Cray ClusterStor CSCLI Command Reference Guide (6.0) S-9922

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Abstract

This guide describes ClusterStor Command Line Interface (CSCLI) command syntax and usage information for Cray ClusterStor systems.

Notices

Acknowledgments

Revision history

Publication Title	Date	Updates
Cray ClusterStor CSCLI Command Reference Guide (6.0) S-9922	February 2022	New and deprecated CSCLI commands for release 6.0 (and 3.0.0, 3.3, 4.1, 4.4, and 5.0)
ClusterStor CSCLI Command Reference Guide (4.4) S-9922 Rev A	September 2021	New information added to the `lustre_lnet multi-rail` Command section.
ClusterStor CSCLI Command Reference Guide (4.4) S-9922	April 2021	New and deprecated CSCLI commands for release 4.4
ClusterStor CSCLI Command Reference Guide (4.3) S-9922	January 2021	New and deprecated CSCLI commands for release 4.3 (and 3.5)
ClusterStor CSCLI Command Reference Guide (4.2) S-9922	October 2020	New and deprecated CSCLI commands for release 4.2
ClusterStor CSCLI Command Reference Guide (4.1) S-9922 Rev B	September 2020	This revision includes the `--partition-count {2,4}` option for the `cscli configure_hosts` and `cscli configure_oss` commands.

Publication Title	Date	Updates
ClusterStor CSCLI Command Reference Guide (4.1) S-9922 Rev A	July 2020	This revision includes `cscli lustre lnet multi-rail` command clarifications for Initial Bonded to Multi-Rail Conversion, Adding additional Interfaces in Multi-Rail Mode, Disabling Multi-Rail, and revert back to Bonded Mode.
ClusterStor CSCLI Command Reference Guide (4.1) S-9922	June 2020	New and deprecated CSCLI commands for releases 4.0 and 4.1
ClusterStor CSCLI Command Reference Guide (3.4) S-9922	February 2020	New and deprecated CSCLI commands for release 3.4
ClusterStor CSCLI Command Reference Guide (3.3) S-9922	December 2019	New and deprecated CSCLI commands for release 3.3
ClusterStor CSCLI Command Reference Guide (3.2) S-9922	August 2019	New and deprecated CSCLI commands for release 3.2
ClusterStor CSCLI Command Reference Guide (3.1) S-9922	February 2019	Initial document covering CSCLI commands for releases 2.1.0, 3.0.0, and 3.1

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About the Cray ClusterStor CSCLI Command Reference Guide

The Cray ClusterStor CSCLI Command Reference Guide S-9922 includes reference information about ClusterStor command line interface (CSCLI) command details for Cray ClusterStor L300/L300N and Cray ClusterStor E1000 storage systems. Command details introduced in release 4.1 and later only apply to Cray ClusterStor E1000 storage systems.

Scope and Audience

This publication is for system administrators who operate, manage, and troubleshoot ClusterStor storage systems.

Typographic Conventions

Convention	Usage
`Monospace`	Indicates program code, reserved words, library functions, command-line prompts, screen output, file/path names, and other software constructs.
`Monospaced Bold`	Indicates commands that must be entered on a command line or in response to an interactive prompt.
Oblique or *Italics*	Indicates user-supplied values in commands or syntax definitions.
Proportional Bold	Indicates a GUI Window, GUI element, cascading menu (Ctrl > Alt > Delete), or key strokes (press Enter).

Other Conventions

Sample commands and command output used throughout this publication are shown with a generic file system name of **cls12345.**

CSCLI Command Reference Overview

This guide describes ClusterStor Command Line Interface (CSCLI) command syntax and usage information for Cray ClusterStor systems. It provides CSCLI command details for the current software release and previous releases. Detailed CSCLI commands and subcommands are listed alphabetically in the format shown in the following figure. At the end of this document, locate release-specific details for new, modified, and deprecated commands that were introduced in each release.

Figure 1: CSCLI Command Reference Format

set_date Command

Introduced in Software Release: 1.2.x ← *Displays release in which command first appeared.*

Use the set_date command to manage the date on the storage system.

> **IMPORTANT:** Exercise caution before using the --force-ntp parameter.

Synopsis

```
$ cscli set_date [-h] [-s new_date] [--override-ntp] [--force-ntp]
```

where:

Release column displays release in which an argument first appeared, if later than when the command was introduced.

Optional Arguments	Description	Release
-s new_date |--set new_date	Specifies the new date in the format: MMDDhhmmCCYY.ss	
--override-ntp	Override external ntp server and set new date.	3.0.0
--force-ntp	*Deprecated in 3.0.0.* Forces NTP configuration.	
-h |--help	Displays the help message and exits.	

Indicates the release when an argument was deprecated.

> **NOTE:** The Release column in the table will only appear if an argument or subcommand was introduced in a later release than the command itself.

The CSCLI feature allows the administrative functions available in the ClusterStor Manager GUI to be run from a Command Line Interface (CLI) using regular SSH clients. CSCLI commands for Node Control (for example, power management, start/stop Lustre) along with a selected number of monitoring commands are currently supported.

Since Cray ClusterStor systems and software are in active development, the CSCLI documentation is a work-in-progress. As new CSCLI commands become available, they will be added to this publication. Notations to deprecated commands are added upon that status change.

CSCLI Commands

This section provides an alphabetical list of CSCLI commands and subcommands with command options.

`admins` Command

Introduced in Software Release: 4.0

Updated in Software Release: 6.0

Use the `admins` command to manage admin accounts.

Synopsis

```
$ cscli admins [-h] {add,list,remove,modify,reset_password,policy,enable,disable,show,lockout}
```

Positional Arguments	Description	Release
`add`	Create a new admin account	
`list`	Display all the available admin accounts, except default admin account, namely {admin}	
`remove`	Remove the specified admin account	
`modify`	Modify preferences for the specified admin account	
`reset_password`	Reset the password policy for admin accounts	
`policy`	Manage password policy for admin accounts	
`enable`	Enable the specified admin account	
`disable`	Disable the specified admin account	
`show`	Display the details of the specified admin account	
`lockout`	Deprecated in 6.0. Reset after password lockout.	4.0 - 6.0

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`admins add` Subcommand

Introduced in Software Release: 4.0

Updated in Software Release: 6.0

The `admins add` command is a subcommand of the `admins` command. Use the subcommand to create a new admin account.

Synopsis

```
$ cscli admins add [-h] --username username
                        --role {full,limited,readonly}
                        [--firstname firstname]
                        [--lastname lastname]
                        [--enable-ssh | --disable-ssh]
                        [--enable-web | --disable-web]
                        [--password password]
                        [--stream-api] [--password-policy policy]
```

Optional Arguments	Description	Release
`--username username`	Specify the user name	6.0+
`--role {full,limited,readonly}`	Specify the role of the user	6.0+
`--firstname firstname`	Specify the first name of the user	6.0+
`--lastname lastname`	Specify the last name of the user	6.0+
`--enable-ssh`	Enable SSH for the user. The default is SSH enabled.	6.0+
`--disable-ssh`	Disable SSH for the user	6.0+
`--enable-web`	Enable web access for the user. The default is web enabled.	6.0+
`--disable-web`	Disable web access for the user	6.0+
`--password password`	Set the password for the user	6.0+
`--stream-api`	Specify the stream API access for the user. For stream API users, the "strong" password policy is used. For other users, the "default" password policy is used.	6.0+
`--password-policy policy`	Create the user account with the specified password policy. Specifying the password policy takes precedence over `--stream-api`. If not specified, the "default" password policy is used.	6.0+
`-h |--help`	Display the help message and exit	

`admins disable` Subcommand

Introduced in Software Release: 4.0

The `admins disable` command is a subcommand of the `admins` command. Use the subcommand to disable a specified admin account.

Synopsis

```
$ cscli admins disable [-h] --username USERNAME
```

Positional Arguments	Description
`--username USERNAME`	specify the user

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`admins enable` Subcommand

Introduced in Software Release: 4.0

The `admins enable` command is a subcommand of the `admins` command. Use the subcommand to enable a specified admin account.

Synopsis

```
$ cscli admins enable [-h] --username USERNAME
```

Positional Arguments	Description
`--username USERNAME`	Specify account to enable

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`admins list` Subcommand

Introduced in Software Release: 4.0

The `admins list` command is a subcommand of the `admins` command. Use the subcommand to display all the available admin accounts except default admin account, namely {admin}.

Synopsis

```
$ cscli admins list [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage and Example Output

```
$ cscli admins list
-----------------------------------------------------------------
 Username    Role      Uid    SSH Enabled  Web Enabled   Policy
-----------------------------------------------------------------
 fulluser    full      1017      True         True       NewPolicy
 RUadmin     readonly  1023      True         True        default
 snguyen     readonly  1016      False        True        default
 limited     limited   1024      True         True        default
 fulladmin   full      1021      True         True        default

-----------------------------------------------------------------
```

`admins lockout` Subcommand

Introduced in Software Release: 4.0

Deprecated in Software Release: 6.0

The `admins lockout` command is a subcommand of the `admins` command. Use the subcommand to reset following a password lockout.

Synopsis

```
$ cscli admins lockout [-h] {reset} ...
```

Optional Arguments	Description
`--username` *`username`*	Specify the user
`-h |--help`	Display the help message and exit

Usage

`cscli admins lockout reset`

```
$ cscli admins lockout reset [-h]
admins: cscli admins lockout reset: error: argument --username is required
```

`cscli admins lockout reset --username`

```
$ cscli admins lockout reset [-h] --username username
admins: cscli admins lockout reset: error: argument --username: expected one argument
```

`cscli admins list`

```
----------------------------------------------------------------
 Username    Role      Uid    SSH Enabled  Web Enabled   Policy
----------------------------------------------------------------
 fulluser    full      1017     True         True       NewPolicy
 RUadmin     readonly  1023     True         True        default
 snguyen     readonly  1016     False        True        default
 limited     limited   1024     True         True        default
 fulladmin   full      1021     True         True        default
----------------------------------------------------------------
```

`ssh fulladmin@puppet`

```
Password:
Password:
Password:
Received disconnect from 172.16.2.1 port 22:2: Too many authentication failures
Authentication failed.
```

`cscli admins lockout reset --username fulladmin`

```
admins: Lockout Reset Started!!!
admins: Lockout Reset Completed Successfully
```

`ssh fulladmin@puppet`

```
Password:
Last failed login: Thu Oct 24 06:25:39 UTC 2019 from 172.16.2.3 on ssh:notty
There were 3 failed login attempts since the last successful login.
[fulladmin@cls12345 ~]$
```

`admins modify` Subcommand

Introduced in Software Release: 4.0

Updated in Software Release: 6.0

The `admins modify` command is a subcommand of the `admins` command. Use the subcommand to modify preferences for a specified admin account.

Synopsis

```
$ cscli admins modify [-h] --username username
                              [--new-firstname firstname]
                              [--new-lastname lastname]
                              [--new-role {full,limited,readonly}]
                              [--new-shell {bash,rcsh}]
```

Optional Arguments	Description	Release
`--username username`	Specify the user name	6.0+
`--new-firstname firstname`	Specify the new first name of the user	6.0+
`--new-lastname lastname`	Specify the new last name of the user	6.0+
`--new-role {full,limited,readonly}`	Specify the new role of the user	6.0+
`--new-shell {bash, rcsh}`	Specify the shells available for the user	6.0+
`-h |--help`	Display the help message and exit	

`admins policy` Subcommand

Introduced in Software Release: 4.0

Updated in Software Release: 6.0

The `admins policy` command is a subcommand of the `admins` command. Use the subcommand to manage password policy for admin accounts.

Synopsis

```
$ cscli admins policy [-h] {set,add,remove,list,show} ...
```

Positional Arguments	Description	Release
`set`	Assign the selected password policy to the user	6.0+
`add`	Create a new password policy	6.0+
`remove`	Delete a given password policy	6.0+
`list`	List the existing password policies	6.0+
`show`	Display a password policy	6.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`admins remove` Subcommand

Introduced in Software Release: 4.0

The `admins remove` command is a subcommand of the `admins` command. Use the subcommand to remove a specified admin account.

Synopsis

```
$ cscli admins remove [-h] --username username
```

Positional Arguments	Description
`--username username`	Specify the user to remove

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`admins reset_password` Subcommand

Introduced in Software Release: 4.0

Updated in Software Release: 6.0

The `admins reset_password` command is a subcommand of the `admins` command. Use the subcommand to reset the password for a specified admin account.

Synopsis

```
$ cscli admins reset_password [-h] --username username
                                    [--old-password current_password]
                                    [--new-password new_password]
```

Optional Arguments	Description	Release
`--username username`	Specify the user name	
`--old-password current_password`	Specify the current password	6.0+
`--new-password new_password`	Specify the new password	6.0+
`-h |--help`	Display the help message and exit	

`admins show` Subcommand

Introduced in Software Release: 4.0

The `admins show` command is a subcommand of the `admins` command. Use the subcommand to display details of a specified admin account.

Synopsis

```
$ cscli admins show [-h] --username USERNAME
```

Positional Arguments	Description
`--username USERNAME`	Specify the user

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`alerts` Command

Introduced in Software Release: 1.2.*x*

Use the `alerts` command and subcommands to display current and historic health alerts for system nodes/elements and system alert thresholds.

Synopsis

```
$ cscli alerts [-h] {elements_active,nodes,elements,nodes_active,thresholds}
```

Positional Arguments	Description
`nodes`	Display alert history for nodes
`elements`	Display alert history for elements
`nodes_active`	Display current alerts for nodes
`elements_active`	Display current alerts for elements
`thresholds`	Display editable alert thresholds and their current settings

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`alerts elements` Subcommand

Introduced in Software Release: 2.x

Updated in Software Release: 6.0

The `alerts elements` command is a subcommand of the `alerts` command. Use the subcommand to display the alert history for elements.

Synopsis

```
$ cscli alerts elements [-h] [-y] [-s start_time] [-e end_time]
[-m limit] [-n node_name] [-U {unknown,warning,ok,critical,pending}]
```

Optional Arguments	Description	Release
`-y |--yaml`	Display output data in YAML format	
`-s start_time |--start-time start_time`	Specify the start time filter in ISO-8601 format. If `--start-time` is not specified, `--end-time` is ignored, and the "last 7 days" period is used.	
`-e end_time |--end-time end_time`	Specify the end time filter in ISO-8601 format. The default value is "now."	
`-m limit |--max limit`	Specify the maximum number (limit) of items to display	
`-n node_name |--node node_name`	Specify the node for which to display items. Pdsh-style node masks are not allowed here.	
`-U {unknown,warning,ok,critical,pending} |--elementstatus {unknown,warning,ok,critical,pending}`	Specify the element's status	6.0+
`-h |--help`	Display the help message and exit	

`alerts elements_active` Subcommand

Introduced in Software Release: 2.x

The `elements_active` command is a subcommand of the `alerts` command. Use the subcommand to display current alerts for elements.

Synopsis

```
$ cscli alerts elements_active [-h] [-y] [-v] [-x] [-n node_spec | -g genders_query] [-S element_filter]
```

Optional Arguments	Description
`-y |--yaml`	Output data in YAML format
`-v |--verbose`	Output extra data
`-x |--unhandled`	Display alerts for notifications that have not been turned off. (Default value is all alerts are shown.)
`-n node_spec |--nodes node_spec`	Specify pdsh-style node hostnames (e.g. `node[100-110,120]`)
`-g genders_query |--genders genders_query`	Specify node genders attributes query (e.g. `mds=primary`)
`-S element_filter |--search element_filter`	Specify the element filter so a search can be done by element name. The pattern is case-sensitive. Regular expressions allowed. For example, Fan Statistics, Power Statistics, Thermal Statistics, Voltage Statistics, etc.
`-h |--help`	Display the help message and exit

`alerts nodes` Subcommand

Introduced in Software Release: 2.*x*

The `nodes` command is a subcommand of the `alerts` command. Use the subcommand to display the alert history for nodes.

Synopsis

```
$ cscli alerts nodes [-h] [-y] [-s start_time] [-e end_time] [-m limit] [-n node_name] [-N {down,unreachable,up}]
```

Optional Arguments	Description
`-y |--yaml`	Output data in YAML format
`-s start_time |--start-time start_time`	Specify the alert start time in ISO-8601 format. If `--start-time` is not specified, then `--end-time` is ignored and the "last 7 days" period is used
`-e end_time |--end-time end_time`	Specify the alert end time in ISO-8601 format. (Default value is "now")
`-m limit |--max limit`	Specify the maximum number (limit) of alerts to display
`-n node_name |--node node_name`	Specify the node to display alerts. Pdsh-style node masks are not allowed here
`-N {down,unreachable,up}|--node status`	Specify node status
`-h |--help`	Display the help message and exit

`alerts nodes_active` Subcommand

Introduced in Release: 2.x

The `nodes_active` command is a subcommand of the `alerts` command. Use the subcommand to display current alerts for nodes.

Synopsis

```
$ cscli alerts nodes_active [-h] [-y] [-v] [-x]
[-n node_spec | -g genders_query]
```

Optional Arguments	Description
`-y |--yaml`	Output data in YAML format
`-v |--verbose`	Output extra data
`-x |--unhandled`	Display alerts for notifications that have not been turned off (default is all alerts are shown)
`-n node_spec |--nodes node_spec`	Specify pdsh-style node hostnames (e.g. node[100-110,120])
`-g genders_query |--genders genders_query`	Specify node genders attributes query (e.g. `mds=primary`)
`-h |--help`	Display the help message and exit

`alerts thresholds` Subcommand

Introduced in Software Release: 2.x

Updated in Software Release: 6.0

The `alerts thresholds` command is a subcommand of the `alerts` command. Use the subcommand to display editable alert thresholds and their current settings.

Synopsis

```
$ cscli alerts thresholds [-h] [-y]
```

Optional Arguments	Description
`-y |--yaml`	Output data in YAML format
`-h |--help`	Display the help message and exit

In the command output, the threshold fields that are displayed include the following:

Field	Description
`name`	Short identifier of the threshold
`description`	Describes the threshold and gives tips on how to modify it
`gender`	Type of nodes to which the threshold is applied. Possible gender values that might be displayed include the following: ● **all:** All nodes; general node type that can be overwritten by more specific node types ● **mgmt:** Management nodes (primary and secondary) Obtain a list of all gender names with the `nodeattr -l` command on the MGMT node.
`warning`	Value of the warning threshold
`critical`	Value of the critical threshold

See the `alerts_config thresholds` Subcommand to set the value of an alert threshold.

`alerts_config` Command

Introduced in Software Release: 1.2.x

The `alerts_config` command and subcommands are used to view and update the alerts configuration.

Synopsis

```
$ cscli alerts_config [-h] {email_off,thresholds,email_update,email_server_update,email_delete,email_add,email_on,email_server,emails]
```

Positional Arguments	Description	Release
`email_off`	Turn off notifications for notification subscribers	1.3.1+
`thresholds`	Set the current value of an threshold. This value can be edited	1.2.x+
`email_update`	Send an email alert with an update	1.3.1+
`email_server_update`	Send an email alert with a server update	1.3.1+
`email_delete`	Delete the email	1.3.1+
`email_add`	Add a new notification subscriber	1.3.1
`email_on`	Turns on notifications for subscribers.	1.3.1+
`email_server`	Display the relay SMTP server configuration	1.3.1+
`emails`	List the alert notification subscribers	1.3.1+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`alerts_config email_add` Subcommand

Introduced in Software Release: 2.x

Updated in Software Release: 6.0

The `alerts_config email_add` command is a subcommand of the `alerts_config` command. Use the subcommand to add a new notification subscriber.

Synopsis

```
$ cscli alerts_config email_add [-h] -M email [-N user_full_name]
                                [-P {24x7,9to5,never}] [-L level]
```

Optional Arguments	Description	Release
`-M email |--email email`	Display the email address	6.0+
`-N user_full_name |--name user_full_name`	Display a longer name or description for the subscriber	6.0+
`-P {24x7,9to5,never}` `|--period {24x7,9to5,never}`	Display the time periods when the subscriber is notified. Possible periods include the following: • **24x7** (default value) - Notify always • **9to5** - Notify only during working days and hours (in the time zone of the server) • **never** - Notify never	6.0+
`-L level |--level level`	Display what level alerts trigger an email for the subscriber. Possible levels include the following: • Any combination of the following (comma-separated): 　○ **Critical** – Notify elements critical statuses 　○ **Warning** – Notify elements warning statuses 　○ **Down** - Notify node down statuses 　○ **Up** - Notify node up statuses 　○ **Unknown** – Notify elements unknown statuses 　○ **Ok** – Notify when elements recover from problems • **None** – No notifications (similar to `cscli alerts_config email_off`) • **All** (default value) – Send all notifications, including the following: 　○ When a node/element is flapping between statuses 　○ When a node/element is in scheduled downtime When the email notification level for a subscriber is set to OK, an email for an "OK" alert is not sent to the subscriber. For the system to send email for "OK" alerts, make sure that at least one additional severity of alerts is given.	6.0+
`-h |--help`	Display the help message and exit	

`alerts_config email_delete` Subcommand

Introduced in Software Release: 2.x

The `alerts_config email_delete` command is a subcommand of the `alerts_config` command. Use the subcommand to delete subscribers' notifications.

Synopsis

```
$ cscli alerts_config email_delete [-h] -u email
```

Optional Arguments	Description
`-u email |--user email`	Display subscriber email. New email notifications go to `/var/spool/mail` or admin.
`-h |--help`	Display the help message and exit

`alerts_config email_off` Subcommand

Introduced in Software Release: 2.x

The `alerts_config email_off` command is a subcommand of the `alerts_config` command. Use the subcommand to turn off notifications for subscribers.

Synopsis

```
$ cscli alerts_config email_off [-h] -u email
```

Optional Arguments	Description
`-u email |--user email`	Email address of the subscriber for whom notifications will be turned off
`-h |--help`	Display the help message and exit

`alerts_config email_on` Subcommand

Introduced in Software Release: 2.x

The `alerts_config email_on` command is a subcommand of the `alerts_config` command. Use the subcommand to turn on notifications for subscribers.

Synopsis

```
$ cscli alerts_config email_on [-h] -u email
```

Optional Arguments	Description
`-u email`|`--user email`	Display subscriber email. New email notifications go to /var/spool/mail or admin
`-h `|`--help`	Display the help message and exit

`alerts_config email_server` Subcommand

Introduced in Software Release: 2.x

The `alerts_config email_server` command is a subcommand of the `alerts_config` command. Use the subcommand to display the relay smtp server configuration.

Synopsis

```
$ cscli alerts_config email_server [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`alerts_config email_server_update` Subcommand

Introduced in Software Release: 2.x
The `email_server_update` command is a subcommand of the `alerts_config` command. Use the subcommand to configure the SMTP server to send alerts to external email addresses.

Synopsis

```
$ cscli alerts_config email_server_update [-h] -s smtp_server_address [--port port] [-S email_from] [-d domain] [-u smtp_user] [-p smtp_password
```

Optional Arguments	Description
`-s smtp_server_address |--server smtp_server_address`	Display an IP address or hostname of the (relay) SMTP server
`--port port`	SMTP server port (default: 25)
`-S email_from|--sender email_from`	Display the senders email address. If `--domain` is set, the default value for the sender is *cluster_name@domain*. If `--domain` is not set, the sender's email address is required.
`-d domain |--domain domain`	Display the internet hostname of the mail system to be used with email addresses that have no "@"
`-u smtp_user, --user smtp_user`	Specify the username if the SMTP server requires authentication.
`-p smtp_password |--password smtp_password`	The password if the SMTP server requires authentication
`-h |--help`	Display the help message and exit

`alerts_config email_update` Subcommand

Introduced in Software Release: 2.x

Updated in Software Release: 6.0

The `email_update` command is a subcommand of the `alerts_config` command. Use the subcommand to update an existing subscriber's notification.

