.6	primary	0x10110007	5:00a:098001:bc0596	B	61
0a.21.6	secondary	0x100007	5:00a:098001:bc0595	A	15
0d.21.7	primary	0x10130008	5:00a:098001:bc0616	B	61
0a.21.7	secondary	0x120008	5:00a:098001:bc0615	A	15
0a.21.8	primary	0x140009	5:00a:098001:bbfdad	A	77

See also

[storage disk show](#)

storage disk power

Control the power to a drive

Privilege Level: diag

Description

This command controls the power of an individual drive in the shelf. You can power on, power off, or power cycle a drive.

NOTE: The FlashRay system starts a discovery process for each power off, on, or cycle operation. You must wait at least 30 seconds between each operation for the discovery process to complete. This allows time for Mars OS to detect and properly manage the change.

This command is only available after a cluster has been created.

Parameters

{ [**-uid** <string>]

UID of the drive for which to control power.

| [**-name** <string>]

Name of the drive for which to control power.

}

-action <disk-power-control>

Action applied to the drive.

The *disk-power-control* must be one of the following:

- off
- on
- cycle

[**-auto-confirm** [{ **true** | **false** }]]

Confirm that the command being run may be disruptive to the system.

Examples

Power cycle the drive named *0a.21.0*.

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```
storage disk power -name 0a.21.0 -action cycle
```

See also

[storage disk show](#)

storage disk set-led

Control a drive's red LED

Privilege Level: diag

Description

This command controls the LED of a specified drive. You can turn an LED ON or OFF. This command is useful for locating a SSD in its shelf.

Parameters

{ [**-uid** <string>]

Unique identifier of the drive for which to control the LED.

| [**-name** <string>]

Name of the drive for which to control the LED.

}

-action <led-action>

Action to perform on the LED.

The *led-action* must be one of the following:

- led-on
- led-off

Examples

Turn on the LED for the drive named *0a.21.0*.

```
storage disk set-led -name 0a.21.0 -action led-on
```

See also

[storage disk show](#)

storage disk show

Get drive information

Privilege Level: normal

Description

This command displays information about all storage drives. This information includes the drive name, state, UID, size, shelf, and bay.

Parameters

{ [**-uid** <string>]

If provided, returns only information for the specified drive.

| [**-name** <string>]

If provided, returns only information for the specified drive.

}

Examples

Display information for all drives.

storage disk show

Disk Name Rev	State	UID	Size	Shelf	Bay	Model
0c.21.0 SG843480ASY	ready NA00	5:002:538550:3656ae	480103981056	21	0	X435_
0c.21.1 SG843480ASY	ready NA00	5:002:538550:365ea8	480103981056	21	1	X435_
0c.21.2 SG843480ASY	ready NA00	5:002:538550:3669f9	480103981056	21	2	X435_
0b.21.3 SG843480ASY	ready NA00	5:002:538550:366a05	480103981056	21	3	X435_
0b.21.4 SG843480ASY	ready NA00	5:002:538550:366c34	480103981056	21	4	X435_
0a.21.5 SG843480ASY	ready NA00	5:002:538550:3669f0	480103981056	21	5	X435_
0d.21.6 SG843480ASY	ready NA00	5:002:538550:365ec7	480103981056	21	6	X435_

0b.21.7	ready	5:002:538550:365eab	480103981056	21	7	X435_
SG843480ASY	NA00					
0b.21.8	ready	5:002:538550:365ea4	480103981056	21	8	X435_
SG843480ASY	NA00					
0a.21.9	ready	5:002:538550:365ec6	480103981056	21	9	X435_
SG843480ASY	NA00					
0a.21.10	ready	5:002:538550:3656bf	480103981056	21	10	X435_
SG843480ASY	NA00					
0d.21.11	ready	5:002:538550:3656b2	480103981056	21	11	X435_
SG843480ASY	NA00					
0d.21.12	ready	5:002:538550:1efb2c	480103981056	21	12	X435_
SG843480ASY	NA00					
0a.21.13	ready	5:002:538550:365ec5	480103981056	21	13	X435_
SG843480ASY	NA00					
0b.21.14	ready	5:002:538550:366280	480103981056	21	14	X435_
SG843480ASY	NA00					
0d.21.15	ready	5:002:538550:3656c0	480103981056	21	15	X435_
SG843480ASY	NA00					
0c.21.16	ready	5:002:538550:36620c	480103981056	21	16	X435_
SG843480ASY	NA00					
0a.21.17	ready	5:002:538550:3656e9	480103981056	21	17	X435_
SG843480ASY	NA00					
0d.21.18	ready	5:002:538550:366210	480103981056	21	18	X435_
SG843480ASY	NA00					
0d.21.19	ready	5:002:538550:365ebe	480103981056	21	19	X435_
SG843480ASY	NA00					
0c.21.20	ready	5:002:538550:365eaa	480103981056	21	20	X435_
SG843480ASY	NA00					
0b.21.21	ready	5:002:538500:1730b1	480103981056	21	21	X435_
SG843480ASY	NA00					
0c.21.22	ready	5:002:538500:17300e	480103981056	21	22	X435_
SG843480ASY	NA00					
0a.21.23	ready	5:002:538550:365ea9	480103981056	21	23	X435_
SG843480ASY	NA00					

Showing 24 elements.

storage disk smart show

Get drive SMART information

Privilege Level: normal

Description

This command displays SMART drive attributes:

- Drive name
- Wear Level (percentage)
- Drive Temperature in degree Celsius
- Power-on Hours
- Spare blocks used (percentage)
- Sectors (512 bytes per sector) written

The spare blocks used column is a calculated percentage of total spare blocks that have been used for a given storage device. Each device has a number of spare blocks that will be used when a data block can no longer be used to store data. This value reports what percentage of the spares have already been consumed. Omitted if value is unknown.

Parameters

{ [**-uid** <string>]

If provided, returns only information for the specified drive.

| [**-name** <string>]

If provided, returns only information for the specified drive.

}

[**-forced** [{ **true** | **false** }]]

Force a drive to fetch SMART data.

Examples

Display SMART data from all drives.

```
storage disk smart show
```

Disk Name	Wear Level (%)	Temperature (C)	Power on hours	Spare
Blocks Used (%)	Sectors Written			
0a.21.0	1	24	4623	3
	6936305720			
0d.21.1	1	24	4627	3
	6957805016			
0a.21.2	1	24	4627	3
	6932799240			
0d.21.3	1	24	4628	3
	6988263736			
0a.21.4	1	24	4979	3
	6379239432			
0d.21.5	1	24	4982	3
	6377216592			
0d.21.6	1	24	4982	3
	6375132066			
0d.21.7	1	25	4982	3
	6401080784			
0a.21.8	1	25	4983	4
	6353887696			
0a.21.9	1	25	4982	3
	6304908568			
0a.21.10	1	25	5034	4
	6836706032			
0d.21.11	1	25	4983	4
	6642026580			
0a.21.12	1	25	5175	4
	7225032008			
0a.21.13	1	26	5178	4
	7132237528			
0d.21.14	1	26	4984	3
	6641482560			
0a.21.15	1	27	4983	3
	6678071860			
0d.21.16	1	26	4988	3
	6389169262			
0a.21.17	1	27	4985	4
	6387160784			
0d.21.18	1	27	5107	3
	6374597048			
0d.21.19	1	27	4989	3
	6387304916			
0a.21.20	1	27	4986	3

0d.21.21	6379481712	27	4986	3
	1			
0a.21.22	6383842974	27	4986	3
	1			
0d.21.23	6414274936	28	4974	3
	1			
	6465083310			

See also

[storage disk show](#)

storage port rescan

Rescan a Serial Attached SCSI host bus adapter (SAS HBA) port

Privilege Level: diag

Description

This command rescans the Serial Attached SCSI (SAS) domains for targets. If no SAS HBA port is specified, scan all HBA ports.

This command is only available after a cluster has been created.

Parameters

[**-name** <string>]

Serial Attached SCSI Host Bus Adapter (SAS HBA) port name.

Examples

Rescan the targets connected to the SAS HBA port named 8a.

```
storage port rescan -name 8a
```

See also

[storage port show](#)

storage port reset

Reset a Serial Attached SCSI Host Bus Adapter (SAS HBA) adapter

Privilege Level: diag

Description

This command resets the Serial Attached SCSI Host Bus Adapter (SAS HBA) port.

If the HBA port is logging excessive errors, you can use this command to reset the port.

This command is only available after a cluster has been created.

Parameters

[**-name** <string>]

Serial Attached SCSI Host Bus Adapter (SAS HBA) port name.

[**-auto-confirm** [{ **true** | **false** }]]

Confirm that the command being run may be disruptive to the system.

-action <port-reset>

Soft or hard reset of Serial Attached SCSI (SAS) port.

The *port-reset* must be one of the following:

- soft_reset
- chip_reset

Examples

Force a soft reset of the SAS HBA port named 0a.

```
storage port reset -name 0a -action soft_reset
```

See also

[storage port show](#)

storage port show

Get adapter information

Privilege Level: normal

Description

This command displays information regarding the SAS Host Bus Adapter (HBA). The information displayed is based on the type of controller interface. The adapter name is either a slot number, or a slot number concatenated with port letter.

Parameters

[**-name** <string>]

If provided, returns information for only the specified adapter.

Examples

Displays all SAS HBA ports on the controller.

```
storage port show
```

Name	Firmware	State	Link Rate
0a	01.11.06.00	Offline	6.0 Gbps
0b	01.11.06.00	Offline	0 Gbps
0c	01.11.06.00	Offline	0 Gbps
0d	01.11.06.00	Online	6.0 Gbps

storage port state modify

Modify Serial Attached SCSI Host Bus Adapter (SAS HBA) port state

Privilege Level: diag

Description

This command modifies the state of a SAS HBA port to a new state. You can change the state to online or offline.

This command is only available after a cluster has been created.

Parameters

-state <sas-port-state>

Serial Attached SCSI Host Bus Adapter (SAS HBA) port state.

The *sas-port-state* must be one of the following:

- online
- offline

-name <string>

Serial Attached SCSI Host Bus Adapter (SAS HBA) port name.

[**-auto-confirm** [{ **true** | **false** }]]

Confirm that the command being run may be disruptive to the system.

Examples

Change the state of the SAS HBA port 0a to online.

```
storage port state modify -name 0a -state online
```

See also

[storage port show](#)

storage port state show

Get adapter state

Privilege Level: normal

Description

This command displays information about the state of SAS HBA ports.

This command is only available after a cluster has been created.

Parameters

[**-name** <string>]

Serial Attached SCSI Host Bus Adapter (SAS HBA) port name.

Examples

Display information for all SAS HBA ports.

```
storage port state show
```

HBA-Port	Port-State
0a	Online
0b	Online
0c	Online
0d	Online

Showing 4 elements.

See also

[storage port show](#)

storage port stats

Storage device statistics

Privilege Level: normal

Description

This command displays statistical information about devices attached to the Serial Attached SCSI Host Bus Adapter (HBA). The information displayed includes the following:

- device name
- number of I/Os that completed good
- number of I/Os that had error
- number of SAS Frames sent
- number of SAS Frames received
- number of SAS Victim Aborts seen
- number of SAS Transport Errors seen
- number of SAS CRC errors seen
- number of SAS Data Underrun errors seen
- number of SAS Data overrun errors seen

The adapter name is either a slot number, or a slot number concatenated with port letter.

This command is only available after a cluster has been created.

Parameters

[**-name** <sas-port-num>]

Serial Attached SCSI Host Bus Adapter (SAS HBA) port name. For example, 0a.

The *sas-port-num* must be one of the following:

- 0a
- 0b
- 0c
- 0d

Examples

Display statistics for each device on the SAS HBA port named 0a.

```
storage port stats -name 0a
```

Device	Good	Error	Fr-In	Fr-Out	Vctm-A	Tsp	CRC	Udrn	Ovrn
0a.21.0	51	0	2067	1987	0	0	0	0	0
0a.21.2	63	0	2875	1987	0	0	0	0	0
0a.21.4	63	0	2875	1987	0	0	0	0	0
0a.21.8	63	0	2875	1987	0	0	0	0	0
0a.21.9	63	0	2875	1987	0	0	0	0	0
0a.21.10	63	0	2875	1987	0	0	0	0	0
0a.21.12	63	0	2875	1987	0	0	0	0	0
0a.21.13	67	0	3483	1987	0	0	0	0	0
0a.21.15	63	0	2875	1987	0	0	0	0	0
0a.21.17	63	0	2875	1987	0	0	0	0	0
0a.21.20	62	0	2811	1987	0	0	0	0	0
0a.21.22	50	0	2003	1987	0	0	0	0	0
Shelf	832	0	832	0	0	0	0	0	0

See also

[storage port show](#)

storage raid show

Display the RAID state and action to fix failed disks

Privilege Level: normal

Description

This command displays information about RAID Groups (RG).

This command displays the current RAID status and possible user actions required to recover to Normal state. If reconstruction is in progress, the command will display percentage completed and estimated remaining time in seconds. The status signifies the ability of the RAID groups to handle disk failures. A RAID group can have the following status:

- Normal: the RAID group can handle at least 2 more disk failures
- Degraded: the RAID group can handle another disk failure
- Double Degraded: the RAID Group can not handle any additional disk failures

Examples

Display the status of the RAID group.

```
storage raid show
```

Status	Corrective Action

Normal	Replace the 1 failed disk!

See also

[storage disk show](#)

storage service-disk show

Get service disk information

Privilege Level: normal

Description

This command displays the model number, serial number, firmware revision, and state of the service disk.

The service disk is an internal, PCI-based SSD in the controller that contains the cluster database (CDB), log files and crash dumps.

Examples

Displays all service disks in the controller.

```
storage service-disk show
```

Name	Model	Serial Number	Rev	State
-----	-----	-----	-----	-----
/dev/sda	SAMSUNG SSD	XXXXXXXXXXXXXXX	NS00	ready

See also

[storage service-disk smart show](#)

storage service-disk smart show

Get service disk SMART statistics

Privilege Level: normal

Description

This command displays various statistics and thresholds pertaining to the service disk. This includes the drive name, wear level (percentage), drive temperature (degree Celsius), power-on hours, spare blocks used (percentage), and sectors written (512 bytes per sector).

Parameters

[**-name** <string>]

Name of the service disk.

Examples

Display SMART information about the service disk in the controller.

```
storage service-disk show
```

Attribute	Value	Threshold	Status
Relocated Sector (%)	0	95	ok
Relocated Sectors	0	4986	ok
Power on hours (%)	1	100	ok
Power on hours	1006	500000	ok
Wear Level (%)	1	100	ok
Wear Level (Program/Erase Cycles)	16	18950	ok
Spare Blocks Used (%)	5	95	ok
Spare Blocks Used	428	4986	ok
Temperature (C)	26	100	ok
Sectors Written (%)	48	100	ok
Sectors Written	2057053920	N/A	ok

See also

[storage service-disk show](#)

storage shelf expander-cli

Issues an in-band CLI command to a shelf I/O module

Privilege Level: diag

Description

This command issues a vendor specific CLI to the shelf enclosure. If the CLI is valid, it displays the output of the action executed by the enclosure firmware.

You can see a list of CLIs supported by running the `storage shelf expander-cli -shelf-id 0 -cmd help -module A` command.

This command is only available after a cluster has been created.

Parameters

-shelf-id <integer>

This is the shelf ID switch that is used to uniquely identify the shelf on the node.

-module <string>

Module ID of shelf.

[**-name** <string>]

Serial Attached SCSI Host Bus Adapter (SAS HBA) port name.

-cmd <string>

Command executed on expander CLI. Use "help" to list the available commands.

Examples

Query the list of vendor commands available for the shelf module A with ID 0.

```
storage shelf expander-cli -shelf-id 0 -cmd help -module A
```

```
cleardriveindicator  Clears the drive indicator LED
ddump                System-wide diagnostic dump
drvmgr_faults        Drive Manager faults
dumpdrives           Quick view of all drives
exp_report            report the expander information
expmgr_faults        Expander Manager faults
fwstatus             Reports status of Al203 firmware images.
general_faults        General Service faults
getdrivebaycount     Get number of drive bays
```

getpsustatus	Get status of power supply
ha_senddata	Sends data across the HA link
help	Displays helpful information about commands
hid_disp	Command to set the HID display
hid_faults	Human Interface Device faults
hid_set_activity	Turn activity leds on.
logclear	Clear the logged messages.
logcounters	Display the current log counter values.
logcounterszero	Clears the current log counter values.
logdump	Display the logged messages.
loglevel	Control which messages are to be logged.
logstream	Display the logged messages automatically on console.
phy_report	report the snapshot of phy state and phy counts
phydump	Reports status of SAS PHYs on the expander.
pwrmgr_faults	Power Manager faults
qsfp_info	Provides information on the QSFP module in the specified
socket	
report_faults	Reports all system-wide faults
ses_report_page	Display SES status pages in human-readable form
ses_statuspage	Display SES status pages in hexadecimal form
set_ebodvpd	set ebod_vpd fields
set_encl_id	Command to change the enclosure ID
set_midplanevpd	set midplane vpd fields
set_pcmvpd	set pcm_vpd fields
setdriveindicator	Set the drive indicator LED
settime	Sets unit time
uptime	Uptime meter
ver	Version information

See also

[storage shelf show](#)

[storage shelf expander-map](#)

storage shelf expander-map

Get Serial Attached SCSI (SAS) expander state

Privilege Level: diag

Description

This command displays how a SAS Host Bus Adapter (HBA) port is connected to an I/O module on the shelf.

The adapter name is either a slot number, or a slot number concatenated with port letter.

The command displays the following information:

- Shelf ID
- Level
- UID
- Serial Number
- Product ID
- Module ID
- Firmware Revision

This command is only available after a cluster has been created.

Parameters

[**-shelf-id** <integer>]

This is the shelf ID switch that is used to uniquely identify the shelf on the node.

[**-name** <string>]

Serial Attached SCSI Host Bus Adapter (SAS HBA) port name.

Examples

Displays expander map information for the shelf attached to port 0a.

```
storage shelf expander-map -name 0a
```

Port	Shelf	Level	UID	Serial-No	Product-Id
Module	Firmware				
-----	-----	-----	-----	-----	-----

```
-----  
0a          21          1  5:00a:098001:f3983f    9428089901    DS224IOM6  
      B          0162
```

See also

[storage shelf show](#)

[storage shelf expander-cli](#)

storage shelf fault show

Show status of all shelf elements

Privilege Level: normal

Description

This command displays information regarding shelves attached to the system. The "element type" is a human-readable name for all elements reported on by a shelf. For example, elements include power-supply, temperature-sensor, and fan.

Parameters

{ [**-uid** <string>]

If provided, returns only information for the specified shelf.

| [**-name** <string>]

If provided, returns only information for the specified shelf.

}

Examples

Displays the status for all elements for all shelves.

```
storage shelf fault show
```

Shelf: 0a.shelf21 (5:00a:098001:bc225b)				

Element	Status	Raw Bytes	Reading	Description

Device 0	ok	01 00 00 00	Slot 0	
Device 1	ok	01 01 00 00	Slot 1	
Device 2	ok	01 02 00 00	Slot 2	
Device 3	ok	01 03 00 00	Slot 3	
Device 4	ok	01 04 00 00	Slot 4	
Device 5	ok	01 05 00 00	Slot 5	
Device 6	ok	01 06 00 00	Slot 6	
Device 7	ok	01 07 00 00	Slot 7	
Device 8	ok	01 08 00 00	Slot 8	
Device 9	ok	01 09 00 00	Slot 9	
Device 10	ok	01 0a 00 00	Slot 10	

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Device 11	ok	01 0b 00 00	Slot 11	
Device 12	ok	01 0c 00 00	Slot 12	
Device 13	ok	01 0d 00 00	Slot 13	
Device 14	ok	01 0e 00 00	Slot 14	
Device 15	ok	01 0f 00 00	Slot 15	
Device 16	ok	01 10 00 00	Slot 16	
Device 17	ok	01 11 00 00	Slot 17	
Device 18	ok	01 12 00 00	Slot 18	
Device 19	ok	01 13 00 00	Slot 19	
Device 20	ok	01 14 00 00	Slot 20	
Device 21	ok	01 15 00 00	Slot 21	
Device 22	ok	01 16 00 00	Slot 22	
Device 23	ok	01 17 00 00	Slot 23	
Power Supply 0	ok	01 00 00 a0		requested-on, hot-swappable
Power Supply 1	ok	01 00 00 a0		requested-on, hot-swappable
Fan 0	ok	01 01 2c a1	3000 RPM	requested-on, hot-swappable
Fan 1	ok	01 01 29 a1	2970 RPM	requested-on, hot-swappable
Fan 2	ok	01 01 2c a1	3000 RPM	requested-on, hot-swappable
Fan 3	ok	01 01 2c a1	3000 RPM	requested-on, hot-swappable
Temperature Sensor 0	ok	01 00 2a 00	22 C	
Temperature Sensor 1	ok	01 00 29 00	21 C	
Temperature Sensor 2	ok	01 00 29 00	21 C	
Temperature Sensor 3	ok	01 00 34 00	32 C	
Temperature Sensor 4	ok	01 00 29 00	21 C	
Temperature Sensor 5	ok	01 00 3c 00	40 C	
Temperature Sensor 6	ok	01 00 29 00	21 C	
Temperature Sensor 7	ok	01 00 2a 00	22 C	
ES Electronics 0	ok	01 00 01 80		report, hot-swappable
ES Electronics 1	ok	01 00 00 80		hot-swappable
Display 0	ok	01 00 00 00		
Voltage Sensor 0	ok	01 00 01 fb	5.07 V	
Voltage Sensor 1	ok	01 00 04 c2	12.18 V	
Voltage Sensor 2	ok	01 00 01 fb	5.07 V	
Voltage Sensor 3	ok	01 00 04 ce	12.3 V	
Current Sensor 0	ok	01 00 00 00	0.0 A	
Current Sensor 1	ok	01 00 00 00	0.0 A	
Current Sensor 2	ok	01 00 01 96	4.06 A	
Current Sensor 3	ok	01 00 00 00	0.0 A	

SAS Connector 0	ok	01 03 ff 00	
SAS Connector 1	ok	01 03 ff 00	
SAS Connector 2	ok	01 03 ff 00	
SAS Connector 3	ok	01 03 ff 00	
Expander 0	ok	01 08 00 00	master
Expander 1	ok	01 00 00 00	

See also

[storage shelf show](#)

storage shelf show

Get shelf information

Privilege Level: normal

Description

This command displays discoverable information about the shelf.

The shelf state is one of the following:

- Online
- Missing
- Uninitialized
- Failed

Parameters

{ [**-uid** <string>]

If provided, returns only information for the specified shelf.

| [**-name** <string>]

If provided, returns only information for the specified shelf.

}

Examples

Display all storage shelf enclosures.

```
storage shelf show
```

Shelf Name	UID	State	Vendor	Model	Firmware
Serial-No					
-----	-----	-----	-----	-----	-----
0a.shelf21	5:00a:098001:bc225b	online	NETAPP	DS224IOM6	0162
9428089901					

storage stsb get-crash-dump

Retrieve the SAS to SATA Bridge (STSB) crash dump

Privilege Level: diag

Description

This command retrieves the STSB Crash Dump information. The retrieved crash dump is saved in the directory "storage/crash/" of the Mars OS log directory.

This command is only available after a cluster has been created.

Parameters

{ [**-uid** <string>]

If provided, returns information for only the specified drive.

| [**-name** <string>]

If provided, returns information for only the specified drive.

}

Examples

Get STSB crash dump for the drive named 0c.7.1.

```
storage stsb get-crash-dump -name 0c.7.1
```

See also

[storage disk show](#)

[storage stsb get-event-log](#)

[security marsdiag enable](#)

storage stsb get-event-log

Retrieve the SAS to SATA Bridge (STSB) event logs

Privilege Level: diag

Description

This command retrieves the STSB Event log. The retrieved event log is saved in the directory "storage/crash/" of the Mars OS log directory.

This command is only available after a cluster has been created.

Parameters

{ [**-uid** <string>]

If provided, will return only information for the specified drive.

| [**-name** <string>]

If provided, will return only information for the specified drive.

}

Examples

Get STSB event log for the drive named 0c.7.1.

```
storage stsb get-event-log -name 0c.7.1
```

See also

[storage disk show](#)

[storage stsb get-crash-dump](#)

[security marsdiag enable](#)

system configuration show

List the system configuration

Privilege Level: normal

Description

Display the system configuration for Mars OS.

Parameters

[**-verbose** [{ **true** | **false** }]]

Display the configuration values taken at the time the command is executed.

Examples

Display the system configuration.

```
system configuration show
```

```
NetApp Release:  Release 0.1
System ID:  928911996
System Serial Number:  928911996
System Rev:  1
System Storage Configuration:  Multi-Path
System ACP Connectivity:  NA
slot 0: System Board 2.8 GHz (System Board XX 10)
      Model Name:  FlashSim
      Part Number:  111-01213
      Revision:  1
      Serial Number:  928911996
      BIOS version:  9.2X1
      Loader version:  5.2X1
      Processors:  20
      Processor type:  Intel(R) Xeon(R) CPU E5-2680 v2 @ 2.80GHz
      Memory Size:  131072 MB
```

system coredump delete

Delete core files from the system

Privilege Level: normal

Description

This command deletes core dump files from the cluster.

Parameters

[**-all-cores** [{ **true** | **false** }]]

Delete all cores from the selected nodes (incompatible with core-filenames).

[**-core-filenames** <string>,...]

Filenames of the cores to delete (incompatible with all-cores).

[**-node-id** <string>]

Node to delete core files from (leave blank for all nodes).

Examples

Delete the core dump named core.940001071282.20140613T161915Z.spd.3900.

```
system coredump delete -core_filename
core.940001071282.20140613T161915Z.spd.3900
```

Node ID	Filename	Timestamp
Byte	Size	

0	core.940001071282.20140613T161915Z.spd.3900	2014-06-13T22:53:57Z+0000
	0	
1 entry was displayed.		

See also

[system coredump show](#)

system coredump show

List the core files on the system

Privilege Level: normal

Description

This command lists core dump files in the cluster.

Examples

List core dumps on all controllers in the cluster.