Synopsis

```
$ cscli alerts_config email_update [-h] -u email [-M email]
                                   [-N user_full_name]
                                   [-P {24x7,9to5,never}] [-L level]
```

Optional Arguments	Description
`-u email |--user email`	Display subscriber email. New email notifications go to `/var/spool/mail` or `admin`
`-M email |--email email`	Display the email address
`-N user_full_name |--name user_full_name`	Display a longer name or description for the subscriber
`-P {24x7,9to5,never}` `|--period {24x7,9to5,never}`	Display the time periods when the subscriber is notified. Possible periods include the following: • **24x7** (default value) - Notify always • **9to5** - Notify only during working days and hours (in the time zone of the server) • **never** - Notify never

`-L level |--level level`	Display what level alerts trigger an email for the subscriber. Possible levels include the following:
	
	• Any combination of the following (comma-separated):
	
	  ○ **Critical** – Notify elements critical statuses
	
	  ○ **Warning** – Notify elements warning statuses
	
	  ○ **Down** - Notify node down statuses
	
	  ○ **Up** - Notify node up statuses
	
	  ○ **Unknown** – Notify elements unknown statuses
	
	  ○ **Ok** – Notify when elements recover from problems
	
	• **None** – No notifications (similar to `cscli alerts_config email_off`)
	
	• **All** (default value) – Send all notifications, including the following:
	
	  ○ When a node/element is flapping between statuses
	
	  ○ When a node/element is in scheduled downtime
	
	When the email notification level for a subscriber is set to OK, an email for an "OK" alert is not sent to the subscriber. For the system to send email for "OK" alerts, make sure that at least one additional severity of alerts is given.

`-h |--help`	Display the help message and exit

`alerts_config emails` Subcommand

Introduced in Software Release: 2.x

The `emails` command is a subcommand of the `alerts_config` command. Use the subcommand to display a list of alert notifications to the subscribers.

Notification Levels

The level option sets the alerts trigger for email to be sent to a subscriber. Possible level option values:

- **Critical** – Notify elements critical or node down statuses

- **Warning** – Notify elements warning statuses

- **Unknown** – Notify elements unknown statuses

- **Ok** – Notify when elements and nodes recover from problems

- Any combination of the above (comma-separated)

- **None** – No notificaitons (similar to `cscli alerts_config email_off`)

- **All** – Send all notifications, including notifications
    - when a node/element is flapping between statuses, or
    - when a node/element is in scheduled downtime

Synopsis

```
$ cscli alerts_config emails [-h] [-y] [-v] [-u email]
```

Optional Arguments	Description
`-y |--yaml`	Output data in YAML format
`-v |--verbose`	Output extra data in verbose mode
`-u email |--user email`	Display subscriber email. New email notifications go to /var/spool/mail or admin
`-h |--help`	Display the help message and exit

`alerts_config thresholds` Subcommand

Introduced in Software Release: 2.x

The `thresholds` command is a subcommand of the `alerts_config` command. Use the subcommand to set the current value of an alert threshold.

Current thresholds are applied to the monitoring configuration only if the `--apply-config` option is used. It may take about 15 seconds to apply the configuration threshold changes.

If a group of changes needs to be made to the thresholds, edit a few threshold values and then add the `--apply-config` option to the last edit to set all the changes at once.

The new thresholds applied to the monitoring configuration take effect a few minutes after they are applied when the next scheduled node check is performed.

The only editable thresholds are those listed in the output of the `cscli alerts thresholds` command.

Synopsis

`$ cscli alerts_config thresholds [-h] -t threshold_name -g gender_name [-W warning_threshold_value] [-C critical_threshold_value] [-A]`

Optional Arguments	Description
`-t threshold_name |--threshold threshold_name`	Display the name of the threshold
`-g gender_name |--gender gender_name`	Display the gender name of the threshold
`-W warning_threshold_value |-- warning warning_threshold_value`	Display the warning threshold value
`-C critical_threshold_value |-- critical critical_threshold_value`	Display the critical threshold value
`-A |--apply-config`	Apply the threshold configuration
`-h |--help`	Display the help message and exit

`alerts_notify` Command

Introduced in Software Release: 2.x

Use the `alerts_notify` command to turn alert notifications on or off.

Synopsis

```
$ cscli alerts_notify [-h] {on,off} ...
```

Positional Arguments	Description
`on`	Set the alert notification on
`off`	Set the alert notification off

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`alerts_notify on` Subcommand

Introduced in Software Release: 2.x

The `alerts_notify on` command is a subcommand of the `alerts_notify` command. Use the subcommand to turn alert notifications on.

Synopsis

```
$ cscli alerts_notify on [-h] (-n node_spec | -g genders_query) [-S element_filter | -E element_name]
```

Positional Arguments	Description
`-n node_spec |--node |--node_spec |--nodes node_spec`	Look through passed hostname elements. Look for pdsh-style nodes host names (e.g. node[100-110,120])
`-g genders_query |--genders genders_query`	Display the node genders attributes query (e.g. mds=primary)
`-S element_filter |--search element_filter`	Search by element name. The pattern is case sensitive. Regular expressions allowed
`-E element_name|--element element_name`	Display the element name

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`alerts_notify_off` Subcommand

Introduced in Software Release: 2.x
The `alerts_notify_off` command is a subcommand of the `alerts_notify` command. Use the subcommand to turn alert notifications off.

Synopsis

```
$ cscli alerts_notify off [-h] (-n node_spec | -g genders_query) [-S element_filter | -E element_name] [-C comment]
```

Positional Arguments	Description
`-n node_spec |--node |--node_spec |--nodes node_spec`	Look through passed hostname elements. Look for pdsh-style nodes host names (e.g. node[100-110,120])
`-g genders_query |--genders genders_query`	Display the node genders attributes query (e.g. mds=primary)
`-S element_filter |--search element_filter`	Search by element name. The pattern is case sensitive. Regular expressions allowed
`-E element_name|--element element_name`	Display the element name
`-C comment|--comment comment`	Display a brief description of the action being taken

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`apply_network_setup` Command

Introduced in Software Release: 2.x
Deprecated in Software Release: 3.0.0 (See the `lustre_network apply` subcommand topic for new command information.)

Use the `apply_network_setup` command to apply new Lustre network parameters to the database in Site Configuration mode.

> **IMPORTANT:** Exercise caution before using the --y or |--yes parameter.

Synopsis

```
$ cscli apply_network_setup [-h] [--yes] [-c cluster_name]
```

Optional Arguments	Description	Release
`--y |--yes`	Confirm the action that network setup parameters were applied	2.x only
`-c cluster_name|--cluster cluster_name`	Specify the cluster name	2.x only
`-h |--help`	Display the help message and exit	

`async_journal` Command

Introduced in Software Release: 2.x

Use the `async_journal` command to enable, query, or disable OST targets in daily mode.

Synopsis

```
$ cscli async_journal [-h] [-s] [--enable] [--disable]
```

Optional Arguments	Description
`-s |--status`	Display the status of asynchronous journal
`--enable`	Enable asynchronous journal for OSTs
`--disable`	Disable asynchronous journal for OSTs
`-h |--help`	Display the help message and exit

`autodiscovery_mode` Command

Introduced in Software Release: 2.x

Use the `autodiscovery_mode` command to manage node auto-discovery in the ClusterStor system.

Synopsis

```
$ cscli autodiscovery_mode [-h] [-s] [--mode {enabled,disabled}]
```

Optional Arguments	Description
`-s |--status`	Indicate the status of the auto-discovery mode
`--mode {enabled,disabled}`	Switch to the specified mode. Enable or disable the auto-discovery mode
`-h |--help`	Display the help message and exit

`batch` Command

Introduced in Software Release: 1.x
The `batch` command runs a sequence of CSCLI commands from a batch file.

Synopsis

```
$ cscli batch [-h] -b batch_file
```

Optional Arguments	Description
`-b batch_file |--batch-file batch_file`	Specifies the command batch file
`-h |--help`	Display the help message and exit

`cds` Command

Introduced in Software Release: 3.3

Use the `cds` command to configure the ClusterStor data services (Cds) emitter.

Synopsis

```
$ cscli cds [-h] {show,ip_address,ca_cert,secret}...
```

Positional Arguments	Description
`show`	Show configuration of Cds Emitter
`ip_address`	Set/show the IP address/FQDN of the Cds appliance
`ca_cert`	Install/show the Shasta CA certificate
`secret`	Set the client secret

Optional Arguments	Description
`-h |--help`	Displays the help message and exit

`cds ca_cert` Subcommand

Introduced in Software Release: 3.3

The `cds ca_cert` command is a subcommand of the `cds` command. Use the subcommand to install/show the Shasta CA certificate.

Synopsis

```
$ cscli cds ca_cert [-h] [-f FILE] [-d]
```

Optional Arguments	Description
`-f FILE, --install FILE`	Install the Shasta CA certificate
`-d, --display`	Show the Shasta CA certificate
`-h |--help`	Show the help message and exit

Usage

Set the Shasta CA certificate:

```
cls12345$ cscli cds ca_cert -f /tmp/shasta.crt
cds: Updating of CDS CA Cert is successful
cds: CDS CA Cert is registered
```

Display the path of the certificate:

```
cls12345$ cscli cds ca_cert -d
cds: Path of CDS CA Cert : /mnt/mgmt/var/lib/puppet/files/etc/certificate_authority.crt
```

`cds ip_address` Subcommand

Introduced in Software Release: 3.3

The `cds ip_address` command is a subcommand of the `cds` command. Use the subcommand to set/show the IP address/FQDN of the Cds appliance.

Synopsis

```
$ cscli cds ip_address [-h] [-s IPS] [-d]
```

Optional Arguments	Description
`-s IPS, --set IPS`	Set the IP address/FQDN of the Cds appliance
`-d, --display`	Show the IP address/FQDN of the Cds appliance
`-h |--help`	Show the help message and exit

Usage

Display the IP address in the current configuration:

```
cls12345$ cscli cds ip_address -d
cds: CDS ip address is : 127.0.0.1
```

Set the IP address/FQDN of the CDS appliance:

```
cls12345$ cscli cds ip_address -s 127.16.81.1
cds: Updating of CDS IP Address is successfully
cds: CDS ip address 127.16.81.1 is registered
```

`cds secret` Subcommand

Introduced in Software Release: 3.3

The `cds secret` command is a subcommand of the `cds` command. Use the command to set the client secret.

Synopsis

```
$ cscli cds secret [-h]
```

Optional Arguments	Description
`-s SECRET, --secret SECRET`	Client secret key for authentication and authorization
`-h |--help`	Show the help message and exit

Usage

Set up the client secret key for authentication and authorization:

```
cls12345$ cscli cds secret -s dghdggdhjgdFGJFshgjs
cds: Updating of CDS Secret is successful
cds: CDS secret key dghdggdhjgdFGJFshgjs is registered
```

`cds show` Subcommand

Introduced in Software Release: 3.3

The `cds show` command is a subcommand of the `show` command. Use the subcommand to show ClusterStor data services (Cds) configuration information.

Synopsis

```
$ cscli cds show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
cls12345$ cscli cds show
Cds info :
========================================
CDS IP Address is : 127.0.0.1

CDS secret key is : DFGHJKLTSHSJSUSGHDHF

cds ca cert is : /mnt/mgmt/var/lib/puppet/files/etc/certificate_authority.crt
```

`cluster_mode` Command

Introduced in Software Release: 2.x

Use the `cluster_mode` command to specifiy storage system modes: daily, site configuration, or pre-shipment.

Synopsis

```
$ cscli cluster_mode [-h] [-s] [--mode {daily,custwiz,pre-shipment}] [--db-only]
```

Optional Arguments	Description
`-s |--status`	Display the status of the cluster
`--mode {daily,custwiz,pre-shipment}`	Switch to the specified mode. Switch to daily mode, site configuration mode, or pre-shipment mode
`--db-only`	Update only the database. Does not sync nodes via puppet. Valid only with `--mode` argument
`-h |--help`	Display the help message and exit

`configure_hosts` Command

Introduced in Software Release: 2.x

Updated in Software Release: 3.3, 4.1, 5.0, and 6.0

Use the `configure_hosts` command to configure the MAC address and host names for the discovered node. Nodes in the ADU (MDS nodes) can be configured via this command.

Synopsis

```
$ cscli configure_hosts [-h] -m mac_address --hostname hostname
                        --location location, --raid-mode
                        {mdraid,gridraid,draid} [-f] [--multiple-mdt]
                        [--partition-count {2,4}] --role {oss,mds} [-s]
                        [--dwpd {1,3}] [--hybrid]
```

Optional Arguments	Description	Release
`-m mac_address |--mac mac_address`	The node MAC address	
`--hostname hostname`	The new node *hostname*	
`--location location`	Rack location of the new host's enclosure, in the form RACK-NAME/U-HEIGHT. For example: `Rack2/1U`, `R1C2/5U`See `'cscli rack list'` for rack names in this system.	3.3+
`--raid-mode {mdraid,gridraid,draid}`	Choose underlying raidMode to add node with force mode (for skipping *hostname* validation)	3.3+
`-f |--force`	Force the mode (to skip *hostname* validation)	
`--multiple-mdt`	Configure MDS node with multiple MDTs	3.3+
`--partition-count {2,4}`	Configure the partition count on L300F / E1000F GridRAID if `--raid-mode gridraid` and `--role oss` are passed. This will configure two or four OSTs on the added SSU depending on which value is passed. THIS MUST BE PASSED in order to pass `--partition-count {2,4}`, to `configure_oss -A` and the values MUST MATCH.	4.x only (but technically also works on L300F hardware)
`--role {oss,mds}`	Assign role to node being added so correct arrays for that role become available to bind	4.x+
`-s |--skip`	Skip reboot and Puppet run at the end	3.3+
`--dwpd {1,3}`	Configure a non-default drive-writes-per-day (DWPD) setting for the host. This setting is only applicable to E1000 clusters and cannot be passed on other platforms. Default `dwpd` values are the following: - SMU = dwpd: 3 - MMU/ADU = dwpd: 1 - SSU-F = dwpd: 1 - SSU-D (NVMe based head enclosure) = dwpd: 3 **CAUTION:** Passing `--dwpd 3` is irreversible. Be sure of the `dwpd` settings you want to use on the added nodes before passing anything.	6.0
`--hybrid`	Create hybrid array configuration with data array on both NVMe and HDD drives. This configuration is only supported on E1000 SSU-H hardware, and **requires** that the NVMe head enclosure slots are **fully** populated. If the detected hardware configuration does not support this, an error will be raised.	5.0+
`-h |--help`	Display the help message and exit	

Configure *hostname* for discovered node.

`configure_hosts` New Options

`--hybrid`

- Must be passed on both nodes being added.

- Must be passed with `--role oss`.

- The hardware profile fingerprinted during discovery must be of hybrid type, which requires full population of the NVMe head enclosure with EBOD enclosure attached for the physical hardware configuration.

`--raid-mode`

`{mdraid,gridraid,draid}`
- Required. Must pass this option. Must pass value from the `{xxraid}` choices.

- Now required to pass in `cscli configure_hosts` so that the corresponding value gets inserted into t0db.genders and propagated into /etc/genders

- This will be used later in `configure_oss` / `configure_mds` and matches the `genders` entries of existing nodes for install

- BOTH nodes in a node pair must pass the same `raid-mode` value. This is checked and will error out if two (2) node pairs pairs past `raid-mode` values differ

`--multiple-mdt`

- Does not accept a value. Treated as a True/False option

- Not required to pass in `cscli configure_hosts`, but if passed, corresponding True value gets inserted into t0db.genders and propagated into /etc/genders

- This will be used later in `configure_mds`. The option is NOT supported for OSS nodes, only mds (or ADU) nodes

- BOTH nodes in a pair must pass this value for the multiple MDT feature to be activated on that node pair. The command will error out if this option is only passed for a single node in a node pair.

`--location LOCATION`

- This option is required

- Specifies the rack location of the newly-added unit

- Must be in the form of RACK-NAME/U-HEIGHT. For example: R1C2/6U

Examples

`configure_hosts` **with hybrid array**

```
$ cscli configure_hosts -m 00:09:3D:0C:00:10 --hostname cls12345n004 --raid-mode draid --location R1C1/18U --role oss --hybrid
```

`configure_hosts` **with multiple-mdt and raid-mode gridraid**

```
$ cscli configure_hosts -m 00:50:CC:7A:28:2A --hostname cls12345n008 --raid-mode gridraid --multiple-mdt --location R1C2/6U
cscli configure_hosts -m 00:50:CC:7A:28:24 --hostname cls12345n009 --raid-mode gridraid --multiple-mdt --location R1C2/6U
```

Error if wrong raid-mode passed that doesn't match first node's raid-mode

```
$ cscli configure_hosts -m 00:50:CC:1D:21:76 --hostname cls12345n007 --raid-mode draid --location R1C2/6U
configure_hosts: Error: Partner host: cls12345n006 already configured with raidMode: gridraid. You must configure both hosts with same raidMode!
$
$ cscli configure_hosts -m 00:50:CC:1D:21:76 --hostname cls12345n007 --raid-mode draid --multiple-mdt --location R1C2/6U
```

```
configure_hosts: Error: Partner host: cls12345n006 already configured with raidMode: draid. You must configure both hosts with same raidMode!
```

Error if --multiple-mdt only passed on one host and not the second

```
$ cscli configure_hosts -m 00:50:CC:7A:28:24 --hostname cls12345n009 --raid-mode draid --location R1C2/6U
configure_hosts: Error: Partner host: cls12345n008 already configured with multiple mdt. You must pass --multiple-mdt on both hosts!
```

Show new nodes output if all options passed correctly, matching between node-pair   (Notice multiple free arrays per host)

```
$ cscli show_new_nodes
-----------------------------------------------------------------------
Hostname/MAC            IPMI        Free arrays   Assigned arrays  Pass/Fail
-----------------------------------------------------------------------
/ cls12345n008          172.16.0.109    md0,md2                    Passed
\ cls12345n009          172.16.0.110    md1,md3                    Passed
```

Partition Count

Examples of adding an SSU with `--partition-count 4` including some of the restrictions built into the code of option combinations:

Example of restriction errors if incorrect value is passed:

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:98 --hostname cls12345n005 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 3
usage: cscli configure_hosts [-h] -m mac_address --hostname hostname
                             --location location --raid-mode
                             {mdraid,gridraid,draid} [-f]
                             [--multiple-mdt]
                             [--partition-count {2,4}]
                             --role {oss,mds} [-s]
configure_hosts: cscli configure_hosts: error: argument --partition-count: invalid choice: '3' (choose from '2', '4')
```

Example of restriction errors if `--raid-mode gridraid` is not passed:

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:4D --hostname cls12345n004 --location R1C1/24U --role oss --raid-mode draid --partition-count 4
configure_hosts: Error: Cannot pass --partition-count: 4 unless --raid-mode gridraid is passed!!
```

Example of restriction errors if `--role oss` is NOT passed:

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:4D --hostname cls12345n004 --location R1C1/24U --role mds --raid-mode gridraid --partition-count 4
configure_hosts: Error: Cannot pass --partition-count: 4 unless --role oss is passed!!
```

Example of restriction errors if `--partition-count` value passed differs between two (2) hosts in a node-pair:

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:98 --hostname cls12345n005 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 2
configure_hosts: Error: Partner host: cls13245n004 already configured with --partition-count: 4. You must configure both hosts with same partition count if --partition
```

Example of correct usage:

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:4D --hostname cls12345n004 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 4
configure_hosts: discovered node hostname: discovery-00093d069e4d
configure_hosts: Node cls12345n004 is moved to rack "R1C1" in position "24U"
configure_hosts: Syncing puppet information
configure_hosts: Waiting until node reboots ...
configure_hosts: IEC: 019001000: New node got hostname: {"flavor": "vanilla", "hostname": "cls12345n004", "discovery_host": "discovery-00093d069e4d"}
configure_hosts: done
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:98 --hostname cls12345n005 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 4
configure_hosts: discovered node hostname: discovery-00093d069e98
configure_hosts: Node cls12345n005 is moved to rack "R1C1" in position "24U"
configure_hosts: Syncing puppet information
configure_hosts: Waiting until node reboots ...
configure_hosts: IEC: 019001000: New node got hostname: {"flavor": "vanilla", "hostname": "cls12345n005", "discovery_host": "discovery-00093d069e98"}
```

`show_new_nodes` - not `partition-count 4` will configure four free arrays:

```
cls12345$ cscli show_new_nodes
----------------------------------------------------------------
Hostname/MAC      IPMI        Free arrays    Assigned arrays  Pass/Fail
----------------------------------------------------------------
/ cls12345n004    172.16.0.105    md0,md2                     Passed
\ cls12345n005    172.16.0.106    md1,md3                     Passed
```

`bind-arrays` (Do NOT need to pass `--partition-count` here):

```
cls12345$ cscli configure_oss -n cls12345n004 -b md0:testfs,md2:testfs -r gridraid
...
cls12345$ cscli configure_oss -n cls12345n005 -b md1:testfs,md3:testfs -r gridraid
...
```

Apply config (Do NOT need to pass `--partition-count` here, and it MUST match what was pass during `configure_hosts`):

```
cls12345$ cscli configure_oss -A -n cls12345n[004-005] -r gridraid -s bandwidth -m -pc 2 -d ls300
configure_oss: Error: --partition-count: 4 was configured during configure_hosts for host: cls12345n004. Please pass --partition-count 4 !
```

Example of correct command:

```
cls12345$ cscli configure_oss -A -n cls12345n[004-005] -r gridraid -s bandwidth -m -pc 4 -d ls300
...
```

`configure_mds` Command

Introduced in Software Release: 1.2 (updated in 3.1. 3.3, 3.4, and 4.1)

Use the `configure_mds` command to add and configure new MDS nodes (optional additional MMUs) in the storage system. The command is used in two (2) modes:

- Bind MD device with Lustre filesystem (by name)

- Apply all bindings (configuration), i.e., perform formatting of MD devices as Lustre targets, configuration of HA, and so forth.

Synopsis

```
$ cscli configure_mds [-h] [-n NODE_SPEC] [-c CLUSTER_NAME] [-m] -r
                       {mdraid,gridraid,draid} [-d {ls300}]
                (-A | -b BIND_ARRAYS) -tm {yes,no}
                [-bfs {yes,no}] [benchmark-filesystem {yes,no}]
```

Optional Arguments	Description	Release
`-n NODE_SPEC` | `--nodes NODE_SPEC`	Specifies the new MDS nodes' hostnames (in genders style)	1.2+
`-A` | `--apply-config`	Apply the configuration to the new MDS node	1.2+
`-b BIND_ARRAYS` | `--bind-arrays BIND_ARRAYS`	Specify comma-separated pairs of array-filesystem bindings. Each binding should be in this format: array `:` file system name. The array variable can be a genders-style string (such as `md[0-3]`).	1.2+
`-bfs {yes,no}` | `--benchmark-filesystem {yes,no}`	Define option to provision BFS on newly-added SSU and MMU nodes. Pass "-bfs yes" to enabled BFS provisioning on added nodes, and "-bfs no" to disable BFS provisioning on added nodes This option is not required but can be automatically configured based on a global bfs property from original install (see Usage) If cluster was installed with global "bfs: yes" defined in the install yaml, that value will be honored and nodes will automatically be provisioned with BFS. This global setting can be overridden by passing "-bfs no"	4.1+
`-c CLUSTER_NAME` | `--cluster CLUSTER_NAME`	This parameter is deprecated. It is supported only for backward compatibility.	1.2
`-d {ls300}` | `--config {ls300}`	Add config options (if required)	3.3+
`-m` | `--multiple-mdt`	Add mds node with multiple MDTs	3.3+
`-r {mdraid,gridraid,draid}` | `--raid-mode {mdraid,gridraid,draid}`	Choose underlying raidMode with which to add node	3.3+
`-t {ls300}` | `--tag {ls300}`	Add config options (if required). **Note:** There is currently no use case for this argument with the `configure_mds` command. In the future, if an all-SSD MMU enclosure is introduced for ClusterStor systems, this argument will be used when adding an additional all-SSD MMU to the system. Note: this option was deprecated in release 3.3, replaced by `-d` | `--config`.	3.1-3.2
`-tm {yes,no}` | `--triple-mirror {yes,no}`	Define the triple-mirror RAID configuration for arrays on added nodes. Pass "triple-mirror no" to disable triple_mirror RAID configurations for arrays on added nodes. This option is not required but can be automatically configured base on a global triple_mirror property from original install (see example). If cluster was installed with global "triple_mirror: yes" defined in the install yaml, that value will be honored and nodes will automatically be configured with triple-mirror arrays. This global setting can be overridden by passing "--triple-mirror no" To check for existing global triple_mirror setting, run `cscli t0 property get --name triple_mirror`	3.4+
`-h` | `--help`	Display the help message and exit	

Usage

Use the following options to bind an MD device with the Lustre filesystem (by name):

```
$ cscli configure_mds -c cls12345n -n cls12345n006 --bind-arrays md0:cls12345n
$ cscli configure_mds -c cls12345n -n cls12345n007 --bind-arrays md1:cls12345n
```

To apply all bindings (configuration), the following option can be used, for example:

```
$ cscli configure_mds -c cls12345n -n cls12345n006 --apply-config
```

`configure_mds` Newer Options

`-d --config`

`{ls300}`

- Option meant to replace --tag passing of the "platform" attribute

- Only acceptable value is `ls300` to define L300 or greater platform

- If running on CS9000 or earlier, don't pass this option

`-r --raid-mode`

`{mdraid,gridraid,draid}`

- Required. Must pass this option. Must pass a value from `{xxraid}` choices

- Raid-mode value passed must match the value configured during `configure_hosts` for that node. This is checked against what is configured already in genders and will fail out if the --raid-mode value passed here is not the same.

- BOTH nodes in a node pair must pass this value for multiple MDT feature to be activated on that node pair. Command will error out if this option is only passed for a single node in a node pair.

Examples

`configure_mds` with multiple-mdt and raid-mode gridraid bind arrays step :

`show_new_nodes` before bind-arrays

```
$ cscli show_new_nodes
-------------------------------------------------------------------------------
Hostname/MAC           IPMI         Free arrays   Assigned arrays Pass/Fail
-------------------------------------------------------------------------------
/ cls12345n208         172.16.0.109     md0,md2                   Passed
\ cls13245n209         172.16.0.110     md1,md3                   Passed

[root@cls12345n200 ~]
```

Commands*:

- `cscli configure_mds -n kjlmo208 -b md0:testfs,md2:testfs --raid-mode gridraid --multiple-mdt`

- `cscli configure_mds -n kjlmo209 -b md1:testfs,md3:testfs --raid-mode gridraid --multiple-mdt`

Error thrown if `--raid-mode` passed doesn't match what was configured during `configure_hosts`

```
$ cscli configure_mds -n kjlmo208 -b pool-mds0/mdt0:testfs,pool-mds2/mdt2:testfs --raid-mode draid --multiple-mdt
configure_mds: Error: --raid-mode argument: draid
Does not match --raid-mode argument configured during configure_hosts: gridraid
For host: kjlmo208
```

Error thrown if `--multiple-mdt` was passed during `configure_hosts` but not to `configure_mds`

```
$ cscli configure_mds -n kjlmo208 -b pool-mds0/mdt0:testfs,pool-mds2/mdt2:testfs --raid-mode gridraid
configure_mds: Error: kjlmo208 was configured with --multiple-mdt during configure_hosts, must pass --multiple-mdt option!!
```

Show new nodes output if all options passed correctly, matching between node-pair (notice multiple free arrays per host moved to Assigned arrays)

```
$ cscli show_new_nodes
-------------------------------------------------------------------------------
Hostname/MAC           IPMI         Free arrays   Assigned arrays Pass/Fail
-------------------------------------------------------------------------------
/ cls12345n208         172.16.0.109                  md0,md2      Passed
\ cls12345n209         172.16.0.110                  md1,md3      Passed

$
```

`configure_mds` with multiple-mdt and raid-mode gridraid `apply` configuration step

```
cscli configure_mds -d ls300 -A --raid-mode gridraid --multiple-mdt
```

Triple-mirror option

When the triple-mirror option can and cannot be passed

`triple-mirror` option can only be passed during the "Apply Config" command (`cscli configure_oss -A`)

`triple-mirror` option can only be passed on an L300 or greater platform (i.e. must be passed with `config ls300`)

`triple-mirror` option cannot be passed if added nodes are configured with raidMode: draid (ZFS)

`triple-mirror` option cannot be passed with `--multiple_mdt` option

Example help statement output

```
-tm {yes,no}, --triple-mirror {yes,no}
Define triple-mirror RAID configuration. WARNING: if
cluster was installed with global 'triple_mirror: on'
defined on install yaml, this value will be honored
```

```
and nodes will be automatically configured with triple
mirror. Please pass '--triple-mirror no' to override
that global setting. Please check for existing
triple mirror property by running: cscli t0 property
get --name triple_mirror
```

When Configure BFS (Benchmark Filesystem) Option Is and Is Not Allowed to be Passed

- This option can only be passed on E1000 clusters, which is defined by the hwPlatform: CS-E1000 value in the install yaml

- This option can only be passed with during the "-A" apply-config command during node addition process

- This option can only be passed if the MGS primary node (n02) was provisioned with BFS during initial installation

If all three of the preceding requirements are not met, passing this option to enable BFS provisioning: "-bfs yes" will raise an exception.

Example help statement output:

```
-bfs {yes,no}, --benchmark-file-system {yes,no}
                    Provision benchmark file system. WARNING: if
                    cluster was installed with global 'bfs: yes'
                    defined in install yaml, this value will be
                    honored and nodes will be automatically
                    configured with BFS. Please pass '-bfs no'
                    to override that global setting. Please
                    check for existing bfs property by running:
                    cscli t0 property get --name bfs
```

`configure_oss` Command

Introduced in Software Release: 1.2

Updated in Software Release: 3.1, 3.3, 3.4, 3.5, 4.0, 4.1, and 5.0

Use the `configure_oss` command to configure new OSS nodes in the storage system.

Synopsis

```
$ cscli configure_oss [-h] [-n node_spec] [-c cluster_name] -r
                {mdraid,gridraid,draid} [-s {iops,bandwidth,draid}] [-m]
                [-pc {2,4}] [-tm {yes,no}] [-bfs {yes,no}] [-d {ls300}]
                [-p] [--hybrid] (-A | -b bind_arrays) [benchmark-filesystem {yes,no}]
```

Optional Arguments	Description	Release
`-n node_spec` |`--nodes node_spec`	Specify the new node host names (in genders style)	
`-A` |`--apply-config`	Apply configuration to OSS node	
`-b bind_arrays` |`--bind-arrays bind_arrays`	Specify comma-separated pairs of array-filesystem bindings. Every binding should be in the format `<array>:<file system name>`. The `<array>` variable can be a genders-style string (for example, `md[0-3]`)	
`-bfs {yes,no}` `--benchmark-filesystem {yes,no}`	Provision benchmark file system. ⎯ **IMPORTANT:** If cluster was installed with global `'bfs: yes'` defined in install yaml, this value will be honored and nodes will be automatically configured with BFS. Pass `'bfs no'` to override that global setting. Check for existing `bfs` property by running `cscli t0 property get --name bfs`. ⎯ Define option to provision benchmark file system (BFS) on newly added SSU and MMU nodes. Pass `'-bfs yes'` to enabled BFS provisioning on added nodes, and `'-bfs no'` to disable BFS provisioning on added nodes. This option is not required but can be automatically configured based on a global bfs property from original install (see Usage)	3.5+
`-c cluster_name` |`--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	1.2 only
`-d {ls300}` |`--config {ls300}`	Add configuration options (if required). If running on L300 platform or greater, pass `-d ls300`. If running on a CS9000 platform or lower, this option can be omitted.	3.3+
`--hybrid`	Create hybrid array configuration with data array on both NVMe and HDD drives. This configuration is only supported on E1000 SSU-H hardware, and **requires** that the NVMe head enclosure slots are **fully** populated. If the detected hardware configuration does not support this, an error will be raised.	5.0+
`-m` |`--raid-partition`	Define raidPartition for L300F/E1000F GridRAID	3.3+
`-p` |`--pool`	Add OSS to default pool based on type	3.3+
`-pc {2,4}` |`--partition-count {2,4}`	Configure the partition count on L300F/E1000F GridRAID if `--raid-partition` is passed. This will configure two or four OSTs on the added SSU depending which value is passed and MUST MATCH the value configured during `configure_hosts`.	3.5+
`-r {mdraid,gridraid,draid}` |`--raid-mode {mdraid,gridraid,draid}`	Choose underlying raidMode with which to add node	3.3+
`-s {iops,bandwidth,draid}` |`--raid-strategy {iops,bandwidth,draid}`	Define raidStrategy for L300F GridRAID	3.3 - 3.4
`-s {iops,bandwidth,draid}` |`--raid-mode-flash {iops,bandwidth,draid}`	Define raidModeFlash for L300F / E1000-F. Pass this in addition to `--raid-mode`, since `--raid-mode` is configured in genders on all nodes and `--raid-mode-flash` provides additional RAID layout configuration for flash-based nodes	3.5+

`-t {ls300}` |`--tag {ls300}`	Add the `-t ls300` argument during a procedure to add an Addition enclosure to a system. This argument is required to ensure that the nodes are configured as RAID10 instead of GridRAID. The argument must be used with the `-A` argument after binding the MDRAID arrays. For example:
	`[MGMT0]$ cscli configure_oss -n csl112345n006 -b`
	`[MGMT0]$ cscli configure_oss -n csl112345n007 -b`
	`[MGMT0]$ cscli configure_oss -A -t ls300`
	Note: this option was deprecated in release 3.3, replaced by `-d
		--config`.	3.1 - 3.2

`-tm {yes,no}` |`--triple-mirror {yes,no}`	Define the triple-mirror RAID configuration for arrays on added nodes. Pass "triple-mirror no" to disable triple_mirror RAID configurations for arrays on added nodes. This option is not required but can be automatically configured base on a global triple_mirror property from original install (see example). ⎯ **IMPORTANT:** If cluster was installed with global `'triple_mirror: yes'` defined in the install yaml, that value will be honored and nodes will automatically be configured with triple-mirror arrays. Pass `'--triple-mirror no'` to override that global setting. ⎯ To check for existing global triple_mirror setting, run `cscli t0 property get --name triple_mirror`	3.4+
`-h` |`--help`	Display the help message and exit	

Configure new OSS node.

`configure_oss` Newer Options

--hybrid

- `--hyrbid` can only be passed during `apply-config` (`cscli configure_oss -A`), not `bind-arrays` (`cscli configure_oss -b`).
- `--hybrid` cannot be passed with -`-raid-mode-flash`.
- `--hybrid` cannot be passed with `--triple-mirror`.
- If `--hybrid` was passed during `configure_hosts`, it must be passed during `configure_oss -A`.

-r || --raid-mode

`{mdraid,gridraid,draid}`
- Required. Must pass this option. Must pass a value from the `{xxraid}` choices.

- Raid-mode value passed must match the value configured during the configure_hosts for that node. This is checked against what is already configured in   genders and will fail out if the --raid-mode value passed here is not the same

- BOTH nodes in a node pair must pass the same raid-mode value. This is checked against and will error out if two (2) node pairs passed raid-mode values differ.

`-s || --raid-strategy` (for 3.0–3.4 only)

`{iops,bandwidth}`
- Defines raid strategy for L300F with gridRAID, for iops or bandwidth layouts

- Not required. If passed, must choose from `{iops,bandwidth}` values

- Should only be passed on L300F additions

- This option should only be passed with the `-A --apply-config` option

`-s || --raid-mode-flash` (replaces `--raid-strategy` for 3.5 and beyond)

`{iops,bandwidth,draid}`
- Defines raidModeFlash for L300F / E1000-F

- Not required. If passed, must choose from `{iops,bandwidth,draid}` values

- Should be passed on L300F and E1000-F additions

- Should be passed in addition to `--raid-mode`, since `--raid-mode` is configured in genders on all nodes and `--raid-mode-flash` provides additional RAID layout configuration for flash-based nodes

`-m || --raid-partition`
- Defines raid partition strategy for L300F gridRAID, to create arrays with or without partitions when --raid-strategy is bandwidth

- Does not accept a value. Treated as a True/False option

- Can only be passed if `--raid-strategy` bandwidth is passed and `--raid-mode` GridRAID is passed

- This option should only be passed with the `-A --apply-config` option

`-d --config`

`{ls300}`
- Option meant only to replace --tag passing of the "platform" attribute

- Only acceptable value is `ls300` to define L300-or-greater platform

Example

`configure_oss` on L300F with `--raid-mode` GridRAID, `--raid-strategy` bandwidth, `--raid-partition` passed:

`show_new_nodes` before bind arrays

```
$ cscli show_new_nodes
---------------------------------------------------------------------------
Hostname/MAC        IPMI         Free arrays   Assigned arrays  Pass/Fail
---------------------------------------------------------------------------
/ cls12345n006    172.16.0.105     md0                          Passed
\ cls12345n007    172.16.0.106     md1                          Passed
```

Bind Arrays

Commands

```
$ cscli configure_oss -n cls12345n006 -b md0:testfs --raid-mode gridraid
$ cscli configure_oss -n cls12345n007 -b md1:testfs --raid-mode gridraid
```

Example error if user tries to pass `--raid-strategy` **or** `--raid-partition` **without** `-A`

```
$ cscli configure_oss -n cls12345n006 -b md0:testfs --raid-mode gridraid --raid-strategy iops
configure_oss: Error: --raid-strategy or --raid-partition are only meant to be passed with -A || --apply-config!!
$ cscli configure_oss -n cls12345n006 -b md0:testfs --raid-mode gridraid --raid-partition
configure_oss: Error: --raid-strategy or --raid-partition are only meant to be passed with -A || --apply-config!!
```

Example error if user passes a `--raid-mode` **value that does not match what was passed with** `configure_hosts`

```
$ cscli configure_oss -n cls12345n006 -b md0:testfs --raid-mode draid
configure_oss: Error: --raid-mode argument: draid
Does not match --raid-mode argument configured during configure_hosts: gridraid
For host: cls12345n006
```

`show_new_nodes` after array bind

```
$ cscli show_new_nodes
---------------------------------------------------------------------------
Hostname/MAC         IPMI          Free arrays    Assigned arrays  Pass/Fail
---------------------------------------------------------------------------
/ cls12345n006     172.16.0.105                        md0         Passed
\ cls12345n007     172.16.0.106                        md1         Passed
```

Apply configuration command

```
$ cscli configure_oss -d ls300 -A --raid-mode gridraid --raid-strategy bandwidth --raid-partition
```

Example `configure_oss` on L300F with `--raid-mode gridraid`, `--raid-strategy iops` passed:

`show_new_nodes` before bind arrays

```
$ cscli show_new_nodes
---------------------------------------------------------------------------
Hostname/MAC        IPMI         Free arrays   Assigned arrays  Pass/Fail
---------------------------------------------------------------------------
/ cls12345n006    172.16.0.105     md0                          Passed
\ cls12345n007    172.16.0.106     md1                          Passed
```

Example error trying to pass `--raid-partition` **with** `--raid-strategy iops`

```
$ cscli configure_oss -d ls300 -A --raid-mode gridraid --raid-strategy iops --raid-partition
configure_oss: Error: Can't pass --raid-partition option if --raid-strategy is iops!!
```

Array-bind commands

```
$ cscli configure_oss -n cls12345n006 -b md0:testfs --raid-mode gridraid
$ cscli configure_oss -n cls12345n007 -b md1:testfs --raid-mode gridraid
```

`show_new_nodes` after Array bind

```
$ cscli show_new_nodes
---------------------------------------------------------------------------
```

```
Hostname/MAC        IPMI       Free arrays   Assigned arrays  Pass/Fail
-----------------------------------------------------------------------
/ cls12345n006    172.16.0.105              md0          Passed
\ cls12345n007    172.16.0.106              md1          Passed
```

Apply configuration command

```
$ cscli configure_oss -d ls300 -A --raid-mode gridraid --raid-strategy bandwidth --raid-partition
```

Example `configure_oss` on L300F with `--raid-mode draid` (ZFS)

`show_new_nodes` before bind-arrays

```
$ cscli show_new_nodes
-----------------------------------------------------------------------
Hostname/MAC        IPMI       Free arrays   Assigned arrays  Pass/Fail
-----------------------------------------------------------------------
/ cls12345n006    172.16.0.105  pool-oss0/ost0            Passed
\ cls12345n007    172.16.0.106  pool-oss1/ost1            Passed
```

Bind-arrays

```
$ cscli configure_oss -n cls12345n006 -b pool-oss0/ost0:testfs --raid-mode draid
$ cscli configure_oss -n cls12345n007 -b pool-oss1/ost1:testfs --raid-mode draid
```

Example bind-arrays `--hybrid`

```
$ cscli configure_oss -n cls12345n004 -b pool-oss0/ost0:testfs,pool-oss2/ost2:testfs -r draid
$ cscli configure_oss -n cls12345n005 -b pool-oss1/ost1:testfs,pool-oss3/ost3:testfs -r draid
```

`show_new_nodes` after bind-arrays

```
$ cscli show_new_nodes
-----------------------------------------------------------------------
Hostname/MAC        IPMI       Free arrays   Assigned arrays  Pass/Fail
-----------------------------------------------------------------------
/ cls12345n006    172.16.0.105              pool-oss0/ost0  Passed
\ cls12345n007    172.16.0.106              pool-oss1/ost1  Passed
```

Apply configuration command

```
$ cscli configure_oss -d ls300 -A --raid-mode draid
```

Apply configuration command `--hybrid`

```
$ cscli configure_oss -A -n cls12345n009[04-05] -r draid -d ls300 --hybrid
```

Example error if user tries to pass either `--raid-strategy` or `--raid-partition` with ZFS

```
$ cscli configure_oss -d ls300 -A --raid-mode draid --raid-strategy bandwidth
configure_oss: Error: Can't pass --raid-partition or --raid-strategy when --raid-mode is draid, these are non-ZFS options only!!
$ cscli configure_oss -d ls300 -A --raid-mode draid --raid-partition
configure_oss: Error: Can't pass --raid-partition or --raid-strategy when --raid-mode is draid, these are non-ZFS options only!!
$
```

Triple-mirror option

When the triple-mirror option can and cannot be passed

`triple-mirror` option can only be passed during the 'Apply Config' command (`cscli configure_oss -A`)

`triple-mirror` option can only be passed on an L300 or greater platform (that is, must be passed with `config ls300`)

`triple-mirror` option cannot be passed if added nodes are configured with raidMode: `draid` (ZFS)

`triple-mirror` option cannot be passed with raid-strategy: `-s {iops,bandwidth}`, `--raid-strategy {iops,bandwidth}` OR raid-partition: `-m`, `--raid-partition options`

Example help statement output

```
-tm {yes,no}, --triple-mirror {yes,no}
Define triple-mirror RAID configuration. WARNING: if
cluster was installed with global 'triple_mirror: on'
defined on install yaml, this value will be honored
and nodes will be automatically configured with triple
mirror. Please pass '--triple-mirror no' to override
that global setting. Please check for existing
triple mirror property by running: cscli t0 property
get --name triple_mirror
```

When Configure BFS (Benchmark Filesystem) Option Is and Is Not Allowed to be Passed

- This option can only be passed on E1000 clusters, which is defined by the hwPlatform: CS-E1000 value in the install yaml

- This option can only be passed with during the `-A apply-config` command during node addition process

- This option can only be passed if the MGS primary node (n02) was provisioned with BFS during initial installation

If all three of the preceding requirements are not met, passing this option to enable BFS provisioning: '-bfs yes' will raise an exception.

Example help statement output:

```
-bfs {yes,no}, --benchmark-file-system {yes,no}
                Provision benchmark file system. WARNING: if cluster
                was installed with global 'bfs: yes' defined in
                install yaml, this value will be honored and nodes
                will be automatically configured with BFS. Please pass
                '-bfs no' to override that global setting. Please
                check for existing bfs property by running: cscli t0
                property get --name bfs
```

Partition Count

Examples of adding an SSU with `--partition-count 4` including some of the restrictions built into the code of option combinations:

Example of restriction errors if incorrect value is passed:

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:98 --hostname cls12345n005 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 3
usage: cscli configure_hosts [-h] -m mac_address --hostname hostname
                             --location location --raid-mode
                             {mdraid,gridraid,draid} [-f]
                             [--multiple-mdt]
                             [--partition-count {2,4}]
                             --role {oss,mds} [-s]
```

```
configure_hosts: cscli configure_hosts: error: argument --partition-count: invalid choice: '3' (choose from '2', '4')
```

Example of restriction errors if `--raid-mode gridraid` **is not passed:**

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:4D --hostname cls12345n004 --location R1C1/24U --role oss --raid-mode draid --partition-count 4
configure_hosts: Error: Cannot pass --partition-count: 4 unless --raid-mode gridraid is passed!!
```

Example of restriction errors if `--role oss` **is NOT passed:**

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:4D --hostname cls12345n004 --location R1C1/24U --role mds --raid-mode gridraid --partition-count 4
configure_hosts: Error: Cannot pass --partition-count: 4 unless --role oss is passed!!
```

Example of restriction errors if `--partition-count` **value passed differs between two hosts in a node-pair:**

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:98 --hostname cls12345n005 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 2
configure_hosts: Error: Partner host: cls13245n004 already configured with --partition-count: 4. You must configure both hosts with same partition count if --partition
```

Example of correct usage:

```
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:4D --hostname cls12345n004 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 4
configure_hosts: discovered node hostname: discovery-00093d069e4d
configure_hosts: Node cls12345n004 is moved to rack "R1C1" in position "24U"
configure_hosts: Syncing puppet information
configure_hosts: Waiting until node reboots ...
configure_hosts: IEC: 019001000: New node got hostname: {"flavor": "vanilla", "hostname": "cls12345n004", "discovery_host": "discovery-00093d069e4d"}
configure_hosts: done
cls12345$ cscli configure_hosts -m 00:09:3D:06:9E:98 --hostname cls12345n005 --location R1C1/24U --role oss --raid-mode gridraid --partition-count 4
configure_hosts: discovered node hostname: discovery-00093d069e98
configure_hosts: Node cls12345n005 is moved to rack "R1C1" in position "24U"
configure_hosts: Syncing puppet information
configure_hosts: Waiting until node reboots ...
configure_hosts: IEC: 019001000: New node got hostname: {"flavor": "vanilla", "hostname": "cls12345n005", "discovery_host": "discovery-00093d069e98"}
```

`show_new_nodes` **- not** `partition-count 4` **will configure four free arrays:**

```
cls12345$ cscli show_new_nodes
----------------------------------------------------------------
Hostname/MAC    IPMI          Free arrays  Assigned arrays  Pass/Fail
----------------------------------------------------------------
/ cls12345n004  172.16.0.105   md0,md2                      Passed
\ cls12345n005  172.16.0.106   md1,md3                      Passed
```

`bind-arrays` **(Do NOT need to pass** `--partition-count` **here):**

```
cls12345$ cscli configure_oss -n cls12345n004 -b md0:testfs,md2:testfs -r gridraid
...
cls12345$ cscli configure_oss -n cls12345n005 -b md1:testfs,md3:testfs -r gridraid
...
```

Apply `config` **(Do NOT need to pass** `--partition-count` **here, and it MUST match what was pass during** `configure_hosts` **):**

```
cls12345$ cscli configure_oss -A -n cls12345n[004-005] -r gridraid -s bandwidth -m -pc 2 -d ls300
configure_oss: Error: --partition-count: 4 was configured during configure_hosts for host: cls12345n004. Please pass --partition-count 4 !
```

Example of correct command:

```
cls12345$ cscli configure_oss -A -n cls12345n[004-005] -r gridraid -s bandwidth -m -pc 4 -d ls300
...
```

`create_filter` Command

Introduced in Software Release: 2.x

Use the `create_filter` command to create a customer nodes filter.

Synopsis

```
$ cscli create_filter [-h] -i filter_sid -F filter_name -e filter_expr
```

Optional Arguments	Description
`-i filter_sid |--id filter_sid`	Display the symbol identifier of the filter
`-F filter_name |--name filter_name`	Display the filter name
`-e filter_expr |--expression filter_expr`	Display the filter expression. Examples: "host1,host2", "host[1-3]", "mds=primary"
`-h |--help`	Display the help message and exit

`csinfo` Command

Introduced in Software Release: 3.0.0 (Command is compatible with earlier releases with the relevant SU level installed.)
Use the `csinfo` command to generate a YAML file containing system and cluster information that is needed when logging a support ticket.

Synopsis

```
$ cscli csinfo [-h] [-y yaml]
```

Optional Arguments	Description
`-y yaml |--yaml yaml`	Indicate path to file for saving program output in yaml format
`-h |--help`	Display the help message and exit

Usage

```
$ cscli csinfo
csinfo: Executing ['csinfo'] command.
================================================
System Serial Number:          CSSX0G483J
Possible previous SSN:         N/A
OEM System Serial Number:      N/A
System Identifier:             N/A
Cluster Name:                  cls12345
Filesystem Name:               cls12345
Filesystem Type:               Lustre
Hardware Platform:             CS6000
Data Network Type:             InfiniBand
Software Release:              1.4.0
Full System Update:            019.66
RAS-only System Update:        N/A
Firmware-only System Update:   N/A
FS-only System Update:         N/A
csinfo: done!
```

`delete_filter` Command

Introduced in Software Release: 2.x

Use the `delete_filter` command to delete a customer nodes filter.

Synopsis