```
system coredump show
```

Node ID	Filename	Timestamp
Byte Size		
-----	-----	-----
0	core.940001071282.20140613T161915Z.spd.3900	2014-06-
13T22:53:57Z+0000	0	
0	core.940001071282.20140613T161915Z.mars.3938	2014-06-
13T22:53:42Z+0000	0	
2 entries were displayed.		

See also

[system coredump delete](#)

system environment show

Show environment sensors

Privilege Level: normal

Description

This command displays a table describing the status of monitored controller sensors.

Examples

Show environmental status.

system environment show

SENSOR NAME	STATE	READING	CRIT LOW	WARN LOW	WARN HIGH	CRIT HIGH
Fan1	normal	GOOD				
PSU1	normal	GOOD				
CPU0 Temp Margin	normal	-51 C	--	--	-5 C	0
In Flow Temp	normal	31 C	0 C	10 C	53 C	63
Out Flow Temp	normal	43 C	0 C	10 C	61 C	71
PCI Riser_R Temp	normal	33 C	0 C	10 C	50 C	60
Smart Bat Temp	normal	41 C	0 C	10 C	59 C	69
CPU0 Error	normal	NORMAL				
CPU0 Therm Trip	normal	NORMAL				
CPU0 Hot	normal	NORMAL				
Memory0 Hot	normal	NORMAL				
PCH Hot	normal	NORMAL				
P5V STBY	normal	5002 mV	4245 mV	4343 mV	5660 mV	5807
P0.9V STBY	normal	892 mV	805 mV	853 mV	950 mV	999
P5V	normal	5050 mV	4245 mV	4343 mV	5660 mV	5807
P3.3V	normal	3280 mV	2960 mV	3040 mV	3568 mV	3664
12V CPU	normal	11875 mV	0 mV	0 mV	31875 mV	31875

mV	12V CPU Curr	normal	11250 mA	0 mA	0 mA	63750 mA	63750	
mA	Sysfan1 Present	normal	PRESENT					
	Sysfan1 Fault	normal	OK					
	Sysfan1 F1 Speed	normal	2820 RPM	1470 RPM	1560 RPM	--	--	
	Sysfan1 F2 Speed	normal	2820 RPM	1470 RPM	1560 RPM	--	--	
	PSU1 Present	normal	PRESENT					
	PSU1 Temp	normal	29 C	0 C	5 C	50 C	60	
C	PSU1 Curr	normal	18000 mA	--	--	--	--	
	PSU1 Fan1 Speed	normal	16000 RPM	4500 RPM	4600 RPM	--	--	
	PSU1 Fan1 Fault	normal	OK					
	PSU1 Status	normal	ON					
	PSU1 Power	normal	OK					
	PSU1 DC OK	normal	OK					
	PSU1 FAULT	normal	OK					
	PSU1 Over Temp	normal	OK					
	PSU1 Over Volt	normal	OK					
	PSU1 Over Curr	normal	OK					
		Bat Present	normal	PRESENT				
		Bat Temp	normal	27 C	0 C	10 C	53 C	58
C	Bat Volt	normal	7900 mV	5500 mV	5600 mV	8500 mV	8600	
	Bat Curr	normal	0 mA	-4000 mA	-40 mA	1200 mA	1520	
mA	Bat Rem Cap	normal	3840 mA*hr	--	--	--	--	
	Bat Full Cap	normal	4352 mA*hr	--	--	--	--	
	Bat Charge Curr	normal	0 mA	--	--	2200 mA	2300	
	Bat Charge Volt	normal	8200 mV	--	--	8900 mV	9000	
mV	Bat Initial FCC	normal	4200 mA*hr	--	--	--	--	
	Bat Dstg Cycles	normal	45 cycl	2 cycl	5 cycl	--	--	
	Bat Power Fault	normal	GOOD					
	Bat Charge FET	normal	ON					
	Bat Dcharge FET	normal	ON					
	SP Reset	normal	OK					
	SP Status	normal	IPMI_HB_OK					
	49 entries were displayed.							

system fru show

Get system field replaceable unit (FRU) information

Privilege Level: diag

Description

This command displays the Field Replaceable Unit (FRU) information such as serial number, part number, and revision.

Examples of FRUs are fans, power supplies, controller, battery.

Examples

Display the system FRUs.

```
system fru show
```

FRU NAME	SERIAL NO	PART NO	REVISION
Controller1	941325001108	111-01611	40
Chassis1	941322000921	111-01459	90
Battery	0x057c	27100043	0x0000:0x0210:0x00a0
NVRAM	941323001322	110-00297	60
Fan1	941325000832	441-00037	70
Fan2	941325001033	441-00037	70
Fan3	941325000819	441-00037	70
PSU1	0033214	114-00040	+A4
PSU2	0033215	114-00040	+A4

See also

[system configuration show](#)

system health alert delete

Delete system health alert

Privilege Level: normal

Description

This command deletes an alert from the list of alerts. The deletion is not persistent; it applies to the current boot only. Upon a reboot, the alert is subject to being re-generated. In addition, environmental alerts are subject to being re-generated every 60 seconds.

Parameters

-managed-entity-class <string>

Class of the alert to delete.

-policy-id <string>

Policy which created the alert to delete.

-managed-entity-id <string>

Unit identifier for the alert to delete.

Examples

Delete an alert identified by "PCI slot" and pci.device.info and 0000:09:00.0.

```
system health alert delete -policy-id "PCI slot" -managed-entity-class  
pci.device.info -managed-entity-id 0000:09:00.0
```

See also

[system health alert show](#)

system health alert policy modify

Modify system health alert policy

Privilege Level: diag

Description

Use this command to modify a policy from the list of policies. The disable is not persistent; it applies to the current boot only. Upon a reboot, the policy is re-enabled.

Parameters

-enable [{ true | false }]

Specifies whether the alert policy is enabled or not.

-policy-id <string>

Alert policy to modify.

Examples

Disable the alert policy "Mars process size".

```
system health alert policy modify -policy-id "Mars process size" -enable  
false
```

system health alert refresh

Refresh system health alerts

Privilege Level: normal

Description

This command refreshes the list of alerts. Typically, alerts are automatically deleted when the underlying condition which gave rise to the alert no longer holds true. If you believe an alert was not properly deleted automatically, you can use this command to verify that all alerts properly exist.

After running this command, the list of alerts is up-to-date and represents the current state of the cluster.

Examples

Refresh the list of alerts.

```
system health alert refresh
```

system health alert show

Show system health alerts

Privilege Level: normal

Description

This command displays outstanding alerts associated with this cluster. Alerts typically have corrective actions which can be undertaken to fix the underlying condition. When the underlying condition has been fixed, the alert is automatically deleted and no longer appears in this list.

Examples

Display all alerts.

```
system health alert show
```

```
alerts:
  policy          : PCI slot
  managed class   : pci.device.info
  managed id      : 0000:09:00.0
  description     : This controller is not configured properly.
  corrective action: Contact NetApp technical support.
  severity        : warning
  creation time   : 2014-07-08T16:02:06Z
  tags            : sys_cfg_led
```

system health show

Show overall health.

Privilege Level: normal

Description

This command displays the overall health of the system.

Examples

Display overall system health.

```
system health show
```

Chassis	Status
-----	-----
Chassis1	OK

Controller	Status
-----	-----
Controller1	OK

system image get

Download a Mars OS image

Privilege Level: normal

Description

This command downloads a Mars OS installation image from the specified location.

Parameters

[**-replace-package** [{ **true** | **false** }]]

Overwrite existing file.

[**-rename** <string>]

Rename the incoming image filename.

-image-url <string>

URL of Mars OS image.

Examples

Download system image from a webserver with the IP address 10.0.0.1.

```
system image get http://10.0.0.1/mars/mars.tgz
```

See also

[system image show](#)

[system image update](#)

[system image update cancel](#)

[system image package show](#)

[system image package destroy](#)

system image package destroy

Delete an installation image

Privilege Level: normal

Description

Delete a downloaded install image.

Parameters

-image <string>

Image file to delete.

Examples

Delete image package named mars.tgz.

```
system image package destroy -image mars.tgz
```

See also

[system image show](#)

[system image get](#)

[system image update](#)

[system image update cancel](#)

[system image package show](#)

system image package show

Show available installation images

Privilege Level: normal

Description

This command displays the available install images.

Parameters

[**-rescan** [{ **true** | **false** }]]

Force rescan of downloaded packages.

Examples

Display information about packages.

```
system image package show
```

Package Name	Mars OS Version
-----	-----
mars.tgz	R1.0

See also

[system image show](#)

[system image get](#)

[system image update](#)

[system image update cancel](#)

[system image package destroy](#)

system image show

Show information about current image

Privilege Level: normal

Description

This command displays information about the current image.

Examples

Display information about the system image.

```
system image show
```

```
NetApp Release:  Release 0.1
Location       :  image1
Install Date  :  Thu Mar  6 14:44:44 2014
Pending Update: no pending update
```

See also

[system image get](#)

[system image update](#)

[system image update cancel](#)

[system image package show](#)

[system image package destroy](#)

system image update

Update Mars OS

Privilege Level: normal

Description

This command updates this node to the last Mars OS installation image (obtained via `system image get`).

Parameters

-image <string>

URL or filename of Mars OS image.

Examples

Schedule update of an already downloaded image named mars.tgz.

```
system image update -image mars.tgz
```

See also

[system image show](#)

[system image get](#)

[system image update cancel](#)

[system image package show](#)

[system image package destroy](#)

system image update-cancel

Cancel any pending update to this node

Privilege Level: normal

Description

This command cancels any pending update on this node.

Examples

Cancel scheduled update.

```
system image update-cancel
```

See also

[system image show](#)

[system image get](#)

[system image update](#)

[system image package show](#)

[system image package destroy](#)

system led show

Get system LED info

Privilege Level: normal

Description

This command displays the status of the various LEDs on the controller.

Examples

Show status of LEDs.

```
system led show
```

LED NAME	STATUS
-----	-----
DIMM1 Fault	OFF
DIMM2 Fault	OFF
DIMM3 Fault	OFF
DIMM4 Fault	OFF
DIMM5 Fault	OFF
DIMM6 Fault	OFF
DIMM7 Fault	OFF
DIMM8 Fault	OFF
PCIe Riser Slot 1 Fault	OFF
PCIe Riser Slot 2 Fault	OFF
PCIe Riser Slot 3 Fault	OFF
PCIe Riser Slot 4 Fault	OFF
NVRAM Battery Fault	OFF
Coin Cell Battery Fault	OFF
System Boot Fault	OFF
NVRAM DIMM Fault	OFF
CPU Fatal Error	OFF
CPU Catastrophic Error	OFF
DIMM Hot	OFF
Controller Attention	OFF
System Attention	OFF
Fan 1 Fault	OFF
Fan 2 Fault	OFF
Fan 3 Fault	OFF
NVRAM bad block	OFF
System Configuration Error	OFF
26 entries were displayed.	

system locallog list

Display the list of available log files in a directory on the controller

Privilege Level: diag

Description

This command displays log files in the specified directory on the controller.

Parameters

-name <string>

Name of the directory to list.

Examples

Display log files found in the /mars/ directory.

```
system locallog list -name mars
```

autosupport/	dump-o-tron.log	marsspd.log	software/	trim.log
cm_archiver/	dump-o-tron.log.1	marswebui/	stats/	uid/
cores/	ev/	marszeroconf/	storage/	
databases/	mars.log	platform/	trace/	

system locallog show

Display the content of a log file on the controller

Privilege Level: diag

Description

This command displays the content of the specified log file on the controller.

Parameters

-name <string>

Name of the log file to display, including the name of the directory.

Examples

Display the contents of the log file named /mars/dump-o-tron.log/.

```
system locallog show -name mars/dump-o-tron.log
2014-07-01 21:55:01,402 3620 DEBUG Waiting to lock '/tmp/super_dump_o_
tron.lock'
2014-07-01 21:55:01,402 3620 DEBUG Locked '/tmp/super_dump_o_tron.lock'
(waited 0.000116s)
2014-07-01 21:55:01,402 3620 ERROR PID file '/run/mars.pid': No such
file or directory
2014-07-01 21:55:01,403 3620 ERROR Failed to collect stats: Mars is not
running
2014-07-01 21:55:01,403 3620 DEBUG Unlocking '/tmp/super_dump_o_tron.-
lock'
2014-07-01 21:55:01,403 3620 DEBUG Deleted 0 file(s) older than 2014-
07-01 11:40:01.403168
2014-07-01 21:56:01,443 3630 DEBUG Waiting to lock '/tmp/super_dump_o_
tron.lock'
2014-07-01 21:56:01,443 3630 DEBUG Locked '/tmp/super_dump_o_tron.lock'
(waited 0.000124s)
2014-07-01 21:56:01,444 3630 ERROR PID file '/run/mars.pid': No such
file or directory
2014-07-01 21:56:01,444 3630 ERROR Failed to collect stats: Mars is not
running
2014-07-01 21:56:01,444 3630 DEBUG Unlocking '/tmp/super_dump_o_tron.-
lock'
2014-07-01 21:56:01,444 3630 DEBUG Deleted 0 file(s) older than 2014-
07-01 11:41:01.444203
```

system log show

Show log entries

Privilege Level: diag

Description

This command displays log entries that match the given criteria.

Parameters

[**-verbose** [{ **true** | **false** }]]

If the log message is non-empty, show the log arguments in addition to the log message itself.

[**-start-time** <integer>]

Only include logs after and equal to this Unix epoch timestamp in seconds.

[**-binary-names** <string>,...]

Only include logs created by these binaries.

[**-local-time** [{ **true** | **false** }]]

Return log entry times in local time rather than in GMT.

[**-max-entries** <integer>]

Return no more than this many log entries. The default is 10 entries.

[**-invert-msg-args-match** [{ **true** | **false** }]]

Logically negates the msg-args portion of the input query.

[**-severities** <severity-id>,...]

Only include logs that are of any of these severities.

The *severity-id* must be one of the following:

- EMERGENCY
- ALERT
- CRITICAL
- ERROR

- WARNING
- NOTICE
- INFO
- ENG_DEBUG

[**-end-time** <integer>]

Only include logs before and equal to this Unix epoch timestamp in seconds.

[**-msg-formats** <string>,...]

Only include logs that contains any of these message formats.

[**-msg-args** <string>,...]

Only include logs that contains any of these message arguments.

[**-event-ids** <integer>,...]

Only include logs that are any of these event IDs.

[**-invert-msg-formats-match** [{ true | false }]]

Logically negates the msg-formats portion of the input query.

[**-events-only** [{ true | false }]]

Only return log entries of events. If this is specified in addition to event-ids, event-ids takes precedence, and this argument is ignored.

[**-invert-severities-match** [{ true | false }]]

Logically negates the severities portion of the input query.

[**-invert-event-ids-match** [{ true | false }]]

Logically negates the event IDs portion of the input query.

[**-invert-binary-names-match** [{ true | false }]]

Logically negates the binary names portion of the input query.

[**-invert-time-bound-match** [{ true | false }]]

Logically negates the start/end time bound portion of the input query.

Examples

List log entries of severities CRITICAL and INFO.

```
system log show -severities CRITICAL,INFO
```

```
Node      : 0
```

```
Timestamp: 2014-06-13T21:28:55Z+0000
```

```
Binary    : spd
```

```
Severity  : INFO
```

```
Message   : Environment Manager socket connection is established
```

system service-processor network modify

Modify service processor network configuration

Privilege Level: normal

Description

This command modifies the service processor network configuration.

Parameters

[**-netmask** <string>]

Service processor's IPv4 netmask.

[**-ip-address** <string>]

Service processor's IPv4 address.

[**-ipv4-enable** [{ **true** | **false** }]]

Specifies whether the service processor is configured to use IPv4.

[**-ipv6-address-prefix-length** <integer>]

Service processor's IPv6 address prefix length.

[**-ipv6-enable** [{ **true** | **false** }]]

Specifies whether the service processor is configured to use IPv6.

[**-ipv6-router-address-enable** [{ **true** | **false** }]]

Specifies whether the service processor may acquire a router-assigned IPv6 address.

[**-gateway** <string>]

Service processor's IPv4 gateway.

[**-ipv6-address** <string>]

Service processor's IPv6 address.

[**-ipv6-gateway** <string>]

Service processor's IPv6 gateway.

[**-dhcp-enable** [{ **true** | **false** }]]

Specifies whether the service processor is configured to use IPv4 DHCP.

Examples

Modify the service processor IP configuration.

```
system service-processor network modify -ipv4-enable -dhcp-enable
```

system service-processor network show

Show service processor network configuration

Privilege Level: normal

Description

This command displays the service processor network configuration.

Parameters

[**-force** [{ **true** | **false** }]]

Force a requery.

Examples

Show the service processor network configuration without querying the hardware.

```
system service-processor network show
```

```
marsdev> system service-processor network show
IPv4 enabled           : True
IPv4 address           : 172.16.84.246
IPv4 netmask           : 255.255.254.0
IPv4 gateway           : 172.16.84.1
IPv4 DHCP enabled      : True
IPv6 enabled           : False
IPv6 address           : -
IPv6 address prefix length : 0
IPv6 gateway           : -
IPv6 router address    : -
IPv6 router address prefix length: 0
IPv6 link address       : -
IPv6 link address prefix length : 0
MAC address            : 00:a0:98:54:f3:ac
link up                : True
```

system service-processor reboot

Reboot service processor

Privilege Level: normal

Description

This command reboots the service processor.

Examples

```
system service-processor reboot
```

system service-processor show

Show service processor configuration

Privilege Level: normal

Description

Display the service processor's basic configuration.

Parameters

[**-force** [{ **true** | **false** }]]

Force a requery.

Examples

```
system service-processor show
```

```
Uptime           : 3 days 21 hours 28 minutes 30 seconds
IPv4 Address      : 10.45.92.84
IPv6 Address      : -
MAC Address       : 00:a0:98:4f:e0:c6
Firmware Version: 3.0
```

system uptime show

Show system node uptime.

Privilege Level: normal

Description

This command displays the system node uptime.

Examples

Display system node uptime.

```
system uptime show
```

```
Node ID  Uptime
-----
0        0 year(s) 9 day(s) 2 hour(s) 9 minute(s) 37 second(s)
1 entry was displayed.
```

system watchdog disable

Disable watchdog timer

Privilege Level: diag

Description

This command is used to temporarily disable the service processor (SP) watchdog and prevent the system from being reset. An NMI is generated when the watchdog timer expires.

SP firmware has a watchdog timer that generates an NMI and will reset the system when pre-timeout and timeout timer have expired. Mars OS frozen, SPD process crashes, Mars process crashed, and system reboot hang are some reasons that might cause the watchdog timer to expire.

This watchdog disabling action is only valid while the system is online. After the system is rebooted, watchdog is enabled again. In other words, the disabling is not persistent after reboot. To disable watchdog persistently, use the `setenv sp_watchdog disable` command from the bootloader prompt.

Examples

Disable the system watchdog.

```
system watchdog disable
```

trace categories

Retrieve the Mars OS kernel tracing (mk_trace) categories for a client

Privilege Level: diag

Description

Get the categories for the given mk_trace client

Parameters

-client <string>

Name of the Mars OS Trace client to list categories for.

Examples

Return the list of trace categories for client scsit.

```
trace categories -client scsit
```

See also

[trace config get](#)

[trace config set](#)

trace clients

Retrieve the Mars OS kernel tracing (mk_trace) clients

Privilege Level: diag

Description

Get the list of mk_trace clients

Examples

Return the list of mk-trace clients.

```
trace clients
```

See also

[trace config get](#)

[trace config set](#)

trace config get

Retrieve the Mars OS kernel tracing (mk_trace) configuration

Privilege Level: diag

Description

Get the configuration of the trace system

Parameters

[**-client** <string>]

Name of the Mars OS Trace client to dump.

Examples

Return the current mk-trace config for the scsit client.

```
trace get config -client scsit
```

See also

[trace config set](#)

trace config set

Configure Mars OS kernel tracing (mk_trace) system

Privilege Level: diag

Description

This command changes the mk_trace configuration. The configuration is defined using a string with the following syntax:

```
[<client>|all], [-S,severity], [-C,<category>,<category>,...], [-U,
[<util>,<util>], [-O, [trace-to-disk|no-trace-to-disk]]
```

NOTE: The trace configuration's setting string contains no spaces, all parameters are delimited by commas.

Client names are defined by the trace definition file name. For example, mk_trace_client_scsit.in yields a client name of scsit. If a client name of all is specified, the settings will be applied to all mk_trace clients.

Category names are defined in each client's trace definition file. When specifying which categories of traces to save, you have three options: name, --name, or ++name.

Using the --name and ++name option allow categories to be added or subtracted from the current configuration. If the -- or ++ version of a category name is not used, the existing category configuration is replaced with the categories specified. There are two special category names, all and none, that are valid category names for the -C option.

NOTE: If you specify the client as "all", the "--/++" method of specifying the categories is not permitted, and the only valid category names are 'all' or 'none'. Any other category settings will fail if the client is set to "all".

Severities are defined in each client's trace definition file. Severities are specified by the short name, and are case insensitive.

NOTE: If you specify the client as "all", the setting of the severity will only work if all trace clients have a severity matching the given name.

Utilities are all, ras, rastrace, cons, console and none.

The utility option defines how MK trace stores each trace. The ras/rastrace utility is an in-memory ring buffer. The cons/console utility will print directly to the console and to /var/log/mars/mars.log. The all option enables both utilities, and none disables both utilities.

Options are trace-to-disk and no-trace-to-disk.

The `trace-to-disk` will cause the given client (or all clients) to save all trace buffers to *var/log/mars/trace* as they fill up. This can be very useful for debugging problems when the trace buffers have filled up and wrapped around, which prevents sufficient data from being captured to solve the problem. By enabling `trace-to-disk`, a comprehensive set of traces can be saved.

The `no-trace-to-disk` option stops tracing to disk for the given client.

Parameters

-settings <string>

New tracing settings.

Examples

```
trace config set -settings 'all,-U,ras'
```

See also

[trace config get](#)

[trace clients](#)

[trace categories](#)

[trace severities](#)

trace dump

Save all Mars OS kernel tracing (mk_trace) buffers to disk

Privilege Level: diag

Description

The `trace dump` command will save all `mk_trace` buffers to disk.

Parameters

[**-client** <string>]

Name of the Mars OS kernel tracing client to save.

Examples

Save all `mk_trace` clients to disk.

```
trace dump
```

trace severities

Retrieve the Mars OS kernel tracing (mk_trace) severities for a client

Privilege Level: diag

Description

Get the severities for the given mk_trace client

Parameters

-client <string>

Name of the Mars OS Trace client to list severities for.

Examples

Return the list of severities for client scsit.

```
trace severities -client scsit
```

See also

[trace config get](#)

[trace config set](#)

Maintenance Mode Commands

This chapter describes Mars OS maintenance mode commands. Commands in this section operate at either normal or diag privilege level relative to maintenance mode.

cluster database modify cdb

Modify attributes of a cluster database file

Privilege Level: diag

Description

This command modifies attributes of a cluster database file.

Note: This command can remove or restore the persisted configuration stored in a cluster database file. If the atomic broadcast component does not have log files up to the sequence number of the database file that is being removed with this command, loss of persistent data will occur. Please do not use this command unless you understand the repercussions of doing so.

It is recommended that this command be used **under extreme circumstances only** to mark a database as unusable by Mars OS. This action should be taken only if the database file is believed to be corrupted or unusable.

Before marking a database file as unusable, make sure that the atomic broadcast component has log files for sequence numbers up to the sequence number of the database file being removed, using the `cluster database show abcast files` command. If atomic broadcast does not have these log files, loss of persistent configuration data will occur.

After the database file has been removed, shutdown and restart Mars OS for the change to take effect. When Mars OS starts up, it will read in the persisted data, omitting the files that have been marked bad.

Parameters

-action <action>

The action to take on the specified file.

The *action* must be one of the following:

- mark-bad
- mark-good
- restore-from-other-disk

Mark a cluster database file as bad, with `mark-bad`, so that it is no longer used by Mars OS. If the cluster database file was referred to by one of the anchor files, that anchor file is marked bad as well.

Mark a cluster database as good, with `mark-good`, to recover a cluster database file that has previously been marked as bad, so that it can once again be used by Mars OS. Cluster database files that have previously been marked bad can be identified by the file extension of `.bad`, for example `cdatabase.74.bad`. If the cluster database file had been referred to by one of the anchor files and it had been marked bad, that anchor file is recovered as well.

Copy a cluster database file from one disk to the other with `restore-from-other-disk`. This is typically done if the file on one disk has become corrupted. Copying the same file from the other disk can correct this problem.

[**-disk** <disk>]

Mirrored disk to source data.

If not specified, defaults to `disk1`. In the case of `restore-from-other-disk`, this parameter indicates the disk which will have its file replaced.

The *disk* must be one of the following:

- `disk1`
- `disk2`

-file <string>

Database filename.

See also

[cluster database show cdb data](#)

[cluster database show cdb files](#)

cluster database show abcast data

Display the cluster's abcast message.

Privilege Level: diag

Description

This command displays the content of the specified cluster database abcast message file for this controller.

It is recommended to use this command when interpreting abcast message files.

Parameters

-file <string>

Abcast message filename.

[**-disk** <disk>]

Mirrored disk to source data.

If not specified, defaults to disk1.

The *disk* must be one of the following:

- disk1
- disk2

Examples

Display the content of abcast file *msg.993*.

```
cluster database show abcast data -file msg.993
```

```
=====
ABCast persistent files for disk1:
=====

msg.993: sqn: 993 version: 2 tm: 1406304240 blen: 848 clnt: CLNT_CDB
Txn: state=1 txnNum=10000001128 usrOpcode=1001 itemList_.count=1
Item ptr=0xdee190 chgType=ADD
TableItem ver=0 tid=4 key=00000000-0000-0000-67e8-0b5402000000
```

See also

[cluster database show latest](#)

```
cluster database show cdb data
```

```
cluster database show cdb files
```

cluster database show abcast files

List this controller's cluster database abcast files

Privilege Level: diag

Description

This command lists this controller's cluster database abcast files and anchor file content.

Parameters

[**-disk** <disk>]

Mirrored disk to source data.

If not specified, defaults to disk1.

The *disk* must be one of the following:

- disk1
- disk2

Examples

Display the list of abcast files.

```
cluster database show abcast files
```

```
=====
ABCast persistent files for disk1:
=====

total 12168
drwxr-xr-x 2 root root 40960 Jul 25 09:33 .
drwxr-xr-x 6 root root 4096 Jul 25 09:18 ..
-rwxr-xr-x 1 root root 320 Jul 25 09:18 anchor_a
-rwxr-xr-x 1 root root 320 Jul 25 09:33 anchor_b
-rwxr-xr-x 1 root root 832 Jul 25 08:57 msg.1
-rwxr-xr-x 1 root root 424 Jul 25 08:58 msg.10
-rwxr-xr-x 1 root root 1142 Jul 25 09:01 msg.100
-rwxr-xr-x 1 root root 1144 Jul 25 09:04 msg.1000
-rwxr-xr-x 1 root root 1144 Jul 25 09:04 msg.1001
-rwxr-xr-x 1 root root 1144 Jul 25 09:04 msg.1002
-rwxr-xr-x 1 root root 1144 Jul 25 09:04 msg.1003
```

```
-rwxr-xr-x 1 root root    864 Jul 25 09:04 msg.1004
.
.
.
-rwxr-xr-x 1 root root   1144 Jul 25 09:04 msg.996
-rwxr-xr-x 1 root root    864 Jul 25 09:04 msg.997
-rwxr-xr-x 1 root root    520 Jul 25 09:04 msg.998
-rwxr-xr-x 1 root root    424 Jul 25 09:04 msg.999
```

```
=====
Anchor A and B
=====
```

```
ANCHORA: sqn: 1925 cur_sqn: 1922 reclaim_sqn: 0 version: 1
  clusterid: 00000000-0000-0000-7372-614d00000000
  nodeid: 00000000-0000-0000-0100-000000000000
```

```
ANCHORB: sqn: 1926 cur_sqn: 1922 reclaim_sqn: 0 version: 1
  clusterid: 00000000-0000-0000-7372-614d00000000
  nodeid: 00000000-0000-0000-0100-000000000000
```

See also

[cluster database show abcast data](#)

cluster database show cdb data

Display the content of the cluster database

Privilege Level: diag

Description

This command displays the content of the specified cluster database file for this controller.

It is recommended that this command be used to examine a database that has been persisted by CDB. To determine the database file to display, follow these steps:

1. Use the `cluster database show cdb files` command to list the available files and anchor file content. Anchor file content should be used to determine the *abcseq* of the most recent cluster database.
2. Use this command to display the contents of a database file, which is determined from the previous step.

Parameters

[**-table** <integer>]

Display information for only one table.

[**-dumpdata** [{ **true** | **false** }]]

Display hexadecimal row data information.

[**-disk** <disk>]

Mirrored disk to source data.

If not specified, defaults to `disk1`.

The *disk* must be one of the following:

- `disk1`
- `disk2`

-file <string>

Database filename.

Examples

Display the content of cluster database file *cdatabase.1878*.