```
$ cscli delete_filter [-h] -i filter_sid
```

Optional Arguments	Description
`-i filter_sid |--id filter_sid`	Display the symbol identifier of the filter
`-h |--help`	Display the help message and exit

dm Command

Introduced in Software Release: 2.0.0
Deprecated in Software Release: 2.1.0

Use the `dm` command to update maximum read error threshold for all arrays or only specifically for RAID6 arrays, as part of service configuration management.

Synopsis

```
$ cscli dm [-h] [-n nodes] [--reset] [-g max_read_errs] [-m max_read_errs_r6]
```

- `-g` is for global limits

- `-m` for setting RAID6 limits

Optional Arguments	Description	Release
`-n nodes| --node nodes`	pdsh style node hostnames. Global configuration will be set without this argument	2.0.0 only
`--reset`	Reset configuration to default values	2.0.0 only
`-g max_read_errs | --global max_read_errs`	Set maximum read errors value threshold before the drive is considered as failed. This is global limit for both GridRaid and MDRaid	2.0.0 only
`-m max_read_errs_r6 | --mdraid-limit max_read_errs_r6`	Set max read errors value threshold before drive would be considered as failed. This is a MDRaid specific parameter to override the global limit if needed	2.0.0 only
`-h |--help`	Display the help message and exit	

If no options were provided, output would be similar to the following:

```
[root@cls12345n000 ~]# cscli dm ---------------------------------------------------
Node Max read errors(Gridraid or mdraid) Max read errors(mdraid(raid6) specific) -----------------------------------------------------------------------------
global 3500 3500
```

Example output for changing values

Setting new limit for RAID6 arrays:

```
[root@cls12345n000 ~]# cscli dm -m 5000 dm: done
Setting new limit for all type of arrays: [root@cls1235n000 ~]# cscli dm -g 7000 dm: done
Output after setting new values:
[root@cls12345n000 ~]# cscli dm ---------------------------------------------------
Node Max read errors(GridRAID or mdRAID) Max read errors(mdraid(raid6) specific) -----------------------------------------------------------------------------
global 7000 5000
```

To go back to default settings reset command may be used:

```
[root@cls12345n000 ~]# cscli dm --reset dm: done
```

`dwd` Command

Introduced in Software Release: 2.0.0

Deprecated in Software Release: 2.1.0 (See the `raid disk_fail` Command topic and the `scsi_aborts` and `offline` subcommands for new command information.)

Use the `dwd` command to configure the disk watcher daemon (DWD) and to allow or disallow it from powering down failed drives or to update SCSI task-abort threshold, where "0" sets to "ignore" those completely, "1" sets it to autocalculation mode, and any other value will be treated as an actual numeric threshold.

Synopsis

```
$ cscli dwd [-h] [-n nodes] [--reset] [-l {yes,no}] [-a dwd_abort_limit]
            [-i dwd_period]
```

Optional Arguments	Description
`-n nodes` `|--node nodes`	pdsh-style node host names. Global configuration will be set without this argument.
`--reset`	Reset configuration to default values
`-l {yes,no}` `|--lethal {yes,no}`	Allows (if set to `yes`) or disallows (if set to `no`) DWD to power down ("kill") failing drive. For GridRAID, this is the reconstruction rate.
`-a dwd_abort_limit` `|--abort_limit dwd_abort_limit`	Configures how DWD will treat SCSI task Aborts. This parameter expects a number as an argument. A value of "0" will disable monitoring completely, a value of "1" will enable auto-calculation, and any other value will be treated as a threshold.
`-i dwd_period` `|--interval dwd_period`	Configure the interval on which DWD will re-check drivers. This parameter expects a number as an argument. The interval is set in seconds and defaults to 24 hours (86,400 seconds).
`-h |--help`	Display the help message and exit

When called without arguments, current settings will be printed. Default settings for DWD:

```
[root@cls12345n000 ~]# cscli dwd
-----------------------------------------------------------
Node Drive power-on on failure Task abortion rate
-----------------------------------------------------------
global 1 15
```

Sample message for setting abort-task limit:

```
[root@cls12345n000 ~]# cscli dwd -a 15
dwd: done
```

Sample message for setting drive power down trigger:

```
[root@cls12345n000 ~]# cscli dwd -l yes
dwd: done
```

Sample output for DWD after setting new values:

```
[root@cls12345n000 ~]# cscli dwd
-----------------------------------------------------------
Node Drive power-on on failure Task abortion rate
-----------------------------------------------------------
global 1 15
```

Those values can also be reset at any time similar to cscli dm command:

```
[root@cls12345n000 ~]# cscli dwd --reset
dwd: done
```

`ean` Command

Introduced in Software Release: 3.2

Use the `ean` commands to configure the appliance network. These commands deprecate `network` commands (introduced with ClusterStor 2.1.0).

Synopsis

```
cscli ean [-h] {show,apply,ntp,dns,primary,secondary,route,ipaddr,mmu}
```

Positional Arguments	Description
`show`	Show all EAN configuration settings
`apply`	Apply EAN configuration settings
`ntp`	NTP configuration. Configuring an NTP server on the EAN will set time for the entire cluster
`dns`	DNS configuration. Configuring DNS on the EAN will provide DNS for the entire cluster
`primary`	Primary interface configuration for EAN
`secondary`	Secondary interface configuration for a split EAN
`route`	Configure custom routes for the EAN
`ipaddr`	Manage static IP addresses on EAN interfaces of the MGMT nodes
`mmu`	Interface configuration for the EAN on MMU

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`ean apply` Subcommand

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

The `ean apply` command is a subcommand of the `ean` command. Use the subcommand to apply the EAN configuration settings to the management network of a ClusterStor system.

Synopsis

```
$ cscli ean apply [-h] [-f]
```

Optional Arguments	Description	Release
`-f |--force`	Force to apply custom LNet configurations	6.0+
`-h |--help`	Display the help message and exit	

`ean dns` Subcommand

Introduced in Software Release: 3.2

The `ean dns` command is a subcommand of the `ean` command. Use this subcommand to configure DNS settings on a ClusterStor system.

Synopsis

```
$ cscli ean dns [-h] {set,clear}
```

Optional Arguments	Description
`set`	Set DNS servers
`clear`	Clear DNS servers
`-h|--help`	Display the help message and exit

`ean dns clear` Subcommand

Introduced in Software Release: 3.2

The `ean dns clear` command is a subcommand of the `ean dns` command. Use this subcommand to remove DNS servers from ClusterStor configuration.

Synopsis

```
$ cscli ean dns clear [-h] [-a]
```

Optional Arguments	Description
`-a`	Apply changes automatically (This would eliminate the need to run separate `apply` step)
`-h|--help`	Display the help message and exit

`ean dns set` Subcommand

Introduced in Software Release: 3.2

The `ean dns set` command is a subcommand of the `ean dns` command. Use this subcommand to add new DNS servers to ClusterStor configuration.

Synopsis

```
$ cscli ean dns set [-h] [-a] dns_server [dns_server ...]
```

Optional Arguments	Description
`-a`	Apply changes automatically (this would eliminate the need to run separate `apply` step)
`dns server`	DNS server in IP address format. ClusterStor allows the use of multiple DNS servers.
`-h|--help`	Display the help message and exit

`ean ipaddr` Subcommand

Introduced in Software Release: 3.2

The `ipaddr` command is a subcommand of the `ean` command. Use this subcommand configure the static IP addresses the EAN interfaces on a ClusterStor system.

Synopsis

```
$ cscli ean ipaddr [-h] {show,set}
```

Optional Arguments	Description
`set`	Set the IP address of an EAN interface on a node
`show`	Show the IP address of the EAN interfaces on all nodes
`-h|--help`	Display the help message and exit

`ean ipaddr set` Subcommand

Introduced in Software Release 3.2

The `ipaddr set` command is a subcommand of the `ean` command. Use this subcommand to configure IP addresses on the EAN interfaces.

Synopsis

```
$ cscli ean ipaddr set [-h] --node NODE --type {EAN,SecondaryEAN,MmuEAN} --address ADDRESS
```

Optional Arguments	Description
`--node NODE`	Name of the node where the IP address needs to be configured
`-t {System,EAN,SecondaryEAN,MmuEAN}|` `--type {System,EAN,SecondaryEAN,MmuEAN}`	Network Type
`--address ADDRESS`	IP address. **NOTE:** Do not specify prefix or netmask here. See `ean primary|secondary` for details
`-h |--help`	Display the help message and exit

`ean ipaddr show` Subcommand

Introduced in Software Release: 3.2

The `ean ipaddr show` command is a subcommand of the `ean` command. Use this subcommand to display IP addresses assigned to the EAN interfaces throughout the cluster.

Synopsis

```
$ cscli ean ipaddr show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`ean mmu` Subcommand

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

The `ean mmu` command is a subcommand of the `ean` command. Use this subcommand to configure secondary EAN interfaces on an MMU in a ClusterStor system.

Synopsis

```
$ cscli ean mmu [-h] {add,delete,clear,show} ...
```

Optional Arguments	Description	Release
`add`	Add secondary EAN interface	
`delete`	Remove secondary EAN interface	
`clear`	Reset the EAN interface on all nodes	6.0+
`show`	Show configured EAN interfaces	
`-h |--help`	Display the help message and exit	

> **NOTE:**
> Users can only configure a secondary interface on MMU using this command.

`ean mmu add` Subcommand

Introduced in Software Release 3.2

The `ean mmu add` command is a subcommand of the `ean` command. Use this subcommand to add and configure secondary EAN interface on an MMU.

Synopsis

```
$ cscli ean mmu add [-h] -i IFACE [\--prefix-length PREFIX] [\--gateway GATEWAY]
```

Optional Arguments	Description
`-i|--iface IFACE`	Name of the interface
`--prefix-length PREFIX`	Prefix of network mask
`--gateway GATEWAY`	Gateway of network (in IP address format)
`-h|--help`	Display the help message and exit

`ean mmu clear` Subcommand

Introduced in Software Release: 6.0

The `ean mmu clear` command is a subcommand of the `ean mmu` command. Use this subcommand to reset the EAN interface on all nodes.

Synopsis

```
$ cscli ean mmu clear [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`ean mmu delete` Subcommand

Introduced in Software Release: 3.2

The `ean mmu delete` command is a subcommand of the `ean` command. Use this subcommand to remove secondary Enterprise Access Network (EAN) interface on an MMU node in ClusterStor.

Synopsis

```
$ cscli ean mmu delete [-h] -i IFACE
```

Optional Arguments	Description
`-i|--iface IFACE`	Name of the interface
`-h|--help`	Display the help message and exit

`ean mmu show` Subcommand

Introduced in Software Release 3.2

The `ean mmu show` command is a subcommand of the `ean` command. Use this subcommand to show configured secondary Enterprise Access Network (EAN) interface on an MMU node in the system.

Synopsis

```
$ cscli ean mmu show [-h]
```

Optional Arguments	Description
`-h|--help`	Display the help message and exit

`ean ntp` Subcommand

Introduced in Software Release: 3.2

The `ean ntp` command is a subcommand of the `ean` command. Use this subcommand to configure NTP settings on a ClusterStor system.

Synopsis

```
$ cscli ean ntp [-h] {set,clear}
```

Optional Arguments	Description
`set`	Set NTP servers
`clear`	Clear NTP servers
`-h|--help`	Display the help message and exit

`ean ntp clear` Subcommand

Introduced in Software Release: 3.2

The `ntp clear` command is a subcommand of the `ean` command. Use this subcommand to remove NTP servers from ClusterStor configuration.

Synopsis

```
$ cscli ean ntp clear [-h] [-a]
```

Optional Arguments	Description
`-a`	Apply changes automatically (This would eliminate the need to run separate `apply` step.)
`-h|--help`	Display the help message and exit

`ean ntp set` Subcommand

Introduced in Software Release: 3.2

The `ean ntp set` command is a subcommand of the `ean ntp` command. Use this subcommand to add new NTP servers to ClusterStor configuration.

Synopsis

```
$ cscli ean ntp [-h] {set,clear} cscli ean ntp set [-h] [-a] ntp_server [ntp_server …]
```

Optional Arguments	Description
`-a`	Apply changes automatically (this would eliminate the need to run separate `apply` step
`ntp_server`	NTP server (either in IP address of FQDN formats). **NOTE:** if FQDN format is used, DNS must be configured. ClusterStor allows use of multiple NTP servers.
`-h|--help`	Display the help message and exit

`ean primary` Subcommand

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

The `ean primary` command is a subcommand of the `ean` command. Use this subcommand to configure the primary (pub0) public management interface (EAN) on a management node of the ClusterStor system.

Synopsis

```
$ cscli ean primary [-h] {set,clear,show} ...
```

Positional Arguments	Description	
`add`	Deprecated in 6.0. Add the primary EAN interface.	3.2 - 6.0
`delete`	Deprecated in 6.0. Delete the primary EAN interface.	3.2 - 6.0
`set`	Update the primary EAN interface	6.0+
`clear`	Reset the EAN interface on all nodes	6.0+
`show`	Show a list of primary EAN interfaces	

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`ean primary add` Subcommand

Introduced in Software Release: 3.2

Deprecated in Software Release: 6.0

The `ean primary add` command is a subcommand of the `ean primary` command. Use this subcommand to add the primary Enterprise Access Network (EAN) interface to ClusterStor configuration.

Synopsis

```
$ cscli ean primary add [-h] -i iface [--prefix-length prefix] [--gateway gateway]
```

Optional Arguments	Description
`-i iface` |`--iface iface`	Name of the interface (typically `pub0`)
`--prefix-length prefix`	Prefix of network mask
`--gateway gateway`	Gateway of network (in IP address format)
`-h` |`--help`	Display the help message and exit

`ean primary clear` Subcommand

Introduced in Software Release: 6.0

The `ean primary clear` command is a subcommand of the `ean primary` command. Use this subcommand to reset the EAN interface on all nodes.

Synopsis

```
$ cscli ean primary clear [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`ean primary delete` Subcommand

Introduced in Software Release: 3.2

Deprecated in Software Release: 6.0

The `ean primary delete` command is a subcommand of the `ean primary` command. Use this subcommand to remove primary Enterprise Access Network (EAN) interface from ClusterStor configuration.

Synopsis

```
$ cscli ean primary delete [-h] -i iface
```

Optional Arguments	Description
`-i iface` |`--iface iface`	Name of the interface (typically `pub0`)
`-h` |`--help`	Display the help message and exit

`ean primary set` Subcommand

Introduced in Software Release: 6.0

The `ean primary set` command is a subcommand of the `ean primary` command. Use this subcommand to update the primary EAN interface.

Synopsis

```
$ cscli ean primary set [-h] [-i iface] [--prefix-length prefix]
                        [--gateway gateway]
```

Optional Arguments	Description
`-i iface |--iface iface`	Specify the name of the interface
`--prefix-length prefix`	Specify the prefix of the network mask
`--gateway gateway`	Specify the gateway of the network
`-h |--help`	Display the help message and exit

`ean primary show` Subcommand

Introduced in Software Release: 3.2

The `ean primary show` command is a subcommand of the `ean primary` command. Use this command to show configured primary Enterprise Access Network (EAN) interfaces in ClusterStor.

Synopsis

```
$ cscli ean primary show [-h]
```

Optional Arguments	Description
`-h|--help`	Display the help message and exit

`ean route` Subcommand

Introduced in Software Release: 3.2

The `ean route` command is a subcommand of the `ean` command. Use this command to configure the custom routes for the EAN on a ClusterStor system.

Synopsis

```
$ cscli ean route [-h] {add,delete,set,load,clear,show}
```

Optional Arguments	Description
`add`	Add routing rule
`delete`	Delete routing rule
`show`	Show list of routes
`set`	Update routing rule
`load`	Load list for routing rules
`clear`	Clear routing rules
`-h|--help`	Display the help message and exit

`ean route add` Subcommand

Introduced in Software Release: 3.2

The `ean route add` command is a subcommand of the `ean` command. Use this command to add custom routes to ClusterStor system.

Synopsis

```
$ cscli ean route add [-h] (-t {System,EAN,SecondaryEAN,MmuEAN} | -i IFACE) -d DEST -p PREFIX -g GATEWAY
```

Optional Arguments	Description
`-t {System,EAN,SecondaryEAN,MmuEAN}|--type {System,EAN,SecondaryEAN,MmuEAN}`	Network type
`-i|--iface IFACE`	Name of the interface
`-d DEST |--dest DEST`	Destination IP address
`-p PREFIX |--prefix PREFIX`	Subnet prefix length (0-32)
`-g GATEWAY |--gateway GATEWAY`	Gateway IP address
`-h|--help`	Display the help message and exit

> **NOTE:** When adding a custom route, only specify one of the following arguments: `-t|--type` or `-i|--iface IFACE`.

`ean route clear` Subcommand

Introduced in Software Release: 3.2

The `ean route clear` command is a subcommand of the `ean` command. Use this subcommand to remove all custom routes from ClusterStor configuration.

Synopsis

```
$ cscli ean route clear [-h] -t {System,EAN,SecondaryEAN,MmuEAN} [-i IFACE]
```

Optional Arguments	Description
`-t {System,EAN,SecondaryEAN,MmuEAN}|--type {System,EAN,SecondaryEAN,MmuEAN}`	Network type
`-i|--iface IFACE`	Name of the interface
`-h |--help`	Display the help message and exit

`ean route delete` Subcommand

Introduced in Software Release: 3.2

The `route delete` command is a subcommand of the `ean` command. Use this command to remove previously-configured custom routes from ClusterStor system.

Synopsis

```
$ cscli ean route delete [-h] -r ROUTE_ID
```

Optional Arguments	Description
`-r ROUTE_ID|--route-id ROUTE_ID`	Route identifier (see `ean route show` subcommand)
`-h|--help`	Display the help message and exit

`ean route load` Subcommand

Introduced in Software Release: 3.2

The `ean route load` command is a subcommand of the `ean` command. Use this subcommand to load a file with custom routes to ClusterStor configuration.

Synopsis

```
$ cscli ean route load [-h] -i IFACE -f FILENAME
```

Optional Arguments	Description
`i|--iface IFACE`	Name of the interface
`-f FILENAME|--file FILENAME`	Path to file with routing rules
`-h|--help`	Display the help message and exit

`ean route set` Subcommand

Introduced in Software Release: 3.2

The `route set` command is a subcommand of the `ean` command. Use this command to update the existing custom route in ClusterStor configuration.

Synopsis

```
$ cscli ean route set [-h] -r ROUTE_ID [-d DEST] [-p PREFIX] [-g GATEWAY]
```

Optional Arguments	Description
`-r ROUTE_ID`|`--route-id ROUTE_ID`	Route identifier (see `ean route show` subcommand)
`-d DEST` |`--dest DEST`	Destination IP address
`-p PREFIX` |`--prefix PREFIX`	Subnet prefix length (0-32)
`-g GATEWAY` |`--gateway GATEWAY`	Gateway IP address
`-h`|`--help`	Display the help message and exit

`ean route show` Subcommand

Introduced in Software Release: 3.2

The `route show` command is a subcommand of the `ean` command. Use this command to show custom routes in ClusterStor.

Synopsis

```
$ cscli ean route show [-h]
```

Optional Arguments	Description
-h|--help	Display the help message and exit

`ean secondary` Subcommand

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

The `ean secondary` command is a subcommand of the `ean` command. Use this subcommand to configure the secondary (`pub1`) public management interface (EAN) on a management node of the ClusterStor system (if present and connected).

Synopsis

```
$ cscli ean secondary [-h] {add,delete,clear,show} ...
```

Positional Arguments	Description	Release
`add`	Add the secondary EAN interface	
`delete`	Delete the secondary EAN interface	
`clear`	Reset the EAN interface on all nodes	6.0+
`show`	Show a list of secondary EAN interfaces	

Optional Arguments	Description
`-h |--help`	Display the help message and exit

> **NOTE:**
>
> For configuring the secondary EAN interface on an MMU node, see the `ean mmu` command.

`ean secondary add` Subcommand

Introduced in Software Release: 3.2

The `ean secondary add` command is a subcommand of the `ean secondary` command. Use this command to add secondary Enterprise Access Network (EAN) interface to ClusterStor configuration.

Synopsis

```
$ cscli ean secondary add [-h] -i IFACE [--prefix-length PREFIX] [--gateway GATEWAY]
```

Optional Arguments	Description
`-i|--iface IFACE`	Name of the interface (typically `pub1`)
`--prefix-length PREFIX`	Prefix of network mask
`--gateway GATEWAY`	Gateway of network (in IP address format)
`-h|--help`	Display the help message and exit

`ean secondary clear` Subcommand

Introduced in Software Release: 6.0

The `ean secondary clear` command is a subcommand of the `ean secondary` command. Use this command to reset the EAN interface on all nodes.

Synopsis

```
$ cscli ean secondary clear [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`ean secondary delete` Subcommand

Introduced in Software Release: 3.2

The `ean secondary delete` command is a subcommand of the `ean secondary` command. Use this command to remove secondary Enterprise Access Network (EAN) interface from ClusterStor configuration.

Synopsis

```
$ cscli ean secondary delete [-h] -i IFACE
```

Optional Arguments	Description
`-i|--iface IFACE`	Name of the interface (typically `pub1`)
`-h |--help`	Display the help message and exit

`ean secondary show` Subcommand

Introduced in Software Release: 3.2

The `ean secondary show` command is a subcommand of the `ean secondary` command. Use this subcommand to show configured secondary Enterprise Access Network (EAN) interfaces in ClusterStor.

Synopsis

```
$ cscli ean secondary show [-h]
```

Optional Arguments	Description
`-h|--help`	Display the help message and exit

`failback` Command

Introduced in Software Release: 2.x

Use the `failback` command to manage node failback in the ClusterStor system.

Synopsis

```
$ cscli failback [-h] (-F filter_sid | -n node_spec) |-c cluster_name
```

Optional Arguments	Description	Release
`-F filter_sid |--filter filter_sid`	The filter identifier for the specified node. Failback actions run on the nodes by filtering this filter.	
`-n node_spec |--nodes node_spec`	Specify the nodes on which the failback operations are performed. Node hostnames should be passed in pdsh style. If this parameter is passed, the `--filter` parameter is ignored.	
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	2.x only?
`-h |--help`	Display the help message and exit	

`failover` Command

Introduced in Software Release: 2.x

Use the `failover` command to manage node failover in the ClusterStor system.

Synopsis

```
$ cscli failover [-h] (-F filter_sid | -n node_spec) |-c cluster_name
```

Optional Arguments	Description	Release
`-F filter_sid |--filter filter_sid`	The filter identifier for the specified node. Failover actions run on the nodes by filtering this filter.	
`-n node_spec |--nodes node_spec`	Specify the nodes on which the failover operations are performed. Node hostnames should be passed in pdsh style. If this parameter is passed, the `--filter` parameter is ignored.	
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	2.x only?
`-h |--help`	Display the help message and exit	

`fru` Command

Introduced in Software Release: 2.x

Updated in Software Release: 6.0

Use the `fru` command to retrieve information about Field-Replaceable Units (FRUs) in the storage system. FRUs are grouped into element types: ArrayDevice, BMC, Cooling, Enclosure, Enclosure_Electronics, PSU, Battery, Mid_Plane, Drive_Plane, Riser, and PAB. FRU information can be retrieved by element type, on a per-node basis, or for all nodes in the system.

Synopsis

```
$ cscli fru [-h] (-a | -n node_spec)
            [-t {ArrayDevice,BMC,Cooling,Enclosure,Enclosure_Electronics,PSU,Battery,Mid_Plane,Drive_Plane,Riser,PAB}]
            [-i index] [-l [history]]
```

Optional Arguments	Description
`-a |--all`	Display FRUs (including status) grouped by element type, for all nodes in the system
`-n node_spec |--nodes node_spec`	Display FRUs (including status) grouped by element type, for a specified node(s) in the system
`-t {ArrayDevice,BMC,Cooling,Enclosure,Enclosure_Electronics,PSU,Battery,Mid_Plane,Drive_Plane,Riser,PAB}` `|--type {ArrayDevice,BMC,Cooling,Enclosure,Enclosure_Electronics,PSU,Battery,Mid_Plane,Drive_Plane,Riser,PAB}`	Display FRUs (including status) for the specified element type. Examples of element types: array device, BMC, PSU, and battery
`-i index |--index index`	Display FRUs (including status) for specified elements within a list of elements of the same type
`-l [history] |--history [history]`	Display FRU history (default is 10 lines of history)
`-h |--help`	Display the help message and exit

`fs_info` Command

Introduced in Software Release: 1.x

The `fs_info` command shows all file system information. File System information of nodes (MDS) will also display if they are configured.

Synopsis