```
cluster database show cdb data -file cdatabase.1878
```

```
=====
CDB persistent files for disk1:
=====
```

CDB database file contents:

```
Calculated file checksum: 0xc28ec98fL
Database format version: 1
Latest abseq:             1878
```

Table 2 , number of rows: 1

Key	Ver	Length	Data
00000000-0000-0000-0100-000000000000	71	144	

Table 3 , number of rows: 1

Key	Ver	Length	Data
00000000-0000-0000-0000-000000000000	72	68	

.
.
.

Table 13 , number of rows: 2

Key	Ver	Length	Data
00000000-0000-0000-2100-000e1e168b90	1878	5480	
00000000-0000-0000-2100-000e1e168b91	1878	5480	

Table 14 , number of rows: 4

Key	Ver	Length	Data
847553cc-1414-11e4-a8b7-00a09856d280	53	77	
84879456-1414-11e4-a8b7-00a09856d280	58	77	
8497f5e4-1414-11e4-a8b7-00a09856d280	63	77	
84a84ad4-1414-11e4-a8b7-00a09856d280	68	77	

Table 15 , number of rows: 150

Key	Ver	Length	Data
005883b0-1415-11e4-a8b7-00a09856d280	1183	191	
00f57bb6-1415-11e4-a8b7-00a09856d280	1188	191	
018e0192-1415-11e4-a8b7-00a09856d280	1193	191	
0222f892-1415-11e4-a8b7-00a09856d280	1198	191	

```
.
.
.
ffbcf5b2-1414-11e4-a8b7-00a09856d280  143      32

Table 29 , number of rows: 1
Key                                     Ver Length Data
00000000-0000-0000-0100-000000000000  46      24

Largest abc version from row data: 1878
```

See also

[cluster database show latest](#)

[cluster database show cdb files](#)

cluster database show cdb files

List this controller's cluster database files

Privilege Level: diag

Description

This command lists this controller's cluster database files and anchor file content.

Parameters

[**-disk** <disk>]

Mirrored disk to source data.

If not specified, defaults to disk1.

The *disk* must be one of the following:

- disk1
- disk2

Examples

Display the list of cluster database files.

```
cluster database show cdb files
```

```
=====
CDB persistent files for disk1:
=====
```

```
total 544
drwxr-xr-x 2 root root  4096 Jul 25 09:33 .
drwxr-xr-x 6 root root  4096 Jul 25 09:18 ..
-rwxr-xr-x 1 root root   195 Jul 25 09:33 canchor_a
-rwxr-xr-x 1 root root   195 Jul 25 09:12 canchor_b
-rwxr-xr-x 1 root root 269935 Jul 25 09:12 cdatabase.1878
-rwxr-xr-x 1 root root 269946 Jul 25 09:33 cdatabase.1922
```

```
=====
Anchor A
=====
```

```
CDB anchor file contents:
```

```
comment:          #ClusterDB anchor file
anchor_ver:        1
anchor_magic:      0xdec0de00
curr_abcseq:       1922
database checksum: 0x497e1075
checksum_method:   crc32c
```

```
Extracted file checksum is 0x8faf2c34
Calculated file checksum is 0x8faf2c34L
Checksums match.
```

```
=====
Anchor B
=====
```

CDB anchor file contents:

```
comment:          #ClusterDB anchor file
anchor_ver:        1
anchor_magic:      0xdec0de00
curr_abcseq:       1878
database checksum: 0xc28ec98f
checksum_method:   crc32c
```

```
Extracted file checksum is 0xb6f23686
Calculated file checksum is 0xb6f23686L
Checksums match.
```

See also

[cluster database show cdb data](#)

cluster database show latest

Display the content of the cluster database

Privilege Level: normal

Description

This command displays the content of the cluster database file for this controller.

It is recommended that this command be used to examine the most recent database persisted by CDB.

Parameters

[**-dumpdata** [{ **true** | **false** }]]

Display hexadecimal row data information.

[**-table** <integer>]

Display information for only one table.

Examples

Display database information of table 14.

```
cluster database show latest -table 14
```

```
Table arg was: 14
```

```
CDB database file contents:
```

```
Calculated file checksum: 0x801af100L
```

```
Database format version: 1
```

```
Latest abseq: 134
```

```
Table 14 , number of rows: 4
```

Key	Ver	Length	Data
7e6b0282-0ebb-11e4-aa8d-00a09856d62e	53	77	
7e7f4b2a-0ebb-11e4-aa8d-00a09856d62e	58	77	
7e9070c6-0ebb-11e4-aa8d-00a09856d62e	63	77	
7ea179de-0ebb-11e4-aa8d-00a09856d62e	68	77	

```
Largest abc version from row data: 68
```

cluster version

Display this controller's operating system version

Privilege Level: normal

Description

This command displays this controller's operating system version.

Examples

```
cluster version
```

```
Build Date:    Wed Jul  2 00:31:55 2014
Build Path:    /x/mars/rlse/mars/master/masterN_20140702_000122/build-o0-
debug/src/final/mars
Git Revision:  d8a1a85011514da654409d7cde9c947a84745cad
```

continue-boot

Exit from maintenance mode and continue booting to operational mode

Privilege Level: normal

Description

This command exits from maintenance mode, and continues booting to normal mode. This is one of two commands to exit from maintenance mode, the other being the `reboot` command.

Use this command when you believe the reason for being in maintenance mode has been resolved and as such you expect a normal boot to succeed.

If the system does not successfully start, it reboots and enters maintenance mode. If it does successfully start, it stays in normal operational mode.

NOTE: The `-consistency` parameter is for technical support use only. Contact technical support for assistance. The `-consistency` parameter puts the system in consistency checker mode. Consistency checker (CC) is run when inconsistencies are observed in the Mars OS filesystem and the system drops to maintenance mode. It can also be run to ensure the correctness of the filesystem. To get information on the status of consistency checker while it is running, use command `{consistency status show}`.

Parameters

[`-consistency <string>`]

Consistency checker mode to start. This command is for technical support use only. Contact technical support for assistance. The mode can be:

- `scanner`: scan for consistency and only report errors.
- `fixer`: scan and fix errors.

Examples

Exit maintenance mode and boot to normal operational mode.

```
continue-boot
```

marsfs persistence set

Set persistence module clean shutdown flag

Privilege Level: normal

Description

This command sets the clean shutdown flag in the cluster database for the persistence module.

The clean shutdown flag indicates whether or not the Persistence layer will perform replay. When the flag is set to false, the Persistence layer replays the cached data contained in NVRAM during MARS startup.

In the case where replay is failing and the system is in a panic loop, this command prevents the Persistence layer from replaying NVRAM data on the next boot.

Note: When setting the flag to true, NVRAM cached data will be lost on next boot, which can result in data loss.

Parameters

-clean-shutdown [{ true | false }]

Set Persistence clean shutdown flag to true or false.

Examples

Mark the NVRAM with the clean shutdown flag to prevent replay.

```
marsfs persistence set -clean-shutdown
```

package install

Install a maintenance package

Privilege Level: normal

Description

This command retrieves, then installs a maintenance package on this controller. The package is retrieved using HTTP.

The maintenance mode package is a way to install Mars OS packages to the controller to obtain extra maintenance capabilities. Maintenance mode packages are provided by NetApp technical support. Only one package can be installed at any given time. Packages are uninstalled after a reboot.

Parameters

-package-url <string>

URL of the package to download.

Examples

Install a package test.marsspackage located on server test.server

```
package install -package-url http://test.server/test.marsspackage
```

```
Downloading http://test.server/test.marsspackage
```

```
Install complete.
```

```
Type reload to access package commands.
```

See also

[package uninstall](#)

[package show](#)

package show

Display information about the currently installed maintenance package

Privilege Level: normal

Description

This command displays information about the currently installed maintenance package.

Examples

Show the currently installed package.

```
package show
```

```
Currently installed package:
```

```
Name: Test Package
```

```
Version: 1
```

```
This package has test commands.
```

```
These commands provide extra functionalities  
for the controller.
```

See also

[package install](#)

package uninstall

Uninstall a maintenance package

Privilege Level: normal

Description

This command uninstalls the maintenance package.

Examples

Uninstall the currently installed package.

```
package uninstall
```

```
Uninstall complete.
```

```
Type reload to clean CLI
```

See also

[package install](#)

[package show](#)

reboot

Exit from maintenance mode and reboot the controller

Privilege Level: normal

Description

This command exits from maintenance mode and reboots the controller. This is one of two commands to exit from maintenance mode, the other being the `continue-boot` command. From the loader prompt you can choose to boot to operational or to maintenance mode.

Examples

Exit maintenance mode and reboot.

```
reboot
```

security adminlogin reset

Reset the admin user password

Privilege Level: normal

Description

This command resets the admin user's password.

This command can only be executed when physically connected to the system via the serial port. This command is not available from the Service Processor (SP) system console. The SP system console is disabled when this command is executed, and is reenabled after the command is finished. If you are on the SP system console, the command will timeout in five seconds.

If you are on the serial console, you will be prompted to press Ctrl-C to continue with the password change.

The new password becomes effective after the controller is rebooted.

Examples

Change the admin user password

```
security adminlogin reset
```

```
For security purposes, this function is only accessible from serial console  
[not SP].
```

```
Please press ^C to continue. Otherwise, please wait 5s.
```

```
^CNew Password:
```

```
Confirm New Password:
```

```
Password will be reset on next mars boot
```

security marsdiag enable

Enable the marsdiag user

Privilege Level: normal

Description

This command enables the marsdiag user. Access to the system is granted only after providing the marsdiag password. The marsdiag user has SFTP capabilities on the system, notably to retrieve cores and logs.

The marsdiag user stays enabled until the system reboots.

Note: If the maintenance mode is exited with "continue-boot", the marsdiag user stays enabled until the next reboot.

Parameters

-password <string>

Password must contain between 8 and 128 characters. Valid characters are:

- letters: A - Z, a - z
- numbers: 0 - 9
- symbols: ! @ # \$ % ? ^ ~

Examples

Enable the marsdiag user.

```
security marsdiag enable
```

```
New password :
```

```
Confirm new password :
```

```
User marsdiag is now enabled with chosen password.
```

```
Warning! The user will stay enabled until disabled or a system reboot.
```

See also

[security marsdiag show](#)

[security marsdiag disable](#)

security marsdiag disable

Disable the marsdiag user

Privilege Level: normal

Description

This command disables the marsdiag user, thereby removing access to SFTP on this controller.

Examples

Disable the marsdiag user.

```
security marsdiag disable
```

```
User marsdiag is now disabled.
```

See also

[security marsdiag enable](#)

[security marsdiag show](#)

security marsdiag show

Show the status of the marsdiag user

Privilege Level: normal

Description

This command shows if the marsdiag user is enabled.

Examples

Display the status of the marsdiag user.

```
security marsdiag show
```

```
Marsdiag is enabled.
```

See also

[security marsdiag enable](#)

[security marsdiag disable](#)

storage disk power

Perform a power action on a disk

Privilege Level: diag

Description

This command controls the power of an individual drive in the shelf. You can power on, power off, or power cycle a drive.

NOTE: The FlashRay system starts a discovery process for each power off, on, or cycle operation. You must wait at least 30 seconds between each operation for the discovery process to complete. This allows time for Mars OS to detect and properly manage the change.

Parameters

-action <string>

This option specifies whether to power-cycle ("cycle") the disk, to power on the disk ("on"), or to power off the disk ("off").

-name <string>

If provided, the command displays information only for the specified disk. This parameter is mutually exclusive with `uid`.

-uid <string>

If provided, the command displays information only for the specified disk. This parameter is mutually exclusive with `name`. If both `name` and `uid` are specified, then the `uid` argument takes precedence.

Examples

Power cycle the drive named *0a.21.0*.

```
storage disk power -name 0a.21.0 -action cycle
```

See also

[storage disk show](#)

[storage disk set-led](#)

storage disk set-led

Alter the state of a disk's fault LED

Privilege Level: normal

Description

This command controls the LED of a specified drive. You can turn an LED ON or OFF. This command is useful for locating a SSD in its shelf.

Parameters

-name <string>

If provided, the command displays information only for the specified disk. This parameter is mutually exclusive with `uid`.

-uid <string>

If provided, the command displays information only for the specified disk. This parameter is mutually exclusive with `name`. If both `name` and `uid` are specified, then the `uid` argument takes precedence.

-action <string>

This option specifies whether to turn on the disk fault LED ("led_on"), or to turn it off ("led_off").

Examples

Turn on the LED for the drive named *0a.21.0*.

```
storage disk set-led -name 0a.21.0 -action led-on
```

See also

[storage disk show](#)

[storage disk power](#)

storage disk show

Get disk information

Privilege Level: normal

Description

This command displays information about all storage drives. This information includes the drive name, state, UID, size, shelf, and bay.

This command is similar to `storage disk show` in operational mode, except that it displays information only for the current controller.

Parameters

-name <string>

If provided, the command displays information only for the specified disk. This parameter is mutually exclusive with `uid`.

-uid <string>

If provided, the command displays information only for the specified disk. This parameter is mutually exclusive with `name`. If both `name` and `uid` are specified, then the `uid` argument takes precedence.

Examples

```
storage disk show
```

Command is in progress.

Disk Name	State	UID	Size	Shelf	Bay
MODEL	REV				
0a.8.0	ready	5:002:538550:3656ae	480GB	8	0
X435_SG843480ASY	NA00				
0d.8.1	ready	5:002:538550:365ea8	480GB	8	1
X435_SG843480ASY	NA00				
0c.8.2	ready	5:002:538550:3669f9	480GB	8	2
X435_SG843480ASY	NA00				
0c.8.3	ready	5:002:538550:366a05	480GB	8	3
X435_SG843480ASY	NA00				
0b.8.4	ready	5:002:538550:366c34	480GB	8	4
X435_SG843480ASY	NA00				

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0b.8.5	ready		5:002:538550:3669f0	480GB	8	5
X435_SG843480ASY		NA00				
0d.8.6	ready		5:002:538550:365ec7	480GB	8	6
X435_SG843480ASY		NA00				
0d.8.7	ready		5:002:538550:365eab	480GB	8	7
X435_SG843480ASY		NA00				
0d.8.8	ready		5:002:538550:365ea4	480GB	8	8
X435_SG843480ASY		NA00				
0b.8.9	ready		5:002:538550:365ec6	480GB	8	9
X435_SG843480ASY		NA00				
0a.8.10	ready		5:002:538550:3656bf	480GB	8	10
X435_SG843480ASY		NA00				
0b.8.11	ready		5:002:538550:3656b2	480GB	8	11
X435_SG843480ASY		NA00				
0c.8.12	ready		5:002:538550:1efb2c	480GB	8	12
X435_SG843480ASY		NA00				
0d.8.13	ready		5:002:538550:365ec5	480GB	8	13
X435_SG843480ASY		NA00				
0d.8.14	ready		5:002:538550:366280	480GB	8	14
X435_SG843480ASY		NA00				
0c.8.15	ready		5:002:538550:3656c0	480GB	8	15
X435_SG843480ASY		NA00				
0a.8.16	ready		5:002:538550:36620c	480GB	8	16
X435_SG843480ASY		NA00				
0a.8.17	ready		5:002:538550:3656e9	480GB	8	17
X435_SG843480ASY		NA00				
0c.8.18	ready		5:002:538550:366210	480GB	8	18
X435_SG843480ASY		NA00				
0c.8.19	ready		5:002:538550:365ebe	480GB	8	19
X435_SG843480ASY		NA00				
0b.8.20	ready		5:002:538550:365eaa	480GB	8	20
X435_SG843480ASY		NA00				
0a.8.21	ready		5:002:538500:1730b1	480GB	8	21
X435_SG843480ASY		NA00				
0a.8.22	ready		5:002:538500:17300e	480GB	8	22
X435_SG843480ASY		NA00				
0b.8.23	ready		5:002:538550:365ea9	480GB	8	23
X435_SG843480ASY		NA00				

storage disk updatefirmware

Update the disk firmware

Privilege Level: diag

Description

This command updates the firmware of a specified storage drive with a specified firmware. This operation is asynchronous, and therefore returns no errors that might occur during the download process.

You can use the `-name` parameter to specify a single disk, or `-disk-list` to specify multiple disks whose firmware should be updated. You can also update the firmware on all local disks by specifying "all" as `-disk-list` parameter.

To find the list of disk firmware files in the system, you can enter the `system shell` and issue the following command:

```
ls /config/etc/disk_fw.
```

All files suffixed with ".LOD" can be used to update the disk firmware.

Note: The command will be changed in future versions of Mars OS.

Parameters

-disk-list <string>,...

List of disks to update. This parameter expects an argument of one or more disks, comma separated, whose firmware should be updated. To update the firmware on all disks, use `-disk-list all`. This parameter is mutually exclusive with `name` and `uid`.

-firmware-filename <string>

Name of the firmware file to download.

-name <string>

Name of the disk to update. This parameter is mutually exclusive with `uid` and `disk-list`.

-uid <string>

UID of the disk to update. This parameter is mutually exclusive with `name` and `disk-list`.

Examples

Update the firmware on the disk named *0a.8.23* with the firmware file *X435_SG843480ASY.NA00.LOD*.

```
storage disk updatefirmware -name 0a.8.23 -firmware-filename X435_
SG843480ASY.NA00.LOD
```

```
Command is in progress.
```

```
Updating disk firmware for disk: 0b.8.23
```

```
Update complete for disk 0b.8.23
```

See also

[storage disk show](#)

storage hba show

Display a list of Host Bus Adapter (HBA) controllers

Privilege Level: normal

Description

This command displays information about the host bus adapter (HBA) devices attached to this controller.

Examples

```
storage hba show
```

Command is in progress.

```
slot 1: SAS Host Adapter 132 (PMC-Sierra PM8001 rev. xx, SAS, <UP>)
```

```
  MFG Part Number:      :SCC8x6G rev. xx
  Part Number:          :111-00341+xx
  Serial Number:        :12345678+
  Date Code:
  Firmware rev:         :01.11.07.00
  Base WWN:             :5:00a098:001b9d9:30
  QSFP[0] Vendor:       :Molex Inc.
  QSFP[0] Part Number:   :112-00176+A0
  QSFP[0] Type:          :Passive Copper 0.5m ID:0
  QSFP[0] Serial Number: :319020414
  QSFP[1] Vendor:       :Molex Inc.
  QSFP[1] Part Number:   :112-00176+A0
  QSFP[1] Type:          :Passive Copper 0.5m ID:0
  QSFP[1] Serial Number: :319020539
```

```
slot 1: SAS Host Adapter 133 (PMC-Sierra PM8001 rev. xx, SAS, <UP>)
```

```
  MFG Part Number:      :SCC8x6G rev. xx
  Part Number:          :111-00341+xx
  Serial Number:        :12345678+
  Date Code:
  Firmware rev:         :01.11.07.00
  Base WWN:             :5:00a098:001b9d9:38
  QSFP[0] Vendor:       :Molex Inc.
  QSFP[0] Part Number:   :112-00176+A0
  QSFP[0] Type:          :Passive Copper 0.5m ID:1
  QSFP[0] Serial Number: :319020386
  QSFP[1] Vendor:       :Molex Inc.
  QSFP[1] Part Number:   :112-00176+A0
```

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```
QSFP[1] Type:           :Passive Copper 0.5m ID:0
QSFP[1] Serial Number:   :319020052
```

storage service-disk qualify

Test the controller's service disk

Privilege Level: diag

Description

This command tests the controller's service disk. Use this command to verify whether the service disk is acceptable for use or not.

Examples

```
storage service-disk qualify

Starting Service Disk qual on Tue Jul  1 14:04:12 PDT 2014
Starting lsscsi
Starting smartctl --all /dev/sda
Starting sq_inq /dev/sda
sudo sg_inq /dev/sda is successful
Starting sq_readcap /dev/sda
sudo sg_readcap /dev/sda is successful
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip: 9000
loop: 1
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
10024 loop: 2
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
11048 loop: 3
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
12072 loop: 4
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
13096 loop: 5
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
14120 loop: 6
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
15144 loop: 7
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
16168 loop: 8
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
17192 loop: 9
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
18216 loop: 10
.
.
.
```

```
Finished dd read/write/compare: block_count: 1024 block_size: 1024 skip:
161576 loop: 150
***** Service-Disk Qual finished successfully for /dev/sda
*****
```

See also

[storage service-disk show](#)

storage service-disk show

Display service disk information

Privilege Level: normal

Description

This command displays the controller's service disk information.

The service disk is an internal, PCI-based SSD in the controller that contains the cluster database (CDB), log files and crash dumps.

Examples

```
storage service-disk show
```

```
Serial ATA device, with non-removable media
```

```
Service Disk Name: /dev/sda
```

```
Model Number: SAMSUNG MZ7WD480HAGM-00003
```

```
Serial Number: S16MNEAD300481
```

```
Firmware Revision: NS00
```

See also

[storage service-disk qualify](#)

storage service-disk updatefirmware

Update the firmware of a service disk

Privilege Level: diag

Description

This command updates the firmware of a service disk with a specified firmware.

To find the list of service disk firmware files in the system, you can enter the `system shell` and issue the following command:

```
ls /config/etc/service_disk_fw.
```

All files suffixed with ".bin" can be used to update the service disk firmware.

Note: The command will be changed in future versions of Mars OS.

Parameters

-firmware-filename <string>

Name of the firmware file to update the service disk. This can be either the entire path to the file or it can be the name of a file in the `/config/etc/service_disk_fw` directory.

-name <string>

Name of the service disk.

Examples

Update the firmware of the service disk named `/dev/sda` with the firmware file `20130627_NX11.bin`.

```
storage service-disk updatefirmware -name /dev/sda -firmware-filename
20130627_NX11.bin
```

```
fwdownload: xfer_mode=3 min=1 max=2048 size=512
+++++
+++++
+++++st Done.
```

See also

[storage service-disk show](#)

[storage service-disk qualify](#)

storage shelf expander-cli

Issues an in-band CLI command to a shelf I/O module

Privilege Level: diag

Description

This command issues a vendor specific Command Line Interface (CLI) command to the shelf enclosure. If the CLI command is valid, it displays the output of the action executed by the enclosure firmware.

You can see a list of supported vendor specific CLI commands by running the `storage shelf expander-cli -shelf-id 0 -cmd help -module A` command.

Parameters

-name <string>

SAS HBA port name.

-module <string>

Module ID of the shelf.

-shelf-id <integer>

This is the shelf id switch that is used to uniquely identify the shelf on the node.

-cmd <string>

Command executed on expander CLI. Use "help" to list the available commands.

Examples

Execute the vendor command *help* on shelf 8, module A.

```
storage shelf expander-cli -module A -cmd help -shelf-id 8
```

Command is in progress.

Data Not Ready

cleardriveindicator Clears the drive indicator LED

ddump System-wide diagnostic dump

drvmgr_faults Drive Manager faults

dumpdrives Quick view of all drives

exp_report report the expander information

expmgr_faults Expander Manager faults

fwstatus Reports status of Al203 firmware images.

<code>general_faults</code>	General Service faults
<code>getdrivebaycount</code>	Get number of drive bays
<code>getpsustatus</code>	Get status of power supply
<code>ha_senddata</code>	Sends data across the HA link
<code>help</code>	Displays helpful information about commands
<code>hid_disp</code>	Command to set the HID display
<code>hid_faults</code>	Human Interface Device faults
<code>hid_set_activity</code>	Turn activity leds on.
<code>logclear</code>	Clear the logged messages.
<code>logcounters</code>	Display the current log counter values.
<code>logcounterszero</code>	Clears the current log counter values.
<code>logdump</code>	Display the logged messages.
<code>loglevel</code>	Control which messages are to be logged.
<code>logstream</code>	Display the logged messages automatically on console.
<code>phy_report</code>	report the snapshot of phy state and phy counts
<code>phydump</code>	Reports status of SAS PHYs on the expander.
<code>pwrmgr_faults</code>	Power Manager faults
<code>qsfp_info</code>	Provides information on the QSFP module in the specified
<code>socket</code>	
<code>report_faults</code>	Reports all system-wide faults
<code>ses_report_page</code>	Display SES status pages in human-readable form
<code>ses_statuspage</code>	Display SES status pages in hexadecimal form
<code>set_ebodvpd</code>	set ebod_vpd fields
<code>set_encl_id</code>	Command to change the enclosure ID
<code>set_midplanevpd</code>	set midplane vpd fields
<code>set_pcmvpd</code>	set pcm_vpd fields
<code>setdriveindicator</code>	Set the drive indicator LED
<code>settime</code>	Sets unit time
<code>uptime</code>	Uptime meter
<code>ver</code>	Version information

See also

[storage show](#)

[storage shelf expander-map](#)

storage shelf expander-map

Get Serial Attached SCSI (SAS) expander state

Privilege Level: normal

Description

This command displays how a SAS Host Bus Adapter (HBA) port is connected to an I/O module on the shelf.

The adapter name is either a slot number, or a slot number concatenated with port letter.

The command displays the following information:

- Shelf ID
- Level
- UID
- Serial Number
- Product ID
- Module ID
- Firmware Revision

Parameters

[**-shelf-id** <integer>]

Unique shelf identifier. This is the shelf id switch that is used to uniquely identify the shelf on the node.

[**-name** <string>]

SAS HBA port name.

Examples

```
storage shelf expander-map
```

Command is in progress.

Port	Shelf	Level	UID	Serial-No	Product-Id
Module	Firmware				
-----	-----	-----	-----	-----	-----
-----	-----				

0a	8	1	5:00a:098001:e3723f	9428089664	DS224IOM6	A
	0173					
0b	8	1	5:00a:098001:e3663f	9428089664	DS224IOM6	B
	0173					
0c	8	1	5:00a:098001:e3663f	9428089664	DS224IOM6	B
	0173					
0d	8	1	5:00a:098001:e3723f	9428089664	DS224IOM6	A
	0173					

See also

[storage show](#)

[storage shelf expander-cli](#)

storage shelf updatefirmware

Update the shelf firmware

Privilege Level: diag

Description

This command updates the firmware of a specified storage shelf with a specified firmware. This operation is asynchronous, and therefore returns no errors that might occur during the download process.

You can specify a the name of shelf whose enclosure firmware is to be updated by using the `-name` parameter.

To find the list of shelf firmware files in the system, you can enter the system shell and issue the following command:

```
ls /config/etc/shelf_fw.
```

All files suffixed with ".SFW" can be used to update the shelf firmware.

Note: The command will be changed in future versions of Mars OS.

Parameters

-firmware-filename <string>

Name of the firmware file to be downloaded.

-shelf-id <integer>

The shelf-id of a single shelf to be upgraded. This parameter is mutually exclusive with `name` and `uid`.

-name <string>

The name of a single shelf to be upgraded. This parameter is mutually exclusive with `uid` and `shelf-id`.

-uid <string>

The UID of a single shelf to be upgraded. This parameter is mutually exclusive with `name` and `shelf-id`.