```
$ cscli fs_info [-h] [-f fs_name] |-c cluster_name |--cluster cluster_name
```

Optional Arguments	Description	Release
`-f fs_name |--fs fs_name`	Display the file system name	1.x+
`-c cluster_name|-- cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	1.x, 2.x
`-h |--help`	Display the help message and exit	

`get_rack_position` Command

Introduced in Software Release: 2.1

Use the `get_rack_position` command to indicate the location of server nodes in a ClusterStor rack.

Synopsis

```
$ cscli get_rack_position [-h] [-l] [-r racks] [-a] [--yaml]
```

Optional Arguments	Description
`--yaml`	Print node rack position information in YAML file format
`-l |--list`	Display the names of all the racks
`-a |--all`	Display information about all racks
`-r racks|--racks racks`	Display the hostnames in all positions within the specified racks. racks is a comma-separated list of rack names.
`-h |--help`	Display the help message and exit

`ibstat_check` Command

Introduced in Software Release: 2.x

The `ibstat_check` command, part of HA stack settings, disables and enables HA's probing of high speed network(s). This command is available for the "admin" account only.

Synopsis

```
$ cscli ibstat_check [-h] [-n nodes] (--enable | --disable)
```

Optional Arguments	Description
`--enable`	Enable HA's probing of the high speed network
`--disable`	Disable HA's probing of the high-speed network
`-n nodes |--node nodes`	Display pdsh-style nodes hostnames. NOTE: Lustre Server nodes only
`-h |--help`	Display the help message and exit

`ip_routing` Command

Introduced in Software Release: 1.x

The `ip_routing` command manages IP routing to and from the system database.

Synopsis

```
$ cscli ip_routing [arguments]
```

where `[arguments]` can be **one** of the following lines:

```
-s |--show [--loadable]
```

```
--load path_to_file
```

```
-a |--add  --dest destination_ip --prefix prefix_len --router router_ip
```

```
-u |--update --route-id route_id [--dest destination_ip] [--prefix prefix_len] [--router router_ip]
```

```
-d |--delete --route-id route_id
```

```
-c | --clear
```

```
-a | --apply
```

Optional Arguments	Description
`-s |--show`	Show the current IP routing table in the database
`--loadable`	Print the routing table in loadable format (use with the `-show` argument)
`-c |--clear`	Clear the routing table in the database
`-a |--apply`	Apply IP routing
`--load load`	Load the IP routing table from a file to the database
`-a |--add`	Insert IP routing in the database
`-u |--update`	Update IP routing in the database
`-d |--delete`	Delete IP routing from the database
`--dest dest`	Specify the destination IP address
`--prefix prefix`	Specify the prefix length (0-32)
`--router router`	Specify the router IP address
`--route-id route_id`	Specify the route identifier (see `ip_routing -show`)
`-h |--help`	Display the help message and exit

`license` Command

Introduced in Software Release: 3.3

Updated in Software Release: 3.4

Use the `license` command to show, check status, accept, or reset EULA.

If the license has not yet been accepted, a message similar to the following will print upon login to management nodes:

```
[root@cls12345-oem ~]# ssh puppet
[root@csl12345n001 ~]# cscli license accept
cscli: Please, run cscli on active management node
[root@csl12345n001 ~]# cscli license accept
license: All licenses for this product have been accepted on behalf of your organization on 2020-02-28 05:22:12 by 'root'
[root@csl12345n001 ~]# cscli license reset
MGMT node is busy - cannot reset license at this moment.
Please ensure that both MGMT nodes are 'ON' and try in a few minutes.[root@cls12345n001 ~]# pm -1 cls12345n001
Command completed successfully
[root@csl12345n001 ~]# cscli license reset
License acceptance reset.
All licenses are required to be accepted again using 'cscli license accept'.
```

The license has to be reaccepted after every SU.
Synopsis

```
# cscli license [-h] {check,show,accept,reset}...
```

Positional Arguments	Description
`accept`	Accept all licenses for ClusterStor
`check`	Check for acceptance of all licenses
`reset`	Reset license acceptances
`show`	Display the status of license acceptance

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`license accept` Subcommand

Introduced in Software Release: 3.3 (updated in 3.4)

The `license accept` command is a subcommand of the `license` command. Use the subcommand to accept all licenses for ClusterStor.

This command can only be run by a user with full administrator privileges.

Synopsis

```
# cscli license accept
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345 -oem ~]# ssh puppet
[root@cls12345n000 ~]# cscli license accept
license: All licenses for this product have been accepted on behalf of your organization on 2020-02-28 05:22:12 by 'root'
```

`license check` Subcommand

Introduced in Software Release: 3.3 (updated in 3.4)

The `license check` command is a subcommand of the `license` command. Use the subcommand to check for acceptance of all licenses.

Synopsis

```
# cscli license check
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage:

If the license has not been accepted, a message similar to the following will print a notice with instructions for how to accept:

```
[root@cls12345n000 ~]# cscli license check
license: beEula.sh: exitcode=255
license: Error: cls12345n000: ssh: connect to host cls12345n000 port 22:
```

If the license has already been accepted, output will list the user who accepted the license and the date of acceptance.

```
[root@cls12345n000 ~]# cscli license check
license: All licenses for this product have been accepted on behalf of your organization on 2019-10-30 by 'root'
```

`license reset` Subcommand

Introduced in Software Release: 3.3

Updated in Software Release: 3.4

The `license reset` command is a subcommand of the `license` command. Use the subcommand to reset license acceptances.

The license must be reaccepted after a reset.

Synopsis

```
# cscli license reset
```

Optional Arguments	Description
`-h	--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli license reset
License acceptance reset.
All licenses are required to be accepted again using 'cscli license accept'.
```

`license show` Subcommand

Introduced in Software Release: 3.3 (updated in 3.4)

The `license show` command is a subcommand of the `license` command. Use the subcommand to display the status of license acceptance.

Synopsis

```
# cscli license show
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli license show
Licenses

The software included in this product contains copyrighted software that is licensed under the GPL. A copy of these licenses is included in thi
document.

GNU GENERAL PUBLIC LICENSE VERSION 2

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991
Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

<................LICENSE TEXT................>
```

`list` Command

Introduced in Software Release: 1.x

The `list` command displays a list of all available CSCLI commands in the current system mode (i.e., daily, site configuration, or pre-shipment).

Synopsis

```
$ cscli list [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`logrotate` Command

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

Use the `logrotate` command to manage logrotate-related configurations.

Synopsis

```
$ cscli logrotate [-h] {schedule,show} ...
```

Positional Arguments	Description	Release
`schedule`	Schedule log rotation	
`show`	Display current `logrotate` configuration	6.0+

Optional Arguments	Description
`-h |--help`	Show the help message and exit

`logrotate schedule` Subcommand

Introduced in Software Release: 3.2

The `logrotate schedule` command is a subcommand of the `logrotate` command. Use the subcommand to schedule log rotation.

Synopsis

```
$ cscli logrotate schedule [-h] -t {daily,weekly,monthly,yearly} -r  ROTATION
```

Positional Arguments	Description
`-t {daily,weekly,monthly,yearly}, --time-interval {daily,weekly,monthly,yearly}`	Time interval for log rotation. Permitted units: daily, weekly, monthly, and yearly
`-r ROTATION, --rotation ROTATION`	Number of rotated logs to be kept

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Example

```
# [root@cls12345n100 ~]# cscli logrotate schedule -t daily -r 5
logrotate: Configuration successfully applied
logroate schedule is set to daily 5
```

`lustre changelog` Command

Introduced in Software Release: 2.0.0

Updated in Software Release: 6.0

Use the `lustre changelog` command to manage Lustre changelog configuration.

Synopsis

```
$ cscli lustre changelog [-h] {show,enable,disable,change,reset,threshold} ...
```

Positional Arguments	Description	Release
`show`	Show Lustre changelog status	
`enable`	Enable Lustre changelog	
`disable`	Disable Lustre changelog	
`change`	Change Lustre changelog flags	
`reset`	Reset Lustre changelog flags to default	
`threshold`	Show threshold for the number of Lustre changelog records	6.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre changelog change` Subcommand

Introduced in Software Release: 2.0.0

The `lustre changelog change` command is a subcommand of the `lustre changelog` command. Use the command to change the changelog flags and targets.

Synopsis

```
$ cscli lustre changelog change [-h] [-f [flag [flag ...]]] [-t [target [target ...]]]
```

Optional Arguments	Description
`-f [flag [flag ...]] |--f [flag [flag ...]]`	Lustre changelog flags
`-t [target [target ...]] |-- target [target [target ...]]`	Lustre targets
`-h |--help`	Display the help message and exit

`lustre changelog disable` Subcommand

Introduced in Software Release: 2.0.0

The `lustre changelog disable` command is a subcommand of the `lustre changelog` command. Use the subcommand to disable the Lustre changelog.

Synopsis

```
$ cscli lustre changelog disable [-h] [-t [target [target ...]]]
```

Optional Arguments	Description
`-t [target [target ...]] |-- target [target [target ...]]`	Lustre targets
`-h |--help`	Display the help message and exit

`lustre changelog enable` Subcommand

Introduced in Software Release: 2.0.0

The `lustre changelog enable` command is a subcommand of the `lustre changelog` command. Use the subcommand to enable Lustre changelog.

Synopsis

```
$ cscli lustre changelog enable [-h] [-f [FlAG [FlAG ...]]]
[-t [TARGET [TARGET ...]]]
```

Optional Arguments	Description
`-f [FLAG[FLAG ...]] |--flag [FLAG [FLAG ...]]`	Lustre changelog flags
`-t [TARGET[TARGET ...]] |-- target [TARGET[TARGET ...]]`	Lustre targets
`-h |--help`	Display the help message and exit

`lustre changelog reset` SubCommand

Introduced in Software Release: 2.0.0

The `lustre changelog reset` command is a subcommand of the `lustre changelog` command. Use the subcommand to reset the Lustre changelog flags to default.

Synopsis

```
$ cscli lustre changelog reset [-h] [-t [target [target ...]]]
```

Optional Arguments	Description
`-t [target[target ...]] |-- target [target[target ...]]`	Lustre targets
`-h |--help`	Display the help message and exit

`lustre changelog show` Subcommand

Introduced in Software Release: 2.0.0

The `lustre changelog show` command is a subcommand of the `lustre changelog` command. Use the subcommand to show the Lustre changelog status.

Synopsis

```
$ cscli lustre changelog show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre changelog threshold` Subcommand

Introduced in Software Release: 6.0

The `lustre changelog threshold` command is a subcommand of the `lustre changelog` command. Use the subcommand to show the threshold for the number of Lustre changelog records.

Synopsis

```
$ cscli lustre changelog threshold [-h] {show,set} ...
```

Positional Arguments	Description
`show`	Display threshold set by the user (0–2^32)
`set`	Set threshold for critical number of Lustre changelog records

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre config` Command

Introduced in Software Release: 3.2

Use the `lustre config` command to dump and restore lustre configuration.

Synopsis

```
$ cscli lustre config [-h] {dump, restore} ...
```

Positional Arguments	Description
`dump`	Dump lustre configuration
`restore`	Restores lustre configuration from file

Optional Arguments	Description
`-h |--help`	Show help message and exit

The `dump` command should be used to save the current Lustre configuration, which would later be used to restore said configuration, primarily in the event of—but not limited to—a reset.

`lustre config dump` Subcommand

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

The `lustre config dump` command is a subcommand of the `lustre config` command. Use the subcommand to make a YAML file out of the current Lustre configuration and save it as /etc/lustre/lustre_config.yaml.

Synopsis

```
$ cscli lustre config dump [-h] ...
```

Optional Arguments	Description
`-h |--help`	Show help message and exit

Note that the existing file will be replaced when the `dump` command is run again.

The `dump` command should be used to save the current Lustre configuration, which would later be used to restore said configuration, primarily in the event of—but not limited to—a reset.

`lustre config restore` Subcommand

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

The `lustre config restore` command is a subcommand of the `lustre config` command. Use the subcommand to restore the saved Lustre configuration from /etc/lustre/lustre_config.yaml.

Synopsis

```
$ cscli lustre config restore [-h] ...
```

Optional Arguments	Description
`-h |--help`	Show help message and exit

It is acceptable to manually edit the `config` file /etc/lustre/lustre_config.yaml.

`lustre jobstats` Command

Introduced in Software Release: 3.0.0

Use the `lustre jobstats` command to enable and disable Lustre job statistics and to configure the type of scheduler used.

Synopsis

```
$ cscli lustre jobstats [-h] {modify,collection,list}
```

Positional Arguments	Description
`modify`	Configure Lustre job statistics for *fs-name*
`collection`	Enable/Disable Lustre job statistics for *fs-name*
`list`	Show the Lustre job statistics configuration

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre jobstats collection` Subcommand

Introduced in Software Release: 3.0.0

The `lustre jobstats collection` command is a subcommand of the `lustre jobstats` command. Use the subcommand to enable and disable Lustre job statistics collection.

Synopsis

```
$ cscli lustre jobstats collection [-h] [--enable | --disable] [--fs]
```

Optional Arguments	Description
`--enable`	Enable Lustre job statistics collection
`--disable`	Disable Lustre job statistics collection
`--fs`	(optional) Specify the file system name
`-h |--help`	Display the help message and exit

`lustre jobstats list` Subcommand

Introduced in Software Release: 3.0.0

The `lustre jobstats list` command is a subcommand of the `lustre jobstats` command. Use the subcommand to show the Lustre job statistics configuration.

Synopsis

```
$ cscli lustre jobstats list [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre jobstats modify` Subcommand

Introduced in Software Release: 3.0.0

The `lustre jobstats modify` command is a subcommand of the `lustre jobstats` command. Use the subcommand to configure the type of scheduler used and the frequency for collecting Lustre job statistics data.

Synopsis

```
$ cscli lustre jobstats modify [-h] [--fs] [--frequency] [--scheduler]
```

Optional Arguments	Description
`--frequency`	Indicate frequency to collect jobstats data
`--scheduler`	Indicate type of scheduler. Must match what user's scheduler uses for job IDs Default: `procname_uid`
`--fs`	Indicate the file system name. Default: FS name
`-h |--help`	Display the help message and exit

`lustre lnet interfaces` Command

Introduced in Software Release: 4.1

Updated in Software Release: 6.0

Use the `lustre lnet interfaces` command to show the current state of the date interfaces.

Synopsis

```
# cscli lustre lnet interfaces [-h]
```

Optional Arguments	Description	Release
`--show`	Deprecated in 6.0. Show LNet Multirail status.	4.1 - 6.0
`-h |--help`	Display the help message and exit	

Sample Output

```
[root@cls12345n000 ~]# cscli lustre lnet interfaces
Per-node data interfaces currently saved for each node:
cls12345n000 [ib0]
cls12345n001 [ib0]
cls12345n002 [ib0]
cls12345n003 [ib0]
cls12345n004 [ib0]
cls12345n005 [ib0]
NOTE: The value in the square brackets [ ] means no interface state saved, and all intefaces from this set found on the node are used.
Pre-node data interfaces can be updated using 'beSystemNetConfig.sh -U -L cls12345n0', then recheck the output again

Current link state
0x001e67030068da91 "   cls12345n000 HCA-1"     8    1[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f0180    15   18[ ] "SwitchX -  Mellanox Tech
0x001e67030068e129 "   cls12345n001 HCA-1"     1    1[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f2280    16   20[ ] "SwitchX -  Mellanox Tech
0x001e67030068dd21 "   cls12345n002 HCA-1"     2    1[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f0180    15   16[ ] "SwitchX -  Mellanox Tech
0x001e67030068d069 "   cls12345n003 HCA-1"     3    1[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f2280    16   22[ ] "SwitchX -  Mellanox Tech
0x0050cc030079f77f "   cls12345n004 HCA-1"     6    1[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f0180    15    2[ ] "SwitchX -  Mellanox Tech
0x0050cc030079f780 "   cls12345n004 HCA-1"     7    2[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f0180    15   19[ ] "SwitchX -  Mellanox Tech
0x0050cc030079f773 "   cls12345n005 HCA-1"     4    1[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f2280    16   36[ ] "SwitchX -  Mellanox Tech
0x0050cc030079f774 "   cls12345n005 HCA-1"     5    2[ ] ==( 4X       14.0625 Gbps Active/  LinkUp)==> 0xf4521403006f2280    16   19[ ] "SwitchX -  Mellanox Tech
```

`lustre lnet multi-rail` Command

Introduced in Software Release: 4.0

Updated in Software Release: 4.1

Use the `lustre lnet multi-rail` command to manage Multi Rail LNet. The command does not require any prompt and will start the process immediately.

Synopsis

```
# cscli lustre lnet multi-rail [-h] [--show | --enable | --disable]
```

Optional Arguments	Description
`--show`	Display the LNet Multi-rail state
`--enable`	Enable LNet Multi-rail
`--disable`	Disable LNet Multi-rail
`-h |--help`	Display the help message and exit

The file system must be unmounted before running `cscli lustre lnet multi-rail`.

`--enable`:

```
[root@cls12345 ~]# cscli lustre lnet multi-rail --enable
lustre: Enabling Lnet Multi-rail...
lustre: Lnet Multi-rail enabled successfully
lustre: Updating interfaces...
lustre: Changes applied successfully
```

Enable mode takes into account connectivity information while enabling Multi-rail. If a port is not connected, no IP address is assigned to the corresponding interface, and such an interface is excluded from LNet configuration. The `cscli lustre lnet interfaces` command can be used to check the interface state at any time.

`--show` (when Multi-rail enabled):

```
[root@cls12345 ~]# cscli lustre lnet multi-rail --show
Lnet Multi-rail State: single
```

`--disable`:

```
[root@cls12345 ~]# cscli lustre lnet multi-rail --disable
lustre: Disabling Lnet Multi-rail...
lustre: Lnet Multi-rail disabled successfully
lustre: Updating interfaces...
lustre: Changes applied successfully.
```

Disable mode has been introduced to ease the transition between Multi-rail and bonding. Its primary users are generally SQE engineers. This mode creates bonding interfaces, attaches individual physical interfaces to it, updates IP addresses, and runs `beSystemNetConfig` to update Lustre targets.

`--show` (when Multi-rail disabled):

```
[root@cls12345 ~]# cscli lustre lnet multi-rail --show
Lnet Multi-rail State: None
```

A user can use `cscli lustre_network extend_range` to extend their IP address range, if they do not have sufficient IP addresses to assign nodes in the cluster.

Also, see the Cray ClusterStor E1000 Administration Guide S-2757 section Create Custom LNet Configuration for ClusterStor, available on hpe.com/support/hpesc.

Use Case

`cscli lustre_network extend_range` might be required because multi-rail configuration potentially requires more IP addresses than a traditional bonding one. If addresses are allocated exactly for the existing nodes, then there is no way to assign more than one address per node. Thus, `cscli lustre_network extend_range` might be required.

Note: `cscli lustre_network find_gaps` can be used before the conversion starts, to examine the current address allocation. For example,

```
[root@cls12345 ~]# cscli lustre_network find_gaps
find_gaps:
 allocated IPs in Data Network:
   192.0.2.1 - 192.0.2.1
   192.0.2.1 - 192.0.2.1
   192.0.2.3 - 192.0.2.3
   192.0.2.5 - 192.0.2.5
   192.0.2.129 - 192.0.2.129
   192.0.2.131 - 192.0.2.131
   192.0.2.133 - 192.0.2.133
 id 4:
   range: 192.0.2.1 - 192.0.2.251 # size: 251, free: 245
   free IPs:
     192.0.2.2 - 192.0.2.2
     192.0.2.4 - 192.0.2.4
     192.0.2.6 - 192.0.2.128
     192.0.2.130 - 192.0.2.130
     192.0.2.132 - 192.0.2.132
     192.0.2.134 - 192.0.2.251
```

If it appears that there are not enough free addresses, it is better to extend the range in advance and not as a response to the conversion error.

See the lustre lnet interfaces Command to view current connectivity information along with PCIe card to network device mapping.

ClusterStor Bonded to Multi-Rail Conversion

By default, ClusterStor E1000 is configured in Bonded Active-Passive Mode. This section provides the steps to convert an E1000 system from Bonded to Multi-Rail and to update interfaces after the system is converted to Mult-Rail. The final procedure, if needed, is to convert the system back into Bonded Mode.

Standard E1000 system configuration:

SMU: node 00,01

MDU: node 02,03

SSU-F: node 04,05

SSU-D2: node 06,07

- Convert from Default Bonded to Multi-Rail:

    1. Log in to MGMT00 as admin:

        ```
        # ssh admin@mgmt00
        ```

    2. Sudo to root:

        ```
        [admin@cls12345 ~]# sudo su root
        ```

3. Check mode of E1000; expected output for Bonded is none.

```
[root@cls12345 ~]# cscli lustre lnet multi-rail --show
Lnet Multi-rail State: None
```

4. Verify System is unmounted:

```
[root@cls12345n000 ~]# cscli fs_info
------------------------------------------------------------------------------------
OST Redundancy style: Declustered Parity (gridraid)
Disk I/O Integrity guard (ANSI T10-PI) is in use ✔
------------------------------------------------------------------------------------
Information about "testfs" file system:
------------------------------------------------------------------------------------
Node Role Targets Failover partner Devices
------------------------------------------------------------------------------------
cls12345n000 mgmt 0 / 0 cls12345n001
cls12345n001 mgmt 0 / 0 cls12345n000
cls12345n002 mgs 0 / 1 cls12345n003 /dev/md65
cls12345n003 mds 0 / 1 cls12345n002 /dev/md66
cls12345n004 oss 0 / 1 cls12345n005 /dev/md0
cls12345n005 oss 0 / 1 cls12345n004 /dev/md1
cls12345n006 oss 0 / 2 cls12345n007 /dev/md0, /dev/md2
cls12345n007 oss 0 / 2 cls12345n006 /dev/md1, /dev/md3
```

If Lustre is mounted, unmount:

```
[root@cls12345n000 ~]# cscli unmount --evict
```

5. Confirm Lustre targets are unmounted, once the system is unmounted:

```
[root@cls12345n000 ~]# cscli fs_info
```

6. Check interfaces to verify the correct interfaces are active per node:

```
[root@cls12345n000 ~]# cscli lustre lnet interfaces | egrep -i "(ACTIVE|\[ib)"
cls12345n000 [ib0]
cls12345n001 [ib0]
cls12345n002 [ib0]
cls12345n003 [ib0]
cls12345n004 [ib0]
cls12345n005 [ib0]
cls12345n006 [ib0]
cls12345n007 [ib0]
cls12345n001: 0000:09:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n004: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n006: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n007: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
```

The preceding output shows the output for Bonded mode for [ib0] and what interfaces are ACTIVE that will be used for Multi-Rail. It indicates

MDU Node 2: 2 Active Interfaces

MDU Node 3: 2 Active Interfaces

SSU-F Node 4: 2 Active Interfaces

SSU-F Node 5: 2 Active Interfaces

SSU-D2 Node 6: 1 Active Interfaces

SSU-D2 Node 7: 1 Active Interfaces

If the Active interfaces are incorrect—for example, Node 6 and 7 expected 2 Active interfaces instead of 1—check the physical cabling of the nodes that are incorrect, and rerun the following command to verify correctness:

```
[root@cls12345n000 ~]# cscli lustre lnet interfaces | egrep -i "(ACTIVE|\[ib)"
```

For a complete picture of all interfaces state:

```
... cscli lustre lnet interfaces
Per-node data interfaces currently saved for each node:
cls12345n000 [ib0]
cls12345n001 [ib0]
cls12345n002 [ib0]
cls12345n003 [ib0]
cls12345n004 [ib0]
cls12345n005 [ib0]
cls12345n006 [ib0]
cls12345n007 [ib0]
```

The value in the square brackets [ ] means no interface state saved and all interfaces from this set found on the node are used. Pre-node data interfaces can be updated using ' beSystemNetConfig.sh –U –L cls12345' ; then recheck the output again.

```
Current link state

cls12345n001: 0000:09:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n004: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:09:00.1 mlx5_5 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:41:00.0 mlx5_2 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n004: 0000:89:00.1 mlx5_1 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n005: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:09:00.1 mlx5_5 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:41:00.0 mlx5_2 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
```

```
cls12345n005: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n005: 0000:89:00.1 mlx5_1 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n006: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n006: 0000:89:00.1 mlx5_1 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n007: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n007: 0000:89:00.1 mlx5_1 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
```

Once Network connections are verified and number of Active Interfaces per Node is correct, proceed to the next step.