Examples

Update the firmware of shelf *0b.shelf8* with firmware *IOM6.0171.SFW*.

```
storage shelf updatefirmware -name 0b.shelf8 -firmware-filename IOM6.0171.SFW
```

Command is in progress.
SFU completed successfully.

Shelf Name	UID	State	Vendor	Model
Firmware	Serial-No			

0b.shelf8	5:00a:098001:bc222d	OK	NETAPP	DS2246
0171	9428089664			

See also

```
storage shelf show
```

storage show

Show storage component information

Privilege Level: normal

Description

This command displays information for all storage components associated with this controller, such as disks, paths, shelves, and Host Bus Adapters (HBA).

Examples

Display storage shelf, disk, and HBA information.

```
storage show
```

Command is in progress.

Shelves :

Shelf Name	UID	State	Vendor	Model
Firmware	Serial-No			
0b.shelf7	5:00a:098001:b984d8	OK	NETAPP	DS2246
0173	9425113309			

Expander map:

Port	Shelf	Level	UID	Serial-No	Product-Id	
Module	Firmware					
0b	7	1	5:00a:098001:aae13f	9425113309	DS224IOM6	B
	0173					
0c	7	1	5:00a:098001:aae3ff	9425113309	DS224IOM6	A
	0173					

Disks :

Disk Name	State	UID	Size	Shelf	Bay
MODEL	REV				
0b.7.1	ready	5:002:538550:3f9b0b	480GB	7	1
X435_SG843480ASY	NA01				

0c.7.2	ready		5:002:538550:2763a3	480GB	7	2
X435_SG843480	ASY	NA01				
0b.7.3	ready		5:002:538550:3f9b12	480GB	7	3
X435_SG843480	ASY	NA01				
0c.7.4	ready		5:002:538550:3669f4	480GB	7	4
X435_SG843480	ASY	NA01				
0c.7.5	ready		5:002:538550:2763c0	480GB	7	5
X435_SG843480	ASY	NA01				
0c.7.6	ready		5:002:538550:366282	480GB	7	6
X435_SG843480	ASY	NA01				
0b.7.7	ready		5:002:538500:069dd7	480GB	7	7
X435_SG843480	ASY	NA01				
0b.7.9	ready		5:002:538550:341ee2	480GB	7	9
X435_SG843480	ASY	NA01				
0c.7.10	ready		5:002:538550:267fcf	480GB	7	10
X435_SG843480	ASY	NA01				
0b.7.11	ready		5:002:538500:069dda	480GB	7	11
X435_SG843480	ASY	NA01				
0c.7.12	ready		5:002:538550:33f340	480GB	7	12
X435_SG843480	ASY	NA01				
0c.7.13	ready		5:002:538550:316daa	480GB	7	13
X435_SG843480	ASY	NA01				
0b.7.15	ready		5:002:538500:069e45	480GB	7	15
X435_SG843480	ASY	NA01				
0b.7.16	ready		5:002:538500:068844	480GB	7	16
X435_SG843480	ASY	NA01				
0b.7.17	ready		5:002:538550:3f8cda	480GB	7	17
X435_SG843480	ASY	NA01				
0b.7.18	ready		5:002:538550:3f8146	480GB	7	18
X435_SG843480	ASY	NA01				
0b.7.19	ready		5:002:538500:069ddd	480GB	7	19
X435_SG843480	ASY	NA01				
0b.7.20	ready		5:002:538500:069de1	480GB	7	20
X435_SG843480	ASY	NA01				
0c.7.21	ready		5:002:538550:2763a2	480GB	7	21
X435_SG843480	ASY	NA01				
0c.7.22	ready		5:002:538550:276382	480GB	7	22
X435_SG843480	ASY	NA01				
0c.7.23	ready		5:002:538550:267ff0	480GB	7	23
X435_SG843480	ASY	NA01				
Disk Paths :						
Device	Path	Type	State	DevHdl	WWN	Port
Count						
-----	-----	-----	-----	-----	-----	-----

0b.7.2 0	SECONDARY	DISK	REPORTED	0x10002	0x500a098001b97cfe	B
0c.7.2 0	PRIMARY	DISK	REPORTED	0x10000002	0x500a098001b97cfd	A
0b.7.21 0	SECONDARY	DISK	REPORTED	0x10013	0x500a098001b97e2e	B
0c.7.21 0	PRIMARY	DISK	REPORTED	0x10000013	0x500a098001b97e2d	A
0b.7.23 0	SECONDARY	DISK	REPORTED	0x10015	0x500a098001b98142	B
0c.7.23 0	PRIMARY	DISK	REPORTED	0x10000015	0x500a098001b98141	A
0b.7.10 0	SECONDARY	DISK	REPORTED	0x10009	0x500a098001b981e2	B
0c.7.10 0	PRIMARY	DISK	REPORTED	0x10000009	0x500a098001b981e1	A
0b.7.5 0	SECONDARY	DISK	REPORTED	0x10005	0x500a098001b983da	B
0c.7.5 0	PRIMARY	DISK	REPORTED	0x10000005	0x500a098001b983d9	A
0b.7.22 0	SECONDARY	DISK	REPORTED	0x10014	0x500a098001b985d6	B
0c.7.22 0	PRIMARY	DISK	REPORTED	0x10000014	0x500a098001b985d5	A
0b.7.6 0	SECONDARY	DISK	REPORTED	0x10006	0x500a098001bc009e	B
0c.7.6 0	PRIMARY	DISK	REPORTED	0x10000006	0x500a098001bc009d	A
0b.7.4 0	SECONDARY	DISK	REPORTED	0x10004	0x500a098001bc0316	B
0c.7.4 0	PRIMARY	DISK	REPORTED	0x10000004	0x500a098001bc0315	A
0b.7.13 0	SECONDARY	DISK	REPORTED	0x1000c	0x500a098001bc037e	B
0c.7.13 0	PRIMARY	DISK	REPORTED	0x1000000c	0x500a098001bc037d	A
0b.7.12 0	SECONDARY	DISK	REPORTED	0x1000b	0x500a098001bc0562	B
0c.7.12 0	PRIMARY	DISK	REPORTED	0x1000000b	0x500a098001bc0561	A
0b.7.9 0	PRIMARY	DISK	REPORTED	0x10008	0x500a098001bc05ee	B
0c.7.9 0	SECONDARY	DISK	REPORTED	0x10000008	0x500a098001bc05ed	A

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0b.7.17 0	PRIMARY	DISK	REPORTED	0x1000f	0x500a098001c9e2e6	B
0c.7.17 0	SECONDARY	DISK	REPORTED	0x1000000f	0x500a098001c9e2e5	A
0b.7.3 0	PRIMARY	DISK	REPORTED	0x10003	0x500a098001c9eaae	B
0c.7.3 0	SECONDARY	DISK	REPORTED	0x10000003	0x500a098001c9eaed	A
0b.7.18 0	PRIMARY	DISK	REPORTED	0x10010	0x500a098001c9efea	B
0c.7.18 0	SECONDARY	DISK	REPORTED	0x10000010	0x500a098001c9efe9	A
0b.7.1 0	PRIMARY	DISK	REPORTED	0x10001	0x500a098001c9efee	B
0c.7.1 0	SECONDARY	DISK	REPORTED	0x10000001	0x500a098001c9efed	A
0b.7.7 0	PRIMARY	DISK	REPORTED	0x10007	0x500a09800352f53a	B
0c.7.7 0	SECONDARY	DISK	REPORTED	0x10000007	0x500a09800352f539	A
0b.7.11 0	PRIMARY	DISK	REPORTED	0x1000a	0x500a09800352f5da	B
0c.7.11 0	SECONDARY	DISK	REPORTED	0x1000000a	0x500a09800352f5d9	A
0b.7.19 0	PRIMARY	DISK	REPORTED	0x10011	0x500a09800352f5ea	B
0c.7.19 0	SECONDARY	DISK	REPORTED	0x10000011	0x500a09800352f5e9	A
0b.7.15 0	PRIMARY	DISK	REPORTED	0x1000d	0x500a09800352f602	B
0c.7.15 0	SECONDARY	DISK	REPORTED	0x1000000d	0x500a09800352f601	A
0b.7.20 0	PRIMARY	DISK	REPORTED	0x10012	0x500a09800352f68e	B
0c.7.20 0	SECONDARY	DISK	REPORTED	0x10000012	0x500a09800352f68d	A
0b.7.16 0	PRIMARY	DISK	REPORTED	0x1000e	0x500a098003530102	B
0c.7.16 0	SECONDARY	DISK	REPORTED	0x1000000e	0x500a098003530101	A

HBA :

slot 1: SAS Host Adapter 132 (5 PM8001 rev. PMC-Sierra, SAS, <UP>)

Part Number: 111-00341+xx

Firmware rev: 01.12.06.00

```

Port Name:                0a
Port WWN:                  5:00a098:00362ec:10
  QSFP[0] Vendor:          Not present
  QSFP[0] Part Number:      Not present
  QSFP[0] Type:             Not present
  QSFP[0] Serial Number:    Not present
Port Name:                0b
Port WWN:                  5:00a098:00362ec:14
  QSFP[1] Vendor:          Molex Inc.
  QSFP[1] Part Number:      112-00256+A0
  QSFP[1] Type:             Passive Copper 0.5m ID:1
  QSFP[1] Serial Number:    305021818
slot 1: SAS Host Adapter 133 (5 PM8001 rev. PMC-Sierra, SAS, <UP>)
  Part Number:              111-00341+xx
  Firmware rev:             01.12.06.00
  Port Name:                0c
  Port WWN:                  5:00a098:00362ec:18
    QSFP[0] Vendor:          Molex Inc.
    QSFP[0] Part Number:      112-00256+A0
    QSFP[0] Type:             Passive Copper 0.5m ID:0
    QSFP[0] Serial Number:    305021747
  Port Name:                0d
  Port WWN:                  5:00a098:00362ec:1c
    QSFP[1] Vendor:          Not present
    QSFP[1] Part Number:      Not present
    QSFP[1] Type:             Not present
    QSFP[1] Serial Number:    Not present

```

storage stsb get-crash-dump

Retrieve SAS-to-SATA Bridge (STSB) crash-dump information

Privilege Level: normal

Description

This command retrieves crash-dump information from the SAS-to-SATA Bridge (STSB) dongle attached to the specified drive. The crash data is written to a text file located in the `/var/log/mars/storage/crash` directory.

Parameters

-name <string>

The name of the disk to retrieve STSB crash-dump information from.

Examples

Get the crash-dump information from the disk named *0a.8.0*.

```
storage stsb get-crash-dump -name 0a.8.0
```

Command is in progress.

Getting STSB data for SSD: 0a.8.0

stsb get-crash-dump: Writing device 0a.8.0 crash dump to file /var/-
log/mars/storage/crash/alta_crash_dump_0a.8.0_0

See also

[storage stsb get-event-log](#)

[storage stsb identify-device](#)

storage stsb get-event-log

Retrieve SAS-to-SATA Bridge (STSB) event logs

Privilege Level: normal

Description

This command retrieves log information from the SAS-to-SATA Bridge (STSB) dongle attached to the specified drive. The log data is written to a text file located in the /var/log/mars/storage/crash directory.

Parameters

-name <string>

The name of the disk to retrieve STSB event-log information from.

Examples

Get the event log from the disk named *0a.8.0*.

```
storage stsb get-event-log -name 0a.8.0
```

Command is in progress.

Getting STSB data for SSD: 0a.8.0

stsb get-event-log: Writing device 0a.8.0 event-log to file /var/-
log/mars/storage/crash/alta_log_0a.8.0_0

See also

[storage stsb get-crash-dump](#)

[storage stsb identify-device](#)

storage stsb identify-device

Retrieve SAS-to-SATA Bridge (STSB) identity information

Privilege Level: normal

Description

This command retrieves identify information from the SAS-to-SATA Bridge (STSB) attached to the specified drive.

Parameters

-name <string>

Name of the disk to identify.

Examples

Get identity data associated with the disk named *a.8.0*.

```
storage stsb identify-device -name a.8.0
```

Command is in progress.

Getting STSB data for SSD: 0a.8.0

SAS LINK INFO:

=====

PHY:	0	1
Negotiated Link Rate:	6Gbps	6Gbps
SAS address:	500a098001bc030e	500a098001bc030d
Attached SAS address:	500a098001e3663f	500a098001e3723f
Attached PHY ID:	8	8
Invalid DWORD count:	0	0
Disparity Error count:	0	0
LOS count:	0	0
PHY Reset Problem count:	0	0

SATA LINK ERROR INFO:

=====

RECEIVE ERROR COUNT:	0
TRANSMIT ERROR COUNT:	0
LINK DOWN COUNT:	0
DISPARITY ERROR COUNT:	0
INVALID DWORD COUNT:	0
LOS COUNT:	0
SPEED NEG. ERROR COUNT:	0

```
VERSION INFO:
=====
CHIP IDENTIFIER:      9110
CHIP REVISION:        B0
SERIAL NUMBER:        941322000050
SATA WWN:             500a098001bc030c
SAS PORT 0 ID:        500a098001bc030e
SAS PORT 1 ID:        500a098001bc030d
PCB PART NUMBER:      110-00345+10
OEM NAME:             NetApp, Inc.
PCB REVISION:
MANUF. DATE:          0
MANUF. LOCATION:      FXN-TW
FIRMWARE REVISION:    03.00.00.09
BOOT LOADER VERSION:  BLV1.0.0.18
CONFIG DATA VERSION: CFG5.25
```

See also

[storage stsb get-event-log](#)

[storage stsb get-crash-dump](#)

system coredump backtrace show

Display crucial information from a core file

Privilege Level: normal

Description

This command displays crucial information from a core dump file, including backtraces. Core files can be very large (many gigabytes) and you may not want to copy a core off this controller unless you know that it might be useful. This command assists you in understanding if the core file is important.

The output from this command is divided into sections. The most important sections are at the bottom of the output, and are titled THREAD BLAME and CRASH HASH. When you wish to receive feedback from support staff about a crash, copy-paste at least those two sections, and email them to support staff. Support staff can then quickly determine if the core file is necessary to understand the condition.

Parameters

-corename <string>

Name of the core file.

Examples

Display the core backtrace report for the core named *core.940000474542.20140630T235808Z.mars.3908*.

```
system coredump backtrace show -corename
core.940000474542.20140630T235808Z.mars.3908
```

```
===== META SECTION =====
version=1
date=2014-06-22T07:57:25Z
===== END META SECTION =====

===== CORE INFO SECTION =====
core=/var/crash/core.mars
size=38632210432
program=/x/mars/rlse/mars/R0.2x/R0.2xN_20140611_154750/build-o3/s-
rc/final/mars
git_revision=df662b0aeb3099fd8d6d1011051dc4f4aca0eac4
compile_time=1402528398
compile_date=2014-06-11T23:13:18Z
```

```
===== END CORE INFO SECTION =====
```

```
.
. [skipping sections]
.
```

```
===== THREAD BLAME SECTION =====
```

```
[Current thread is 1 (Thread 0x7f28ace77700 (LWP 3894))]
#0  0x00007f2cfebb57ab in tcmalloc::ThreadCache::ReleaseToCentralCache(tcmal-
loc::ThreadCache::FreeList*, unsigned long, int) () from /us-
r/lib/libtcmalloc.so.4
#1  0x00007f2cfebb5833 in tcmalloc::ThreadCache::ListTooLong
(tcmalloc::ThreadCache::FreeList*, unsigned long) () from /us-
r/lib/libtcmalloc.so.4
#2  0x00007f2cfebc3b13 in tc_free () from /usr/lib/libtcmalloc.so.4
#3  0x00007f2cfdeafccd in fsetpos64 () from /lib/x86_64-linux-gnu/libc.so.6
#4  0x00007f289e3e6f15 in ?? () from /lib/x86_64-linux-gnu/libnss_files.so.2
#5  0x00007f289e3e71f7 in _nss_files_gethostbyname4_r () from /lib/x86_64-
linux-gnu/libnss_files.so.2
#6  0x00007f2cfdefebb3 in ?? () from /lib/x86_64-linux-gnu/libc.so.6
#7  0x00007f2cfd01132 in ?? () from /lib/x86_64-linux-gnu/libc.so.6
#8  0x0000000000000000 in ?? ()
===== END THREAD BLAME SECTION =====
```

```
===== CRASH HASH SECTION =====
```

```
1a9c7a174789faac0af0bc4b13e68237 1
e48f1b8234b01e4a233cbcaa151c4e49 2
4a6bf33a91bce467f99c5f9b8534a63f 3
139ca264de944d50374c0226e60725f5 4
9b6055dc4e652a0c219f01dca0bbbc08 40
c472e8544351a0d99fedb0fa3a519a06 52
0fec9efc5692e04acbcd626772bbe8a 78
76c891154d4017b52c767015557f09d0 81
===== END CRASH HASH SECTION =====
```

See also

[system coredump show](#)

system coredump delete

Delete a core dump file from this controller

Privilege Level: normal

Description

This command deletes a core dump file from this controller.

Parameters

-corename <string>

Name of the core file.

Examples

Delete the core file named *core.940000474542.20140630T235808Z.mars.3908* from the local controller.

```
system coredump delete -corename core.940000474542.20140630T235808Z.mars.3908
```

```
removed 'core.940000474542.20140630T235808Z.mars.3908'
```

See also

[system coredump show](#)

system coredump describe

Display the executable from which a core dump file was generated

Privilege Level: normal

Description

This command displays the mappings between all core files on the controller and the executables that generated them.

Examples

```
system coredump describe
```

```
core.940000474542.20140630T235808Z.mars.3908 --> /mars/sbin/mars -C all,-  
U,ras -C nvram,-U,all -r ss_timeout=true -r HashtableLo  
core.940000474542.20140701T000719Z.mars.5013 --> /mars/sbin/mars -C all,-  
U,ras -C nvram,-U,all -r ss_timeout=true -r HashtableLo  
core.940000474542.20140701T030107Z.mars.4904 --> /mars/sbin/mars -C all,-  
U,ras -C nvram,-U,all -r ss_timeout=true -r HashtableLo
```

See also

[system coredump show](#)

system coredump show

Display all core dump files available on this controller

Privilege Level: normal

Description

This command displays all core dump files available on this controller. A core is a raw dump created by a crashing program or by the kernel.

Examples

```
system coredump show
```

size	date/time	name
-----	-----	-----
59G	Jun 30 17:00	core.940000474542.20140630T235808Z.mars.3908
59G	Jun 30 17:09	core.940000474542.20140701T000719Z.mars.5013
59G	Jun 30 20:03	core.940000474542.20140701T030107Z.mars.4904

See also

[system coredump backtrace show](#)

system fs show

Display this controller's file system configuration

Privilege Level: normal

Description

This command displays the controller's file system configuration. This does not include file systems that are exportable to clients. This includes only file systems that are private to the controller, such as boot media.

Examples

```
system fs show
```

Filesystem	Size	Used	Avail	Use%	Mounted on
rootfs	126G	1.9G	124G	2%	/
udev	10M	0	10M	0%	/dev
tmpfs	13G	212K	13G	1%	/run
tmpfs	126G	1.9G	124G	2%	/
tmpfs	5.0M	0	5.0M	0%	/run/lock
tmpfs	26G	0	26G	0%	/run/shm
tmpfs	126G	0	126G	0%	/tmp
/dev/sdb2	3.8G	856M	2.8G	24%	/configbkp
/dev/sda2	3.8G	1.1G	2.6G	29%	/config
/dev/sda1	99G	1.2G	93G	2%	/var/log
/dev/sda3	338G	109G	212G	34%	/var/crash
/dev/sdb1	3.8G	2.0G	1.9G	52%	/boot0
/dev/sda3	338G	109G	212G	34%	/home/marsdiag/core
/dev/sda1	99G	1.2G	93G	2%	/home/marsdiag/log

system interface modify

Modify the IP settings of this controller's network interface

Privilege Level: normal

Description

This command modifies the IP settings of this controller's network interface.

By default, the network interface attempts to use DHCP. When the network interface's address is not assigned through DHCP, you can use this command to assign an address statically.

Note: The static configuration is not retained across reboots.

You might need to use this command if you intend to transfer a file (such as a core file or log file) off the controller.

Parameters

-gateway <string>

Default gateway.

-address <string>

IP address to assign.

-netmask <string>

Netmask of the IP address.

Examples

Update the controller to have an IP address of *10.16.84.245*, a netmask of *255.255.254.0* and a gateway of *10.16.84.1*.

```
system interface modify -address 10.16.84.245 -netmask 255.255.254.0 -gateway
10.16.84.1
```

```
Taking the network interface down...
Configuring and restarting the network interface...
Adding the gateway...
Success.
```

```
eth1    Link encap:Ethernet  HWaddr 00:b2:94:33:f3:aa
        inet addr:10.16.84.245  Bcast:10.16.85.255  Mask:255.255.254.0
        UP BROADCAST MULTICAST  MTU:1500  Metric:1
```

```
RX packets:337 errors:0 dropped:0 overruns:0 frame:0
TX packets:109 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:38917 (38.0 KiB) TX bytes:15445 (15.0 KiB)
Interrupt:17 Memory:45a00000-45a20000
```

system interface ping

Ping an IP address through this controller's network interface

Privilege Level: normal

Description

This command pings an IP address through this controller's network interface. You can use this command to verify connectivity to a different computer on the network.

Parameters

-address <string>

Address to ping.

Examples

Attempt to ping the device with an IP address of *10.122.76.132*

```
system interface ping -address 10.122.76.132

PING 10.122.76.132 (10.122.76.132) from 10.16.84.245 eth1: 56(84) bytes of
data.
64 bytes from 10.122.76.132: icmp_req=1 ttl=56 time=20.0 ms
64 bytes from 10.122.76.132: icmp_req=2 ttl=56 time=20.1 ms
64 bytes from 10.122.76.132: icmp_req=3 ttl=56 time=19.8 ms
64 bytes from 10.122.76.132: icmp_req=4 ttl=56 time=20.0 ms
64 bytes from 10.122.76.132: icmp_req=5 ttl=56 time=19.9 ms
^C
--- 10.122.76.132 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 19.873/20.013/20.102/0.129 ms
```

system interface show

Display this controller's network interface configuration and status

Privilege Level: normal

Description

This command displays this controller's interface configuration and status. You can use this command to verify the interface in order to transfer a file (such as a core file or log file) off the controller.

Examples

Display the system network interface.

```
system interface show
```

```
eth1    Link encap:Ethernet  HWaddr 00:b2:94:33:f3:aa
        inet addr:10.16.84.245  Bcast:10.16.85.255  Mask:255.255.254.0
        inet6 addr: fe80::2a0:98ff:fe54:f3aa/64  Scope:Link
        inet6 addr: fd20:8ble:b255:20f:2a0:98ff:fe54:f3aa/64  Scope:Global
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:228560024 errors:0 dropped:0 overruns:0 frame:0
        TX packets:4510061 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:69515560888 (64.7 GiB)  TX bytes:1328052407 (1.2 GiB)
        Interrupt:17 Memory:45a00000-45a20000
```

system locallog list

Display the list of available log files in a directory on the controller

Privilege Level: normal

Description

This command displays log files in the specified directory on the controller.

Parameters

-name <string>

Name of the directory to list.

Examples

Display log files found in the *mars* directory.

```
system locallog list -name mars
```

autosupport/	dump-o-tron.log	marsspd.log	software/	trim.log
cm_archiver/	dump-o-tron.log.1	marswebui/	stats/	uid/
cores/	ev/	marszeroconf/	storage/	
databases/	mars.log	platform/	trace/	

system locallog show

Display the content of a log file on the controller

Privilege Level: normal

Description

This command displays the content of the specified log file on the controller.

Parameters

-name <string>

Name of the log file to display, including the name of the directory.

Examples

Display the contents of the log file named *mars/dump-o-tron.log*.

```
system locallog show -name mars/dump-o-tron.log
```

```
2014-07-01 21:55:01,402 3620 DEBUG Waiting to lock '/tmp/super_dump_o_
tron.lock'
2014-07-01 21:55:01,402 3620 DEBUG Locked '/tmp/super_dump_o_tron.lock'
(waited 0.000116s)
2014-07-01 21:55:01,402 3620 ERROR PID file '/run/mars.pid': No such
file or directory
2014-07-01 21:55:01,403 3620 ERROR Failed to collect stats: Mars is not
running
2014-07-01 21:55:01,403 3620 DEBUG Unlocking '/tmp/super_dump_o_tron.-
lock'
2014-07-01 21:55:01,403 3620 DEBUG Deleted 0 file(s) older than 2014-
07-01 11:40:01.403168
2014-07-01 21:56:01,443 3630 DEBUG Waiting to lock '/tmp/super_dump_o_
tron.lock'
2014-07-01 21:56:01,443 3630 DEBUG Locked '/tmp/super_dump_o_tron.lock'
(waited 0.000124s)
2014-07-01 21:56:01,444 3630 ERROR PID file '/run/mars.pid': No such
file or directory
2014-07-01 21:56:01,444 3630 ERROR Failed to collect stats: Mars is not
running
2014-07-01 21:56:01,444 3630 DEBUG Unlocking '/tmp/super_dump_o_tron.-
lock'
2014-07-01 21:56:01,444 3630 DEBUG Deleted 0 file(s) older than 2014-
07-01 11:41:01.444203
```

system pci show

Display this controller's PCI configuration

Privilege Level: normal

Description

This command displays this controller's PCI configuration.

Parameters

-verbose [{ true | false }]

Display details of the controller's PCI configuration.

Examples

```
system pci show
```

```
00:00.0 Host bridge: Intel Corporation Ivytown DMI2 (rev 04)
00:01.0 PCI bridge: Intel Corporation Device 0e02 (rev 04)
00:02.0 PCI bridge: Intel Corporation Ivytown PCI Express Root Port 2a (rev
04)
00:02.2 PCI bridge: Intel Corporation Ivytown PCI Express Root Port 2c (rev
04)
00:02.3 PCI bridge: Intel Corporation Ivytown PCI Express Root Port 2d (rev
04)
00:03.0 PCI bridge: Intel Corporation Ivytown PCI Express Root Port 3a (rev
04)
00:04.0 System peripheral: Intel Corporation Ivytown Crystal Beach DMA Chan-
nel 0 (rev 04)
00:04.1 System peripheral: Intel Corporation Ivytown Crystal Beach DMA Chan-
nel 1 (rev 04)
00:04.2 System peripheral: Intel Corporation Ivytown Crystal Beach DMA Chan-
nel 2 (rev 04)
00:04.3 System peripheral: Intel Corporation Ivytown Crystal Beach DMA Chan-
nel 3 (rev 04)
.
.
.
ff:0f.1 System peripheral: Intel Corporation Ivytown Integrated Memory Con-
troller 0 RAS Registers (rev 04)
```

system reboot-reason show

Display this controller's reboot reason

Privilege Level: normal

Description

This command displays this controller's reboot reason. If the controller booted into maintenance mode due to a crash, this command shows the reason for the crash.

Examples

```
system reboot-reason show
```

```
Reboot reason: CLEAN_SHUTDOWN_LOADER
```

```
Details: clean shut down via a cluster shutdown command
```

system shell

Access the low level system shell

Privilege Level: diag

Description

This command gives access the low level system shell.

Note: This command will be removed in a future version of Mars OS. If you must use it, contact NetApp technical support.

Examples

```
system shell
```

```
root@marsdev:/home/marsdiag#
```

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