7. Convert the system from Bonded to Multi-Rail Mode:

```
[root@cls12345n000 ~]# cscli lustre lnet multi-rail --enable
lustre: Enabling Lnet Multi-rail...
lustre: Lnet Multi-rail enabled successfully
lustre: Updating interfaces...
lustre: Changes applied successfully.
```

In a new terminal window, to watch the progress of this command in the logs,

```
[root@cls12345n000 ~]# tail -f /var/log/messages | grep -i besystem
```

Once the output indicates "lustre: Changes applied successfully.", Multi-Rail conversation completed successfully.

8. Verify the Lustre nids are expected per node, which equates to number of Active Interfaces:

```
[root@cls12345n000 ~]# pdsh -g lustre 'lctl list_nids' | dshbak -c
----------------
cls12345n002
----------------
10.230.0.3@o2ib
10.230.0.5@o2ib
----------------
cls12345n003
----------------
10.230.0.4@o2ib
10.230.0.6@o2ib
----------------
cls12345n004
----------------
10.230.0.11@o2ib
10.230.0.7@o2ib
----------------
cls12345n005
----------------
10.230.0.17@o2ib
10.230.0.9@o2ib
----------------
cls12345n006
----------------
10.230.0.22@o2ib
----------------
cls12345n007
----------------
10.230.0.28@o2ib
```

9. Recheck Interfaces command to verify the saved state per node:

```
[root@cls12345n000 ~]# cscli lustre lnet interfaces
Per-node data interfaces currently saved for each node:
cls12345n000 ib0
cls12345n001 ib0
cls12345n002 ib0,ib1
cls12345n003 ib0,ib1
cls12345n004 ib0,ib3
cls12345n005 ib0,ib3
cls12345n006 ib0
cls12345n007 ib0
```

```
------IGNORE REST OF THE OUTPUT------
***MULTI-RAIL CONVERSION COMPLETED***
```

> **NOTE:** Multi-rail conversion removes any previously made custom LNet configurations, Lustre parameter changes, and Lustre pool creations.
>
> Any previously created custom LNet configurations for ClusterStor need to be recreated. Changes may need to be made to the LNet configuration files to support the new multi-rail interfaces. Follow the instructions in the Cray ClusterStor E1000 Administration Guide S-2757 section Create Custom LNet Configuration for ClusterStor to recreate the custom LNet configuration.
>
> Any previously made Lustre parameter changes need to be reapplied.
>
> Any previously created Lustre pools need to be recreated.

- Add Additional Interfaces After the Multi-Rail Conversion

  ○ In this example, Node 4 and 5, SSU-F, has two active interfaces per node and would like to plumb up a third interface per node. It is assumed the interface already exists, the interface will be cabled, and the state Change from DOWN to ACTIVE.

  ○ After the third interface is active per SSU-F node, proceed with following steps, which first unmount the server Lustre targets.

  1. Log in to MGMT00 as admin:

  ```
  # ssh admin@mgmt00
  ```

  2. Sudo to root:

  ```
  [admin@cls12345 ~]# sudo su root
  ```

  3. If Lustre is mounted, unmount:

  ```
  [root@cls12345n000 ~]# cscli unmount --evict
  ```

  4. Verify system is unmounted:

  ```
  [root@cls12345n000 ~]# cscli fs_info
  OST Redundancy style: Declustered Parity (gridraid)
  Disk I/O Integrity guard (ANSI T10-PI) is in use ✔
  ----------------------------------------------------------------------------------------------
  Information about "testfs" file system:
  ```

```
--------------------------------------------------------------------------------------
Node          Role     Targets    Failover partner Devices
--------------------------------------------------------------------------------------
cls12345n000   mgmt     0 / 0      cls12345n001
cls12345n001   mgmt     0 / 0      cls12345n000
cls12345n002   mgs      0 / 1      cls12345n003          /dev/md65
cls12345n003   mds      0 / 1      cls12345n002          /dev/md66
cls12345n004   oss      0 / 1      cls12345n005           /dev/md0
cls12345n005   oss      0 / 1      cls12345n004           /dev/md1
cls12345n006   oss      0 / 2      cls12345n007        /dev/md0, /dev/md2
cls12345n007   oss      0 / 2      cls12345n006        /dev/md1, /dev/md3
```

5. Check Lustre Interfaces and verify three Active Interfaces per SSU-F Nodes can be seen:

```
[root@cls12345n000 ~]# cscli lustre lnet interfaces | egrep -i "(\ ib)" | grep -v down
cls12345n000 ib0 ib1 ib2 ib3 ib4 ib5
cls12345n001 ib0
cls12345n002 ib0,ib1
cls12345n003 ib0,ib1
cls12345n004 ib0,ib3
cls12345n005 ib0,ib3
cls12345n006 ib0
cls12345n007 ib0
cls12345n001: 0000:09:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n001: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n004: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n005: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n006: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n007: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
```

The preceding output shows the output for Bonded mode for [ib0], and what interfaces are ACTIVE that will be used for Multi-Rail. It indicates,

MDU Node 2: 2 Active Interfaces

MDU Node 3: 2 Active Interfaces

SSU-F Node 4: 3 Active Interfaces

SSU-F Node 5: 3 Active Interfaces

SSU-D2 Node 6: 1 Active Interfaces

SSU-D2 Node 7: 1 Active Interfaces

To enable the third interface for each SSU-F node, run the following command:

```
[root@cls12345n000 ~]# beSystemNetConfig.sh -U $(nodeattr -v cluster)
```

There will be a A lot of output on the screen during the command execution.

Successful output will look similar to the following:

```
cls12345n006:
cls12345n006:    * The configuration specifies that 'cls12345n006_md1-group' should remain stopped
cls12345n006:
cls12345n003: Cleaned up cls12345n002_md62-raid on cls12345n003
cls12345n003: Cleaned up cls12345n002_md62-raid on cls12345n002
cls12345n003: Cleaned up cls12345n002_md62-fsys on cls12345n003
cls12345n003: Cleaned up cls12345n002_md62-fsys on cls12345n002
cls12345n003: Cleaned up cls12345n002_md62-stop on cls12345n003
cls12345n003: Cleaned up cls12345n002_md62-stop on cls12345n002
cls12345n003: Multiple attributes match name=target-role
cls12345n003:   Value: Stopped  (id=cls12345n002_md62-group-meta_attributes-target-role)
cls12345n003:   Value: Stopped  (id=cls12345n002_md62-fsys-meta_attributes-target-role)
cls12345n006: Cleaned up cls12345n006_md2-wibr on cls12345n007
cls12345n006: Cleaned up cls12345n006_md2-wibr on cls12345n006
cls12345n006: Cleaned up cls12345n006_md2-jnlr on cls12345n007
cls12345n006: Cleaned up cls12345n006_md2-jnlr on cls12345n006
cls12345n006: Cleaned up cls12345n006_md2-wibs on cls12345n007
cls12345n006: Cleaned up cls12345n006_md2-wibs on cls12345n006
cls12345n006: Cleaned up cls12345n006_md2-raid on cls12345n007
cls12345n006: Cleaned up cls12345n006_md2-raid on cls12345n006
cls12345n006: Cleaned up cls12345n006_md2-fsys on cls12345n007
cls12345n006: Cleaned up cls12345n006_md2-fsys on cls12345n006
cls12345n006: Cleaned up cls12345n006_md2-stop on cls12345n007
cls12345n006: Cleaned up cls12345n006_md2-stop on cls12345n006
cls12345n006:
cls12345n006:    * The configuration specifies that 'cls12345n006_md2-group' should remain stopped
cls12345n006:
cls12345n003: Cleaned up cls12345n002_md61-raid on cls12345n003
cls12345n003: Cleaned up cls12345n002_md61-raid on cls12345n002
cls12345n003: Cleaned up cls12345n002_md61-fsys on cls12345n003
cls12345n003: Cleaned up cls12345n002_md61-fsys on cls12345n002
cls12345n003: Cleaned up cls12345n002_md61-stop on cls12345n003
cls12345n003: Cleaned up cls12345n002_md61-stop on cls12345n002
cls12345n003: Multiple attributes match name=target-role
cls12345n003:   Value: Stopped  (id=cls12345n002_md61-group-meta_attributes-target-role)
cls12345n003:   Value: Stopped  (id=cls12345n002_md61-fsys-meta_attributes-target-role)
cls12345n006: Cleaned up cls12345n006_md3-wibr on cls12345n007
cls12345n006: Cleaned up cls12345n006_md3-wibr on cls12345n006
cls12345n006: Cleaned up cls12345n006_md3-jnlr on cls12345n007
cls12345n006: Cleaned up cls12345n006_md3-jnlr on cls12345n006
cls12345n006: Cleaned up cls12345n006_md3-wibs on cls12345n007
cls12345n006: Cleaned up cls12345n006_md3-wibs on cls12345n006
cls12345n006: Cleaned up cls12345n006_md3-raid on cls12345n007
cls12345n006: Cleaned up cls12345n006_md3-raid on cls12345n006
cls12345n006: Cleaned up cls12345n006_md3-fsys on cls12345n007
cls12345n006: Cleaned up cls12345n006_md3-fsys on cls12345n006
```

```
cls12345n006: Cleaned up cls12345n006_md3-stop on cls12345n007
cls12345n006: Cleaned up cls12345n006_md3-stop on cls12345n006
cls12345n006:
cls12345n006:    * The configuration specifies that 'cls12345n006_md3-group' should remain stopped
cls12345n006:
[root@cls12345n000 ~]#
```

6. Check the Lustre NIDs and verify three NIDS per SSU-F node can be seen:

```
[root@cls12345n000 ~]# pdsh -g lustre 'lctl list_nids' | dshbak -c
----------------
cls12345n002
----------------
10.230.0.3@o2ib
10.230.0.5@o2ib
----------------
cls12345n003
----------------
10.230.0.4@o2ib
10.230.0.6@o2ib
----------------
cls12345n004
----------------
10.230.0.11@o2ib
10.230.0.7@o2ib
10.230.0.8@o2ib
----------------
cls12345n005
----------------
10.230.0.17@o2ib
10.230.0.9@o2ib
10.230.0.10@o2ib
----------------
cls12345n006
----------------
10.230.0.22@o2ib
----------------
cls12345n007
----------------
10.230.0.28@o2ib
```

7. Verify Lustre Interfaces see three ACTIVE interfaces per SSU-F NODE:

```
[root@cls12345n000 ~]# cscli lustre lnet interfaces | egrep -i "(\ ib)" | grep -v down
cls12345n000 ib0 ib1 ib2 ib3 ib4 ib5
cls12345n001 ib0
cls12345n002 ib0,ib1
cls12345n003 ib0,ib1
cls12345n004 ib0,ib3,ib4
cls12345n005 ib0,ib3,ib4
cls12345n006 ib0
cls12345n007 ib0
cls12345n001: 0000:09:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n004: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n005: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n006: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n007: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
```

MULTI-RAIL ADDITIONAL INTERFACE COMPLETE

> **NOTE:** Multi-rail conversion removes any previously made custom LNet configurations, Lustre parameter changes, and Lustre pool creations.
>
> Any previously created custom LNet configurations for ClusterStor need to be recreated. Changes may need to be made to the LNet configuration files to support the new multi-rail interfaces. Follow the instructions in the Cray ClusterStor E1000 Administration Guide S-2757 section Create Custom LNet Configuration for ClusterStor to recreate the custom LNet configuration.
>
> Any previously made Lustre parameter changes need to be reapplied.
>
> Any previously created Lustre pools need to be recreated.

- To Convert Back from Multi-Rail to Bonded Mode, Default State (if needed)

  1. Log in to MGMT00 as admin account:

     ```
     # ssh admin@mgmt00
     ```

  2. Sudo to root:

     ```
     [admin@cls12345 ~]# sudo su root
     ```

  3. If Lustre is mounted, unmount:

     ```
     [root@cls12345 ~]# cscli unmount --evict
     ```

  4. Verify system is unmounted:

     ```
     [root@cls12345n000 ~]# cscli fs_info
     ---------------------------------------------------------------------------------------------------
     OST Redundancy style: Declustered Parity (gridraid)
     Disk I/O Integrity guard (ANSI T10-PI) is in use ✔
     ---------------------------------------------------------------------------------------------------
     Information about "testfs" file system:
     ---------------------------------------------------------------------------------------------------
     Node         Role    Targets    Failover partner Devices
     ---------------------------------------------------------------------------------------------------
     cls12345n000  mgmt    0 / 0      cls12345n001
     cls12345n001  mgmt    0 / 0      cls12345n000
     cls12345n002  mgs     0 / 1      cls12345n003              /dev/md65
     ```

```
cls12345n003    mds     0 / 1    cls12345n002           /dev/md66
cls12345n004    oss     0 / 1    cls12345n005            /dev/md0
cls12345n005    oss     0 / 1    cls12345n004            /dev/md1
cls12345n006    oss     0 / 2    cls12345n007      /dev/md0, /dev/md2
cls12345n007    oss     0 / 2    cls12345n006      /dev/md1, /dev/md3
```

5. DISABLE Multi-Rail, which returns the system back to default Bonded State:

```
[root@cls12345n000 ~]# cscli lustre lnet multi-rail --disable
lustre: Disabling Lnet Multi-rail...
lustre: Lnet Multi-rail disabled successfully
lustre: Updating interfaces...
lustre: Changes applied successfully.
```

In a new terminal Window, to watch the progress of this command in the logs,

```
[root@cls12345n00 ~]# tail -f /var/log/messages | grep -i besystem
```

6. Check the Lustre NIDs and verify one NID per SSU-F node can be seen:

```
[root@cls12345n000 ~]# pdsh -g lustre 'lctl list_nids' | dshbak -c
----------------
cls12345n002
----------------
10.230.0.3@o2ib
----------------
cls12345n003
----------------
10.230.0.4@o2ib
----------------
cls12345n004
----------------
10.230.0.11@o2ib
----------------
cls12345n005
----------------
10.230.0.17@o2ib
----------------
cls12345n006
----------------
10.230.0.22@o2ib
----------------
cls12345n007
----------------
10.230.0.28@o2ib
```

7. Verify Lustre Interfaces see one interface per NODE:

```
[root@cls12345n000 ~]# cscli lustre lnet interfaces | egrep -i "(ACTIVE|\[ib)"
cls12345n000 [ib0]
cls12345n001 [ib0]
cls12345n002 [ib0]
cls12345n003 [ib0]
cls12345n004 [ib0]
cls12345n005 [ib0]
cls12345n006 [ib0]
cls12345n007 [ib0]
cls12345n001: 0000:09:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n002: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:09:00.0 mlx5_1 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n003: 0000:41:00.0 mlx5_0 (MT4123 - MCX653105A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, single-port QSFP56
cls12345n004: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n004: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n005: 0000:09:00.0 mlx5_4 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:41:00.1 mlx5_3 (MT4123 - MCX653106A-HDAT) ConnectX-6 VPI adapter card, HDR IB (200Gb/s) and 200GbE, dual-port QSFP56
cls12345n005: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n006: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
cls12345n007: 0000:89:00.0 mlx5_0 (MT4123 - MCX653436A-HDAI) ConnectX-6 VPI adapter card, 200Gb/s (HDR IB and 200GbE) for OCP 3.0, with host management, Dual-por
```

CONVERT BACK FROM MULTI-RAIL to BONDED MODE, DEFAULT STATE - COMPLETE

Troubleshoot `cscli lustre lnet multi-rail`

```
# cscli lustre lnet multi-rail
lustre: Error: beSystemNetConfig[100992]: Not enough addresses (7) to
assign to 6 node(s) of cluster cls12345

Please run 'cscli lustre_network extend_range' to extend the ip range.
After extending the range, run 'cscli lustre lnet multi-rail' again,
or 'cscli lustre_network apply' to apply the changes."
#
```

If the command exits due to insufficient IP addresses as shown, user should do the following:

- Use `cscli lustre_network extend_range` to extend the range.

- Successively, run `cscli lustre lnet multi-rail` again, or run `cscli lustre_network apply` to apply the changes.

`lustre_network` Command

Introduced in Software Release: 2.0.0

Updated in Software Releases: 3.0 and 3.1

Use the `lustre_network` command and its subcommands to manage the configuration of the high-speed data network, including IP addresses and other options.

Synopsis

```
$ cscli lustre_network [-h] {list_ranges,find_gaps,list_hosts,add_range,
                             extend_range,remove_range,apply,defaults,bonding,sm}
```

Positional Arguments	Description	Release
`list_ranges`	List ranges of IP addresses for the high-speed data network	
`find_gaps`	Show unused IP addresses in ranges of the high-speed data network	
`list_hosts`	Show the network pairing information (IP address and host name) of `data_network` of the cluster	3.0+
`add_range`	Add new range of IP addresses into the high-speed data network	
`extend_range`	Extend range of IP addresses for the high-speed data network	
`remove_range`	Remove range of IP addresses for the high-speed data network	
`apply`	Apply a network configuration to a cluster	3.0+
`defaults`	Manage default netmask and MTU for Data Network IP configuration	
`bonding`	Manage Ethernet bonding for the high-speed data network	3.1+
`sm`	Manage the InfiniBand Subnet Manager (SM) integrated with the storage system and modify subnet manager priorities	3.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre_network add_range` Subcommand

Introduced in Software Release: 2.0.0

The `lustre_network add_range` command is a subcommand of the `lustre_network` command. Use the subcommand to add new range of IPs into InfiniBand fabric.

Synopsis

```
$ cscli lustre_network add_range [-h] -f from_ip -t to_ip [-h]
```

Optional Arguments	Description
`-f from_ip	--from_ip from_ip`	Display first IP address in the range
`-t to_ip	--to_ip to_ip`	Display last IP address in the range
`-h |--help`	Display the help message and exit

`lustre_network apply` Subcommand

Introduced in Software Release: 3.0

The `lustre_network apply` command is a subcommand of the `lustre_network` command. Use the subcommand to apply a network configuration to a cluster.

Synopsis

```
$ cscli lustre_network apply [-h] [-y] [-f] [-c cluster_name]
```

Optional Arguments	Description
`-y |--yes`	Confirm the action is applied
`-f |--force`	Apply custom LNet configurations
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.
`-h |--help`	Display the help message and exit

`lustre_network bonding` Subcommand

Introduced in Software Release: 3.1

The `lustre_network bonding` command is a subcommand of the `lustre_network` command. Use the subcommand and its subsequent subcommands to manage Ethernet bonding on the high speed data network.

Synopsis

```
$ cscli lustre_network bonding [-h] {show,mode,hash} ...
```

Positional Arguments	Description
`show`	Show bonding interfaces
`mode`	Manage Ethernet bonding mode
`hash`	Manage Ethernet bonding hash policy

Optional Arguments	Description
`-h |--help`	Display the help message and exit

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

`lustre_network bonding hash` Subcommand

Introduced in Software Release: 3.1

The `lustre_network bonding hash` command is a subcommand of the `lustre_network` command. Use the subcommand to manage the Ethernet bonding hash policy.

Synopsis

```
$ cscli lustre_network bonding hash [-h] {show,set} ...
```

Positional Arguments	Description
`show`	Show the bonding hash policy
`set`	Set the bonding hash policy

Optional Arguments	Description
`-h |--help`	Display the help message and exit

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

`lustre_network bonding hash set` Subcommand

Introduced in Software Release: 3.1

The `lustre_network bonding hash set` command is a subcommand of the `lustre_network` command. Use the subcommand to set the Ethernet bonding hash policy.

> **IMPORTANT:** The Lustre file system must be stopped before changing the Ethernet bonding mode or hashing policy. In addition, LCNmon must also be stopped until the bonding mode or hashing policy has been changed. Once the bonding mode or hashing policy change is complete, restart the Lustre file system. Follow this correct sequence of steps:
>
> 1. Stop Lustre:
>
>    ```
>    [admin@mgmt0]$ cscli unmount -f fsname
>    ```
>
> 2. Stop LCNmon:
>
>    ```
>    [admin@mgmt0]$ sudo pdsh -g mds=primary, oss=primary stop_ibstat
>    ```
>
> 3. Set the hashing policy using the command described in this topic.
>
> 4. Start LCNmon:
>
>    ```
>    [admin@mgmt0]$ sudo pdsh -g mds=primary, oss=primary start_ibstat
>    ```
>
> 5. Start Lustre:
>
>    ```
>    [admin@mgmt0]$ cscli mount -f fsname
>    ```

Synopsis

```
$ cscli data_network bonding hash set [-h] --policy {layer2,layer2and3,layer3and4}
```

Optional Arguments	Description
`--policy {layer2, layer2and3,layer3and4}`	Choose the new hash policy. Available options: *layer2*, *layer2and3*, and *layer3and4*
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli lustre_network bonding hash set --policy layer2
lustre_network: setting hash policy layer2
lustre_network: transmission hash policy cannot be set for active-backup mode.
```

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

`lustre_network bonding hash show` Subcommand

Introduced in Software Release: 3.1

The `lustre_network bonding hash show` command is a subcommand of the `lustre_network` command. Use the subcommand to display the hash policy.

Synopsis

```
$ cscli lustre_network bonding hash show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli lustre_network bonding hash show
policy: off
```

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

`lustre_network bonding mode` Subcommand

Introduced in Software Release: 3.1

The `lustre_network bonding mode` command is a second-level subcommand of the `lustre_network` command. Use the command to manage the Ethernet bonding mode.

Synopsis

```
$ cscli lustre_network bonding mode [-h] {show,set} ...
```

Positional Arguments	Description
`show`	Show the bonding mode
`set`	Set the bonding mode

Optional Arguments	Description
`-h |--help`	Display the help message and exit

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

`lustre_network bonding mode set` Subcommand

Introduced in Software Release: 3.1 (updated in 4.1)

The `lustre_network bonding mode set` command is a subcommand of the `lustre_network` command. Use the subcommand to set the Ethernet bonding mode.

> **IMPORTANT:** The Lustre file system must be stopped before changing the Ethernet bonding mode or hashing policy. In addition, LCNmon must also be stopped until the bonding mode or hashing policy has been changed. Once the bonding mode or hashing policy change is complete, restart the Lustre file system. Follow this correct sequence of steps:
>
> 1. Stop Lustre:
>
>    ```
>    [admin@mgmt0]$ cscli unmount -f fsname
>    ```
>
> 2. Stop LCNmon:
>
>    ```
>    [admin@mgmt0]$ sudo pdsh -g mds=primary, oss=primary stop_ibstat
>    ```
>
> 3. Reload the Lustre modules:
>
>    ```
>    [admin@mgnt0]$ pdsh -g lustre "(lustre_rmmod; lctl net down; lustre_rmmod) %> /dev/null"
>    ```
>
> 4. Set the bonding mode using the command described in this topic.
>
> 5. Reboot nodes, after changing the bonding mode:
>
>    ```
>    [root@cls12345n400 ~]# cscli lustre_network bonding mode set --mode passive
>    lustre_network: setting mode passive
>    lustre_network: mode passive has been set successfully
>    lustre_network: Please reboot nodes with RoCE mode selected in order to apply bonding changes
>    ```
>
> 6. Start LCNmon:
>
>    ```
>    [admin@mgmt0]$ sudo pdsh -g mds=primary, oss=primary start_ibstat
>    ```
>
> 7. Start Lustre:
>
>    ```
>    [admin@mgmt0]$ cscli mount -f fsname
>    ```

Synopsis

```
$ cscli lustre_network bonding mode set [-h] --mode {passive,lacp,balancealb}
```

Optional Arguments	Description	Release
`--mode {passive, lacp,balancealb}`	Choose the new bonding mode. Available options: *passive*, *lacp*, and *balancealb* **IMPORTANT:** Bonding mode cannot be set to `balancealb` with ROCE enabled Do not attempt `balancealb` option when ROCE is enabled.	3.1+
`-h |--help`	Display the help message and exit	

Usage

```
[root@cls12345n000 ~]# cscli lustre_network bonding mode set --mode lacp
lustre_network: setting mode lacp
lustre_network: mode lacp has been set successfully
```

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

Troubleshoot

Reload the Lustre modules

When changing the bonding mode, it's important to reload the Lustre modules, to ensure proper operations.

A single command will unload all lustre modules after targets have been unmounted:

```
pdsh -g lustre "(lustre_rmmod; lctl net down; lustre_rmmod) &> /dev/null)"
```

Lustre modules are automatically loaded on filesystem mount, so no command is needed to manually load them.

Note: Nodes with RoCE mode selected need to be rebooted to apply bonding mode changes.

`lustre_network bonding mode show` Subcommand

Introduced in Software Release: 3.1

The `lustre_network bonding mode show` command is is a subcommand of the `lustre_network` command. Use the command to display the bonding mode.

Synopsis

```
$ cscli lustre_network bonding mode show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli lustre_network bonding mode show
mode: passive
```

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

`lustre_network bonding show` Subcommand

Introduced in Software Release: 3.1

The `lustre_network bonding show` command is is a subcommand of the `lustre_network` command. Use the subcommand to display the current bonding interfaces.

Synopsis

```
$ cscli lustre_network bonding show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli lustre_network bonding show
mode: passive
policy: off
```

For more information about the Ethernet bonding driver, please see the official **Linux Ethernet Bonding Driver How To** document.

`lustre_network defaults` Subcommand

Introduced in Software Release: 2.0.0

Updated in Software Release: 6.0

The `defaults` command is a subcommand of the `lustre_network` command. Use the command to manage default netmask and MTU for Data Network IP configuration.

Synopsis

```
$ cscli lustre_network defaults [-h] {set,show} ...
```

Positional Arguments	Description	Release
set	Set the netmask and MTU for Data Network IP configuration	6.0+
show	Display the current netmask and MTU for Data Network IP addresses	6.0+

Optional Arguments	Description
-h |--help	Display the help message and exit

`lustre_network defaults set` Subcommand

Introduced in Software Release: 6.0

The `lustre_network defaults set` command is a subcommand of the `lustre_network defaults` command. Use the subcommand to set the netmask and MTU for Data Network IP configuration.

Synopsis

```
$ cscli lustre_network defaults set [-h] [-m mask] [-t mtu]
```

Optional Arguments	Description
`-m mask` |`--mask mask`	Set the default netmask for all Data Network IP addresses to `MASK`. Also, supports CIDR-style bit-count prefix (0–32).
`-t mtu` |`--mtu mtu`	Set the maximum transmission unit for the Data Network interfaces
`-h` |`--help`	Display the help message and exit

`lustre_network extend_range` Subcommand

Introduced in Software Release: 2.0.0

The `lustre_network extend_range` command is a subcommand of the `lustre_network` command. Use the subcommand to extend the range of IPs for InfiniBand fabric.

Synopsis

```
$ cscli lustre_network extend_range [-h] -i id [-f from_ip] [-t to_ip] [-h]
```

Optional Arguments	Description
`-i id	--id id`	Display the range ID
`-f from_ip	--from_ip from_ip`	Display first IP address in the range
`-t to_ip	--to_ip to_ip`	Display last IP address in the range
`-h |--help`	Display the help message and exit

`lustre_network find_gaps` Subcommand

Introduced in Software Release: 2.0.0

The `lustre_network find_gaps` command is a subcommand of the `lustre_network` command. Use the subcommand to show unused IPs in ranges of InfiniBand fabric.

Synopsis

```
$ cscli lustre_network find_gaps [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre_network list_hosts` Subcommand

Introduced in Software Release: 3.0.0

The `lustre_network list_hosts` command is a subcommand of the `lustre_network` command. Use the subcommand to show the unused IPs in ranges of the HSN.

Synopsis

```
$ cscli lustre_network list_hosts [- [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre_network list_ranges` Subcommand

Introduced in Software Release: 2.0.0

The `lustre_network list_ranges` command is a subcommand of the `lustre_network` command. Use the subcommand to list ranges of IPs for InfiniBand fabric.

Synopsis

```
$ cscli lustre_network list_ranges [-h]
```

Optional Arguments	Description
-h |--help	Display the help message and exit

`lustre_network remove_range` Subcommand

Introduced in Software Release: 2.0.0

The `lustre_network remove_range` command is a subcommand of the `lustre_network` command. Use the subcommand to remove range of IPs for InfiniBand fabric.

Synopsis

```
$ cscli lustre_network remove_range [-h]
```

Optional Arguments	Description
`-i id	--id id`	Display the range ID
`-h |--help`	Display the help message and exit

`lustre_network sm` Subcommand

Introduced in Software Release: 3.0

The `lustre_network sm` command is a subcommand of the `lustre_network` command. Use the subcommand to manage the InfiniBand Subnet Manager (SM) integrated with the storage system. The local SM ensures that InfiniBand is properly configured and enabled for use. In situations where the storage system is connected to a larger InfiniBand network that already uses a subnet manager, the local SM should be disabled. This subcommand can also be used to modify subnet manager priorities.

Synopsis

```
$ cscli lustre_network sm [-h] (-e | -d | -s) [-P priority]
                          [-V max_op_vls] [-c cluster_name]
```

Optional Arguments	Description
`-e |--enable`	Enable subnet manager
`-d |--disable`	Disable subnet manager
`-s |--status`	Display subnet manager status
`-P priority |--priority priority`	Set a priority [0..15]
`-V max_op_vls |----max_op_vls max_op_vls`	Set a `max_op_vls` [1..255]
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.
`-h |--help`	Display the help message and exit

`lustre_perf` Command

Introduced in Software Release: 2.0.0
Deprecated in Software Release: 3.0.0 (See the `lustre top` Command topic for new command information.)

Use the `lustre_perf` (Lustre Performance) command to view the Lustre file system performance in the ClusterStor system.

Synopsis

```
$ cscli lustre_perf [-h] {fetch,ltop,list,status,abort,clean}
```

Positional Arguments	Description	Release
`fetch`	Export historical Lustre data between start time and end time to the local filesystem. Use `cscli lustre_perf` list to find the location of the resulting output	2.x only
`ltop`	Display live information about a Lustre file system. Use the `--help` command for more details	2.x only
`list`	List the full path of any existing log files. Use the `--help` command for more details	2.x only
`status`	Return the status of the last run command (or the currently running command if it is non-blocking and a process is still running). Use the `--help` command for more details	2.x only
`abort`	Abort the currently running export job. Use the `--help` command for more details	2.x only
`clean`	Delete all export files in the export folder. Use the `--help` command for more details	2.x only

Optional Arguments	Description
`|--version`	Display twisted version and exit
`-h |--help`	Display the help message and exit

`lustre_perf clean` Subcommand

Introduced in Software Release: 2.0
Deprecated in Software Release: 3.0.0 (See the `lustre_top` Command topic for new command information.)

The `Lustre_perf clean` command is a subcommand of the `lustre_perf` command. Use the subcommand to delete all export files in the export folder.

Synopsis

```
$ cscli lustre_perf clean [-h]
```

Optional Arguments	Description
`|--version`	Display twisted version and exit
`-h |--help`	Display the help message and exit

`lustre_perf fetch` Subcommand

Introduced in Software Release: 2.0
Deprecated in Software Release: 3.0 (See the `<new_command>` Command topic for new command information.)

The `lustre_perf fetch` command is a subcommand of the `lustre_perf` command. Use the subcommand to export historical Lustre data.

Synopsis

```
$ cscli lustre_perf fetch [-h] [-s start] [-e end]
```

Optional Arguments	Description	Release
`-s start |--starttime start`	Specify the start time from which to start fetching data in `YYYY-MM-DDThh:mm:ss(+|-)hh:mm` format	2.x only
`-e end |--endtime end`	Specify the end time to stop fetching data in `YYYY-MM-DDThh:mm:ss(+|-)hh:mm` format	2.x only
`|--version`	Display twisted version and exit	2.x only
`-h |--help`	Display the help message and exit	

Usage

```
$ cscli lustre_perf fetch -s 2015-03-01T08:25:20-00:00 -e 2015-03-02T08:29:00-00:00
```

`lustre_perf list` Subcommand

Introduced in Software Release: 2.0.0
Deprecated in Software Release: 3.0

The `lustre_perf list` command is a subcommand of the `lustre_perf` command. Use the subcommand to list the full path of any existing files.

Synopsis

```
$ cscli lustre_perf list [-h]
```

Optional Arguments	Description
`|--version`	Display twisted version and exit
`-h |--help`	Display the help message and exit

Usage

```
$ cscli lustre_perf list
/mnt/mgmt/var/lib/lustre_perf/data/201503010825200000_201503010926000000.csv.gz
/mnt/mgmt/var/lib/lustre_perf/data/201502251000250000_201503021831130000.csv.gz
Total: 21.81 MB used by 2 files
```

`lustre_perf ltop` Subcommand

Introduced in Software Release: 2.0.0
Deprecated in Software Release: 3.0 (See the `<new_command>` Command topic for new command information.)

The `lustre_perf ltop` command is a subcommand of the `lustre_perf` command. Use the subcommand to display live information about Lustre file system.

Synopsis

```
$ cscli lustre_perf ltop [-h] [-n] [-f=filter]
```

Optional Arguments	Description	Release
`-n |--no-summary`	Omit summary of file system stats in output	2.x only
`-f=filter |--filter=filter`	Filter by regular expression of target name [default:]	2.x only
`|--version`	Display twisted version and exit	2.x only
`-h |--help`	Display the help message and exit	

Usage

```
$ cscli lustre_perf ltop  Filesystem: testfs Inodes: 4259.059m total, 1625.000 used (0%), 4259.058m
free Space: 134.845t total, 1387.531g used (1%), 133.458t free Bytes/s: 8234.887m read, 0.000 write,
8234.887m IOPS MDops/s: 0 open, 0 close, 0 getattr, 0 setattr 0 link, 0 unlink, 0 mkdir, 0 rmdir 0
statfs, 0 rename, 0 getxattr >MDT 0000 MDS: nsit203, 0 %cpu, 2 %mem Inodes: 2016.608m total, 217.000
used (0%), 2016.608m free Space: 3096.947g total, 4396.978m used (0%), 3092.550g free MDops/s: 0
open, 0 close, 0 getattr, 0 setattr 0 link, 0 unlink, 0 mkdir, 0 rmdir 0 statfs, 0 rename, 0
getxattr 0001 MDS: nsit206, 2 %cpu, 3 %mem Inodes: 1062.014m total, 205.000 used (0%), 1062.013m
free Space: 3805.960g total, 4369.818m used (0%), 3801.591g free MDops/s: 0 open, 0 close, 0
getattr, 0 setattr 0 link, 0 unlink, 0 mkdir, 0 rmdir 0 statfs, 0 rename, 0 getxattr 0002 MDS:
nsit207, 2 %cpu, 3 %mem Inodes: 1062.014m total, 205.000 used (0%), 1062.013m free Space: 3805.960g
total, 4369.822m used (0%), 3801.591g free MDops/s: 0 open, 0 close, 0 getattr, 0 setattr 0 link, 0
unlink, 0 mkdir, 0 rmdir 0 statfs, 0 rename, 0 getxattr >OST S OSS rB/s wB/s %cpu %mem %spc 0000 -
nsit204 4102m 0 27 20 1
```

`lustre_perf status` Subcommand

Introduced in Software Release: 2.x
Deprecated in Software Release: 3.0 (See the `lustre top` Command topic for new command information.)

The `lustre_perf status` command is a subcommand of the `lustre_perf` command. Use the subcommand to return the status of the last command run (or the currently running command if it is non-blocking and a process is still running).

Synopsis

```
$ cscli lustre_perf status [-h]
```

Optional Arguments	Description
`|--version`	Display twisted version and exit
`-h |--help`	Display the help message and exit

`lustre pool` Command

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

Use the `lustre pool` command to manage Lustre pools.

Synopsis

```
$ cscli lustre pool [-h]
                        {client_mount,client_unmount,show,target,create,add,remove,delete,auto_configure}
                        ...
```

Positional Arguments	Description	Release
`client_mount`	Mount Lustre on MGS for ClusterStor CS9K systems	6.0+
`client_unmount`	Unmount Lustre on MGS for ClusterStor CS9K systems	6.0+
`show`	Display the list of OST(s) in the specified pool	
`target`	Display the list of OST(s) that can be added to the pool	
`create`	Create a pool of the specified name	
`add`	Add the OST(s) to the specified pool	
`remove`	Remove the OST(s) from the specified pool	
`delete`	Delete the pool of the specified name	
`auto_configure`	Create default pools in the system (one flash and one disk)	

Optional Arguments	Description
`-h |--help`	Show help message and exit

`lustre pool add` Subcommand

Introduced in Software Release: 3.2

The `lustre pool add` command is a subcommand of the `lustre pool` command. The subcommand can be used to add the OST(s) to the specified pool.

Synopsis

```
$ cscli lustre pool add [-h] [-f filesystem] -p pool -t target(s)
```

Positional Arguments	Description
`-p pool |--pool pool`	Name of the pool
`-t target(s) |--target target(s)`	Target(s) can be added to the pool

Optional Arguments	Description
`-f filesystem |--filesystem filesystem`	File system name (takes the file system name from the system if not specified)
`-h |--help`	Show the help message and exit

Example

```
# cscli lustre pool add -p newpool -t OST0000 OST0001
lustre: Targets successfully added to Pool - newpool
```

`lustre pool auto_configure` Subcommand

Introduced in Software Release: 2.x

Updated in Software Release: 3.2

The `lustre pool auto_configure` command is a subcommand of the `lustre pool` command. The subcommand automatically creates default pools in the system. It creates two default pools–disk and flash–and adds OSTs accordingly to the pools depending on the type of the OST.

This command cannot be run without the `--force` option if there are pools currently present in the system. Running `--force` will remove any exiting pools before creating the new ones.

Synopsis

```
$ cscli lustre pool auto_configure [-h] [--force] ...
```

Positional Arguments	Description
`--force`	Force run `auto_configure` command.
	NOTE: This action removes any existing configuration of pools.

Optional Arguments	Description
`-h |--help`	Show the help message and exit

To add a new OST to one of the default pools, alternatively (instead of `lustre pool add`) use the following:

```
$ cscli configure_oss [-p] [-h] ...
```

Positional Arguments	Description
`-p |--pool`	Force run auto_configure command. NOTE: This action removes any existing configuration of pools.

Subsequently, one of these three scenarios will take place:

- If there exists no pool configuration in the system, `cscli lustre pool auto_configure` will automatically run and the OST will be added to one of the default pools (disk/flash).

- If the current pool configuration in the system is not the default (auto-configured), the user will be prompted to run the `cscli lustre pool auto_configure` command first.

- If the current pool configuration in the system is the default (auto-configured), the OST will be added to one of the default pools (disk/flash).

`lustre pool client_mount` Subcommand

Introduced in Software Release: 6.0

The `lustre pool client_mount` command is a subcommand of the `lustre pool` command. The subcommand can be used to mount Lustre on MGS for ClusterStor CS9K systems in order to use `lustre pool` commands.

Synopsis

```
$ cscli lustre pool client_mount [-h] -m mount
```

Optional Arguments	Description
`-m mount |--mount-point mount`	Specify the mount point
`-h |--help`	Show the help message and exit

`lustre pool client_unmount` Subcommand

Introduced in Software Release: 6.0

The `lustre pool client_unmount` command is a subcommand of the `lustre pool` command. The subcommand can be used to unmount Lustre on MGS for ClusterStor CS9K systems.

Synopsis

```
$ cscli lustre pool client_unmount [-h] -m mount
```

Optional Arguments	Description
`-m mount |--mount-point mount`	Specify the mount point
`-h |--help`	Display the help message and exit

`lustre pool create` Subcommand

Introduced in Software Release: 3.2

The `lustre pool create` command is a subcommand of the `lustre pool` command. Use the subcommand to create a pool of the specified name.

Synopsis

```
# cscli lustre pool create [-h] [-f filesystem] -p pool
```

Positional Arguments	Description
`-p pool |--pool pool`	Specify the name of the pool

Optional Arguments	Description
`-f filesystem |--filesystem filesystem`	Specify the file system name (takes the file system name from the system if not specified)
`-h |--help`	Display the help message and exit

Example

```
# cscli lustre pool create -p newpool
lustre: Pool newpool created successfully
```

`lustre pool delete` Subcommand

Introduced in Software Release: 3.2

The `lustre pool delete` command is a subcommand of the `lustre pool` command. The subcommand deletes the pool of the specified name. It can be used only on an empty pool, i.e., all targets have to be removed from the pool before `delete` can be run.

Synopsis

```
$ # cscli lustre pool delete [-h] [-f filesystem] -p pool
```

Positional Arguments	Description
`-p pool` `|--pool pool`	Specify the name of the pool

Optional Arguments	Description
`-f filesystem` `|--filesystem filesystem`	Specify the file system name (takes the file system name from the system if not specified)
`-h` `|--help`	Display the help message and exit

Example

```
# cscli lustre pool delete -p newpool
lustre: Pool - newpool deleted successfully
```

`lustre pool remove` Subcommand

Introduced in Software Release: 3.2

The `lustre pool remove` command is a subcommand of the `lustre pool` command. The subcommand can be used to remove the OST(s) from the specified pool.

Synopsis

```
$ cscli lustre pool remove [-h] [-f filesystem] -p pool -t target(s)
```

Positional Arguments	Description
`-p pool |--pool pool`	Specify the name of the pool
`-t target(s) |--target target(s)`	Specify the target(s) that can be removed from the pool

Optional Arguments	Description
`-f filesystem|--filesystem filesystem`	Specify the file system name (takes the file system name from the system if not specified)
`-h |--help`	Display the help message and exit

Example

```
# cscli lustre pool remove -p newpool -t OST0000 OST0001
lustre: Targets successfully removed from Pool – newpool
```

`lustre pool show` Subcommand

Introduced in Software Release: 3.2

The `lustre pool show` command is a subcommand of the `lustre pool` command. Use the subcommand to display the list of OST(s) in the specified pool.

Synopsis

```
$ cscli lustre pool show [-h] [-f filesystem] [-p pool]
```

Optional Arguments	Description
`-f filesystem |--filesystem filesystem`	Specify the file system name (takes the file system name from the system if not specified)
`-p pool |--pool pool`	Specify the pool name
`-h |--help`	Display the help message and exit

Example

```
# cscli lustre pool show
cslcodev1202: Pools from testfs:
cslcodev1202: testfs.Pool1
cslcodev1202: testfs.Pool2
```

`lustre pool target` Subcommand

Introduced in Software Release: 3.2

The `lustre pool target` command is a subcommand of the `lustre pool` command. Use the subcommand to display the list of OST(s) that can be added to the pool.

Synopsis

```
$ cscli lustre pool target [-h] {show} ...
```

Positional Arguments	Description
`show`	Display a list of OST(s) that can be added to the pool

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre pool target show` Subcommand

Introduced in Software Release: 3.2

Updated in Software Release: 6.0

The `lustre pool target show` command is a subcommand of the `lustre pool target` command. Use the subcommand to display a list of OST(s) that can be added to the pool.

Synopsis

```
$ cscli lustre pool target show [-h]
                                (--flash | --disk | --pool pool | --type {all,sfu,ssu,flash,hdd,ssd,disk})
```

Positional Arguments	Description	Release
`--flash`	Display the flash OST(s) in the system	
`--disk`	Display the disk OST(s) in the system	
`--pool pool`	Display pool-specific OST(s) in the system	6.0+
`--type {all,sfu,ssu,flash,hdd,ssd,disk}`	Display a particular type of OST(s) in the system	6.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Example

```
# cscli lustre pool target show --disk
Disk Targets :
 OST0000
 OST0001
```

`lustre quota` Command

Introduced in Software Release: 4.1

Updated in Software Release: 6.0

Use the `lustre quota` command to manage the Lustre quota configuration.

Synopsis

```
$ cscli lustre quota [-h] {show,enable,disable,set,get} ...
```

Positional Arguments	Description	Release
`show`	Show Lustre quota status	
`enable`	Enable the specified quotas for Lustre	
`disable`	Disable the specified quotas for Lustre	
`set`	Deprecated in 6.0. Set quota for pools.	4.1 - 6.0
`get`	Deprecated in 6.0. Get quota for pools.	4.1 - 6.0

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre quota get` Subcommand

Introduced in Software Release: 4.1

Deprecated in Software Release: 6.0

The `lustre quota get` command is a subcommand of the `lustre quota` command. Use the subcommand to get the quota for Lustre pools.

Synopsis

```
$ cscli lustre quota get [-h] (-u user | -g group | -p project) --pool pool
```

Optional Arguments	Description
`-u user |--user user`	Specify the user
`-g group |--group group`	Specify the group
`-p project |--project project`	Specify the project
`--pool pool`	Get the Lustre quota for OST pools
`-h |--help`	Display the help message and exit

`lustre quota set` Subcommand

Introduced in Software Release: 4.1

Deprecated in Software Release: 6.0

The `lustre quota set` command is a subcommand of the `lustre quota` command. Use the subcommand to set the quota for Lustre pools.

Synopsis

```
$ cscli lustre quota set [-h] (-u user] | -g group | -p project) -o pool -b block
```

Optional Arguments	Description
`-u user |--user user`	Specify the user
`-g group |--group group`	Specify the group
`-p project |--project project`	Specify the project
`-o pool |--pool-name pool`	Specify the pool
`-b block |--hard-limit block`	Specify block hard limit
`-h |--help`	Display the help message and exit

`lustre top` Command

Introduced in Software Release: 3.0.0
Use the `lustre top` command to view real-time Lustre performance data.

Synopsis

```
$ cscli lustre top [-h] [-r record]
```

Optional Arguments	Description	Release
`-r record | --record record`	Record ltop output to a file	3.0+
`-h |--help`	Display the help message and exit	

Introduced in Software Release: 3.0.0
Use the `lustre top` command to view real-time Lustre performance data.

Synopsis

```
$ cscli lustre top [-h] [-r record]
```

`lustre users` Command

Introduced in Software Release: 3.0.0 (previously the `lustre_users` command)

Updated in Software Release: 3.3

Use the `lustre users` command to configure the Lustre file system users settings. Select the upcall method, configure services, and order user lookup across different services.

Notes:

- If unable to connect, the following error message displays: `Unable to bind (connect) to (for example) an LDAP service using the parameters provided. Please check the URI (including port), Bind DN, and password.`

- The Lustre file system must be unmounted before changing the upcall type, LDAP settings, AD settings, or NIS settings. See subcommands `lustre users upcall`, `lustre users ldap`, `lustre users ad`, `lustre users nis`.

- User and group definitions can also be changed without downtime when using local users or NSS DB files. See subcommands `lustre users local` and `lustre users db`.

Synopsis

```
$ cscli lustre users [-h]
                        {show,ldap,local,nis,upcall,order,db,lookup,apply,ad}
                        ...
```

Positional Arguments	Description	Release
`show`	Display detailed information about all Lustre Users settings	2.x+
`ldap`	Manage LDAP settings	2.x+
`local`	Define and manage local users and groups	2.x+
`nis`	Manage of NIS settings	2.x+
`upcall`	Configure the underlying method of Lustre upcall	2.x+
`order`	Instruct Lustre upcall to process user/group services in a specified order	2.x+
`db`	Define and manage users/groups NSS databases	3.0.0+
`lookup`	Look up Lustre user or group	2.x+
`apply`	Apply Lustre users configuration	1.5+
`ad`	Deprecated in 3.3. Manage of AD settings.	2.x - 3.3

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users apply` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users apply`)

The `lustre users apply` command is a subcommand of the `lustre users` command. Use the subcommand to apply Lustre users configuration.

Synopsis

```
$ cscli lustre users apply [-h] [-y]
```

Optional Arguments	Description
`-y	--yes`	Confirm the configuration is applied
`-h |--help`	Display the help message and exit

`lustre users ad` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users add`)

Deprecated in Software Release: 3.3

The `lustre users ad` command is a subcommand of the `lustre users` command. Use the subcommand to configure users and groups via an external AD service.

Note: The Lustre file system must be unmounted before changing the AD settings.

Synopsis

```
$ cscli lustre users ad [-h] {clear,set,show}
```

Positional Arguments	Description
`show`	Display AD settings
`set`	Set AD configuration
`clear`	Remove all AD configurations

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users ad clear` Subcommand

Introduced in Software Release: 3.0.0
Deprecated in Software release: 3.3

The `lustre users ad clear` command is a subcommand of the `lustre users` command. Use the subcommand to remove all AD configuration.

Synopsis

```
$ cscli lustre users ad clear [-h] [-y]
```

Optional Arguments	Description
`-y |--yes`	Confirm the configuration is cleared
`-h |--help`	Display the help message and exit

`lustre users ad set` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users ad set` or `set_lustre_users_ad`)

Deprecated in Software release: 3.3

The `lustre users ad set` command is a subcommand of the `lustre users` command. Use the subcommand to configure AD settings.

Synopsis

```
$ cscli lustre users ad set [-h] [-l ldap_uri] [-b base_dn]
                            [-i bind_dn] [-p password]
```

Optional Arguments	Description
`-l ldap_uri` `|--ldap-uri ldap_uri`	Specify the URI, for example: `ldap://127.0.0.1:389`
`-b base_dn` `|--base-dn base_dn`	Specify the base domain name
`-i bind_dn` `|--bind-dn bind_dn`	Specify the BIND domain name
`-p password` `|--password password`	Specify the BIND password
`-h` `|--help`	Display the help message and exit

`lustre users ad show` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software release: 3.3

The `lustre users ad show` command is a subcommand of the `lustre users` command. Use the command to display the current AD configuration.

Synopsis

```
$ cscli lustre users ad show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users db` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users db` command is a subcommand of the `lustre users` command. Use the subcommand to define users and groups NSS databases. User and group definitions can be changed without downtime when using local users or NSS DB files.

Synopsis

```
$ cscli lustre users db [-h] {clear,show,set_all,get_all}
```

Positional Arguments	Description
`get_all`	Download Lustre users/groups files
`show`	Show Lustre users/groups databases
`set_all`	Upload Lustre user/group NSS db files
`clear`	Reset Lustre users/groups NSS databases to pristine state

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users ldap` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users ldap`)

The `lustre users ldap` command is a subcommand of the `lustre users` command. Use the subcommand to configure users and groups via an external LDAP service.

Notes:

- If unable to connect, the following error message displays: `Unable to bind (connect) to an LDAP service using the parameters provided. Please check the URI (including port), Bind DN, and password.`

- The Lustre file system must be unmounted before changing the LDAP settings.

Synopsis

```
$ cscli lustre users ldap [-h] {clear,set, show}
```

Positional Arguments	Description
`show`	Display LDAP settings
`set`	Set LDAP configuration
`clear`	Remove all LDAP configurations

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users ldap clear` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users ldap clear` command is a subcommand of the `lustre users` command. Use the command to remove all LDAP configuration.

Synopsis

```
$ cscli lustre users ldap clear [-h] [-y]
```

Optional Arguments	Description
`-y	--yes`	Confirm the configuration is cleared
`-h |--help`	Display the help message and exit

`lustre users ldap set` Subcommand

Introduced in Software Release: 3.1 (previously `lustre_users ldap set` and `set_lustre_users_ldap`)

Updated in Software Release: 6.0

The `lustre users ldap set` command is a subcommand of the `lustre users ldap` command. Use the subcommand to configure LDAP settings. It allows for configuration of ldap uri (and port), base_dn, user_dn, group_dn, bind_dn, and password. In addition, it allows for configuration of TLS cert file, TLS ca cert file, and private key file.

To properly configure LDAP using the `lustre users ldap set` command, directory must first be added to the nss order. This can be accomplished with the following command:

```
$ cscli lustre users order set local directory
```

Confirm the order by running the `lustre users order show` command. See the `lustre users order set` and `lustre users order show` commands for more information.

Synopsis

```
cscli lustre users ldap set [-h] [-l ldap_uri]
                            [-m {default,rfc2307,rfc2307bis,ad,active-directory,mssfu35}]
                            [-b base_dn] [-u user_dn] [-U user_search]
                            [-G group_dn] [-g group_search]
                            [-s hosts_dn] [-S {subtree,onelevel,base}]
                            [-i bind_dn] [-p [password]]
                            [--pvt-key filepath] [--tls-cert filepath]
                            [--tls-ca filepath]
                            [--tls-reqcrt {allow,never,try,demand,hard}]
```

Optional Arguments	Description	Release
`-l ldap_uri` |`--ldap-uri ldap_uri`	Specify the URI, for example: `ldap://127.0.0.1:389`	
`-m {default,rfc2307,rfc2307bis,ad,active-directory,mssfu35}` `|--mapping {default,rfc2307,rfc2307bis,ad,active-directory,mssfu35}`	Look up custom attributes instead of the default RFC 2307 attributes	
`-b base_dn` |`--base-dn base_dn`	Specify the base domain name	
`-u user_dn` |`--user-dn user_dn`	Specify the user domain name	
`-U user_search` |`--usersearch user_search`	Specify the LDAP search filter to use for a password map	6.0+
`-G group_dn` |`--group-dn group_dn`	Specify the group domain name	
`-g group_search` |`--groupsearch group_search`	Specify the LDAP search filter to use for a group map	
`-s hosts_dn` |`--hosts-dn hosts_dn`	Specify the hosts domain name	
`-S {subtree,onelevel,base}` `|--userscope {subtree,onelevel,base}`	Specify the search scope	
`-i bind_dn` |`--bind-dn bind_dn`	Specify the BIND domain name	
`-p [password]` |`--password [password]`	Specify the BIND password	
	WARNING: Entering a password on the command line may result in it being logged in plain text. Omit this parameter to be prompted for a password.	

Optional Arguments	Description	Release
`--pvt-key` *`filepath`*	Specify the private key file (PEM)	
`--tls-cert` *`filepath`*	Specify the TLS certificate file (CRT)	
`--tls-ca` *`filepath`*	Specify the TLS CA certificate file (CRT)	
`--tls-reqcrt` `{allow,never,try,demand,hard}`	Specify what checks to perform on server certificates in a TLS session, if any	
`-h` `|--help`	Display the help message and exit	

`lustre users ldap show` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users ldap show` command is a subcommand of the `lustre users` command. Use the subcommand to display the current LDAP configuration.

Synopsis

```
$ cscli lustre users ldap show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users local` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users local`)

Updated in Software Release: 6.0

The `lustre users local` command is a subcommand of the `lustre users` command. Use the subcommand to define and manage local users and groups.

Synopsis

```
$ cscli lustre users local [-h] {show,get_all,set_all,clear,refresh} ...
```

Positional Arguments	Description	Release
show	Display Lustre users/groups settings	
get_all	Download Lustre users/groups files	
set_all	Upload Lustre users/groups files	
clear	Reset Lustre users/groups to pristine state	
refresh	Refresh Lustre users/groups	6.0+

Optional Arguments	Description
-h |--help	Display the help message and exit

`lustre users local clear` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users local clear` command is a subcommand of the `lustre users` command. Use the subcommand to reset Lustre users/groups to a pristine state.

Synopsis

```
$ cscli lustre users local clear [-h] [-y]
```

Optional Arguments	Description
`-y |--yes`	Confirm the reset
`-h |--help`	Display the help message and exit

`lustre users local get_all` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users local get_all` command is a subcommand of the `lustre users` command. This subcommand downloads the current locally-defined users and/or groups, as files in the SysV standard, colon-separated form of /etc/passwd and /etc/group. If there are no locally-defined users or groups, a template file is downloaded.

Synopsis

```
$ cscli lustre users local get_all [-h] [-u [users_file]] [-g [groups_file]] [-y]
```

Optional Arguments	Description
`-u [users_file]` `|--users-file [users_file]`	The name that is used to save the users file (default lustre-users.txt)
`-g [groups_file]` `|--groups-file [groups_file]`	The name that is used to save the groups file (default lustre-groups.txt)
`-y | --yes`	Overwrite an existing file of the same name without prompt
`-h |--help`	Display the help message and exit

`lustre users local set_all` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users local set_all` command is a subcommand of the `lustre users` command. This subcommand uploads a new user and/or group file, which will entirely replace the previous set of defined users and/or groups. It is strongly recommended to download the current definitions to a file; then add, delete, or edit entries in that file in order to upload changes.

Synopsis

```
$ cscli lustre users local set_all [-h] [-u [users_file]] [-g [groups_file]] [-y]
```

Optional Arguments	Description
`-u [users_file]` `|--users-file [users_file]`	A path to a file in SysV '/etc/passwd' format
`-g [groups_file]` `|--groups-file [groups_file]`	A path to a file in SysV '/etc/group' format
`-y	--yes`	Overwrite an existing file of the same name without prompt
`-h |--help`	Display the help message and exit

`lustre users local show` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users local show` command is a subcommand of the `lustre users` command. Use the command to display the local users and groups settings.

Synopsis

```
$ cscli show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users lookup` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users lookup` command is a second-level subcommand of the `lustre` command. Use the command to look up a Lustre user or group.

Synopsis

```
$ cscli lustre users lookup [-h] [-U user | -G group]
```

Optional Arguments	Description
`-U user |--user user`	username or uid
`-G group |--group group`	groupname or gid
`-h |--help`	Display the help message and exit

`lustre users nis` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users nis`)

The `lustre users nis` command is a subcommand of the `lustre users` command. Use the subcommand to configure users and groups via the Network Information Service (NIS).

Note: The Lustre file system must be unmounted before changing the NIS settings.

Synopsis

```
$ cscli lustre users nis [-h] {clear,set,show}
```

Positional Arguments	Description
show	Display NIS settings
set	Set NIS configuration
clear	Remove all NIS configurations

Optional Arguments	Description
-h |--help	Display the help message and exit

`lustre users nis clear` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users nis clear` and `set_lustre_users_nis -c`)

The `lustre users nis clear` command is a subcommand of the `lustre users` command. Use the subcommand to remove all NIS configuration.

Synopsis

```
$ cscli lustre users nis clear [-h] [-y]
```

Optional Arguments	Description
`-y	--yes`	Confirm the configuration is cleared
`-h |--help`	Display the help message and exit

`lustre users nis set` Subcommand

Introduced in Software Release: 3.1 (previously `lustre_users nis set` and `set_lustre_users_nis`)

The `lustre users nis set` command is a subcommand of the `lustre users` command. Use the subcommand to configure NIS settings. It allows for configuration of nis_server (1-3 times) IP and nis_domain. This subcommand is generally executed in daily mode.

Synopsis

```
$ cscli lustre users nis set [-h] [-s nis_server] [-d nis_domain]
```

Optional Arguments	Description
`-s nis_server` `|--nis_server nis_server`	Specify this option 1 to 3 times using IP address or fully-qualified domain name
`-d nis_domain` `|--nis_domain nis_domain`	NIS domain. Example: nisdomain
`-h |--help`	Display the help message and exit

`lustre users nis show` Subcommand

Introduced in Software Release: 3.0.0 (previously `get_lustre_users_nis`)

The `lustre users nis show` command is a subcommand of the `lustre users` command. Use the subcommand to display the current NIS configuration.

Synopsis

```
$ cscli lustre users nis show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users order` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users order` from 2.x)

The `lustre users order` command is a subcommand of the `lustre users` command. Use the subcommand to configure Lustre file system users. The command selects upcall method, configure services, and order for user lookup across different services. This command instructs Lustre upcall to process user/group services in the order specified.

Synopsis

```
$ cscli lustre users order [-h] {set,show}
```

Positional Arguments	Description
`show`	Display the order for looking up services when more than one (1) is defined
`set`	Instruct Lustre upcall to process user/group services in the order specified

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users order set` Subcommand

Introduced in Software Release: 3.0.0

Updated in Software Release: 4.4

The `lustre users order set` command is a subcommand of the `lustre users` command. Use the subcommand to set the order for looking up services when more than one is defined.

Synopsis

```
$ cscli lustre users order set [-h] [{local,nis,directory,db}...]
```

Usage

```
$ cscli lustre users order set [-h] order [order...]
```

Positional Arguments	Description	Release
`local,nis,directory`	Set local, NIS, and directory services	3.0 - 4.3 4.4 and subsequent 4.x releases
`order`	Sources followed by options in square brackets without spaces. For example, `local nis[user,only] directory[user]`. Sources can be the following: • `local` • `nis` • `directory` • `db` Options can be the following: • `user` • `group` • `only`	
`user`	Use the source for user lookup	4.4 and subsequent 4.x releases
`group`	Use the source for group lookup	4.4 and subsequent 4.x releases
`only`	If the user found the source, search group info only in that source	4.4 and subsequent 4.x releases
`-h |--help`	Display the help message and exits	4.4 and subsequent 4.x releases

Examples:

```
$ cscli lustre users order set order [local nis[user,only],directory[user]]
```

```
$ cscli lustre users order set local nis[user,only] directory[group]
```

```
$ cscli lustre users order set local db
```

`lustre users order show` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users order show` command is a subcommand of the `lustre users` command. Use the subcommand to show the order for looking up services when more than one is defined.

Synopsis

```
$ cscli lustre users order show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users show` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users show`, `get_lustre_users_ldap`, `get_lustre_users_nis`, and `get_lustre_users_upcall`)

The `lustre users show` command is a subcommand of the `lustre users` command. This command shows detailed information about all Lustre users settings.

Synopsis

```
$ cscli show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
$ cscli lustre users show
Lustre Users
   Upcall: generic
   Order: local, directory
   LDAP:
      Servers: ldap://dc.xyua:3268
      Base DN: dc=dc,dc=xyua
      Bind DN: administrator@dc.xyua
      Password: ********
      User DNs: cn=Users,dc=dc,dc=xyua
      Group DNs: not defined
      Hosts DNs: not defined
      TLS Cert: TLS cert is valid.
         Version: 3
         Subject: CN=cfw-dc0.cfw-ad.no-more.kiev.ua
         Issuer: DC=ua, DC=kiev, DC=no-more, DC=cfw-ad, CN=ca
         Serial: 106310341937692867035147
      TLS Private Key: TLS pvtkey is valid, 1024 bits
      TLS CA Cert: TLS CA cert is valid.
         Version: 3
         Subject: C=UA, ST=Ukraine, L=Kiev, O=No More BBS, OU=Software Department, CN=NoMore Root CA v3/emailAddress=ca@no-more.kiev.ua
         Issuer: C=UA, ST=Ukraine, L=Kiev, O=No More BBS, OU=Software Department, CN=NoMore Root CA v3/emailAddress=ca@no-more.kiev.ua
         Serial: 9313703399412187718
   NIS: (not configured)
   Local: (not configured)
```

`lustre users upcall` Subcommand

Introduced in Software Release: 3.0.0 (previously `lustre_users upcall` and `set_lustre_users_upcall`
The `lustre users upcall` command is a subcommand of the `lustre users` command. Use the subcommand to configure the underlying method of Lustre upcall. The `lustre users upcall` command must have a unique User ID. The administrator will receive a warning if the number of UIDs exceeds 5000 users. This operation will not fail if the threshold is exceeded.

Note that the Lustre file system must be unmounted before changing the upcall type.

Synopsis

```
$ cscli lustre users upcall [-h] {set,show}
```

Positional Arguments	Description
`show`	Display the underlying method of Lustre upcall
`set`	Configure the underlying method of Lustre upcall

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`lustre users upcall set` Subcommand

Introduced in Software Release: 3.0.0 (previously `set_lustre_users_upcall`) (modified in release 3.3)

The `lustre users upcall set` command is a subcommand of the `lustre users` command. Use the subcommand to select the underlying upcall method for Lustre users and groups: '`ad_only`' for Active Directory only, or '`generic`' for any of LDAP, NIS, or locally-defined users and groups.

Note that the Lustre file system must be unmounted in order to change the upcall type.

Synopsis

```
# cscli lustre users upcall set [-h] -u {generic,none}
```

Optional Arguments	Description	Release
`-u {ad_only,generic,none}` `|--upcall {ad_only,generic,none}`	The `ad_only` option enables only Active Directory users and groups The `generic` option allows for any of LDAP, NIS, or locally-defined users and groups (default) The `none` option disables all Lustre upcall commands, which may result in file permission errors	3.0.0-3.2 (`ad_only` deprecated in 3.3 and beyond)
`-u {generic,none}` `|--upcall {generic,none}`	The `generic` option allows for any of LDAP, NIS, or locally-defined users and groups (default) The `none` option disables all Lustre upcall commands, which may result in file permission errors	3.3+
`-h |--help`	Display the help message and exit	

`lustre users upcall show` Subcommand

Introduced in Software Release: 3.0.0

The `lustre users upcall show` command is a subcommand of the `lustre users` command. Use the subcommand to show the underlying method of Lustre upcall.

Synopsis

```
$ cscli lustre users upcall show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Previous Lustre Users Commands Comparison

Commands (from release 1.5.0 to 3.0.0)	Commands (prior to release 1.5.0)
`lustre_users`	None
`lustre_users show`	`get_lustre_users_ldap`
	`get_lustre_users_nis`
	`get_lustre_users_upcall`
`lustre_users local`	None
`lustre_users ldap set`	`set_lustre_users_ldap`
`lustre_users ldap clear`	`set_lustre_users_ldap -C`
`lustre_users nis set`	`set_lustre_users_nis`
`lustre_users nis clear`	`set_lustre_users_nis -c`
`lustre_users upcall`	`set_lustre_users_upcall`
`lustre_users order`	None
`lustre_users apply`	None
`lustre_users ad set`	`set_lustre_users_ad`

`manage_guest` Command

Introduced in Software Release: 1.x

The `manage_guest` command is part of the user management component and is available for an admin account only. This command allows the system administrator to enable or disable guest account access and change the guest account password.

A guest account allows a non-privileged user to run some commands to obtain information about the system (read-only access to the appliance). Depending on the privileges, CSCLI provides a limited subset of commands to the "guest" account. The guest account also has access to export, but that displays only the subcommands.

Local administrator users with the role of **Read Only Admin** have the same read-only access.

Synopsis

```
$ cscli manage_guest [-h] [-s] [--enable-shell | --disable-shell]
[--enable-web | --disable-web] [--password password | --password-disable]
```

Optional Arguments	Description
`-s |--show`	Display guest account information
`--enable-shell`	Enable shell for guest account
`--disable-shell`	Disable shell for guest account
`--enable-web`	Enable web for guest account
`--disable-web`	Disable web for guest account
`--password password`	Guest account password
`--password-disable`	Clear password and block account until a new password is set. This option also sets "disabled" flags in cscli and GUI for guest account.
`-h |--help`	Display the help message and exit

`monitor` Command

Introduced in Software Release: 2.x

Updated in Software Release: 6.0

Use the `monitor` command to monitor and display current health and status information for the cluster nodes and elements. Modes: Site configuration, Guest, Daily

Synopsis

```
$ cscli monitor [-h] {health,nodes,elements,nvme,await} ...
```

Positional Arguments	Description	Release
`health`	Display current overall health information and status summary	
`nodes`	Display current status for nodes	
`elements`	Display current status for elements	
`nvme`	Display current NVMe information	6.0+
`await`	Display current active RAID array information	6.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Following are examples of outputs resulting from use of the `monitor` command, with outputs including OK, WARNING and CRITICAL.

```
[root@cls12345n000 ~]# cscli monitor health
Nodes:
up: 8    down: 0       unreachable: 0  pending: 0      total: 8
Elements:
ok: 78  warning: 0      critical: 0       unknown: 0      pending: 0      total: 78
```

No output means no errors:

```
[root@cls12345n000 ~]# cscli monitor elements -U unknown -U pending -U warning -U critical
[root@cls12345n000 ~]# cscli monitor elements -U unknown
[root@cls12345n000 ~]# cscli monitor elements -U pending
[root@cls12345n000 ~]# cscli monitor elements -U critical
[root@cls12345n000 ~]# cscli monitor elements -U warning
[root@cls12345n000 ~]# cscli monitor nodes
cls12345n000:  UP  for 28d 15h 33m 26s  checked 2014-02-06 10:00:36  "PING OK - Packet loss = 0%, RTA = 0.03 ms"
cls12345n001:  UP  for 15d 18h 14m 44s  checked 2014-02-06 10:02:56  "PING OK - Packet loss = 0%, RTA = 0.16 ms"
cls12345n002:  UP  for 15d 18h  6m 54s  checked 2014-02-06 10:05:36  "PING OK - Packet loss = 0%, RTA = 0.18 ms"
cls12345n003:  UP  for 15d 18h  8m 54s  checked 2014-02-06 10:03:36  "PING OK - Packet loss = 0%, RTA = 0.18 ms"
cls12345n003-Enclosure-R1C1-21U:  UP  for 28d 15h 35m  8s  checked 2014-02-06 09:55:36  "OK"
cls12345n004:  UP  for 5d 17h 14m 44s  checked 2014-02-06 10:01:26  "PING OK - Packet loss = 0%, RTA = 0.16 ms"
cls12345n005:  UP  for 5d 18h 30m 14s  checked 2014-02-06 10:03:26  "PING OK - Packet loss = 0%, RTA = 0.19 ms"
cls12345n005-Enclosure-R1C1-5U:  UP  for 28d 15h 34m 12s  checked 2014-02-06 10:02:36  "OK"
[root@cls12345n000 ~]# cscli monitor elements
```

Subset of output:

```
cls12345n000  "Arrays and Disk Status":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "All arrays are operating normally"
cls12345n000  "Current Load":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - load average: 0.08, 0.03, 0.02"
cls12345n000  "Current Users":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "USERS OK - 1 users currently logged in"
cls12345n000  "Free Space":  OK  for 21d 18h 45m 53s  checked 2014-02-06 10:00:52  "DISK OK - free space: / 181915 MB (98% inode=99%): /mnt/mgmt 778774 MB (99% inode=9
cls12345n000  "Network statistics":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "NET OK - (Rx/Tx) eth0=(8.4B/5.6B), eth1=(535.5B/349.9B), eth2=(0.0B/0.0B), (
cls12345n000  "RAM usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - 11.6% (3807704 kB) used."
cls12345n000  "Swap Usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "SWAP OK - 100% free (31999 MB out of 31999 MB)"
cls12345n000  "Total Processes":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "PROCS OK: 407 processes with STATE = RSZDT"
cls12345n000  "crmd cpu usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - Process: crmd, User: 496, CPU: 0.0%, RAM: 0.0%, Start: Jan21, CPU Time: 12
cls12345n000  "crmd memory usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - Process: crmd, User: 496, CPU: 0.0%, RAM: 0.0%, Start: Jan21, CPU Time
cls12345n000  "heartbeat cpu usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - Process: heartbeat, User: root, CPU: 0.0%, RAM: 0.0%, Start: Jan21, C
cls12345n000  "heartbeat memory usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - Process: heartbeat, User: root, CPU: 0.0%, RAM: 0.0%, Start: Jan21
cls12345n000  "stonithd cpu usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - Process: stonithd, User: root, CPU: 0.0%, RAM: 0.0%, Start: Jan21, CPU
cls12345n000  "stonithd memory usage":  OK  for 28d 15h 33m 49s  checked 2014-02-06 10:00:52  "OK - Process: stonithd, User: root, CPU: 0.0%, RAM: 0.0%, Start: Jan21, (
cls12345n004  "Arrays and Disk Status":  OK  for 2d 14h 28m 10s  checked 2014-02-06 10:03:42  "All arrays are operating normally"
cls12345n004  "Current Load":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "OK - load average: 0.01, 0.01, 0.01"
cls12345n004  "Current Users":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "USERS OK - 0 users currently logged in"
cls12345n004  "Free Space":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "DISK OK - free space: /tmp 15966 MB (99% inode=99%):"
cls12345n004  "Lustre Health":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "OK:Lustre is ok"
cls12345n004  "Network statistics":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "NET OK - (Rx/Tx) eth0=(16.9B/5.8B), ib0=(169.5B/60.9B), ib1=(0.0B/0.0B), lo
cls12345n004  "RAM usage":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "OK - 12.9% (4203984 kB) used."
cls12345n004  "Swap Usage":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "SWAP OK - 100% free (16386 MB out of 16386 MB)"
cls12345n004  "Total Processes":  OK  for 28d 15h 32m 14s  checked 2014-02-06 10:03:42  "PROCS OK: 1239 processes with STATE = RSZDT"
root@cls12345n000 ~]# cscli monitor elements -v
```

Subset of output:

```
cls12345n000  "Arrays and Disk Status":  OK  for 28d 15h 34m 45s  checked 2014-02-06 10:05:52  "All arrays are operating normally
Array: md64, status: Ok, t10: disabled
Total number of disk slots available: 24
Total number of disks found: 24
slot:  2, wwn: 5000c50043b1e71f, cap:        450098159616, dev:  sdl, parts:        0, status: Hot Spare, t10: 11110100000
slot:  21, wwn: 5000c500479061af, cap:        450098159616, dev:  sdv, parts:        0, status: Hot Spare, t10: 11110100000
MD RAID to Lustre mapping
Array /dev/md/cls12345n003:md64 doesn't have associated WIB array
Degraded Array information:
All arrays are in clean state on node cls12345n000"
Performance Data:  None
Current Attempt:  1/3 (HARD state)
Check Type:  passive
Check Latency / Duration:  None / 0.0
Next Scheduled Active Check:  None
Last State Change:  2014-01-08 18:32:24
Last Update:  2014-02-06 10:07:06
-----------------------------------------------------------------
cls12345n000  "Current Load":  OK  for 28d 15h 34m 45s  checked 2014-02-06 10:05:52  "OK - load average: 0.01, 0.02, 0.02"
Performance Data: load1=0.013;1000000.000;1000000.000;0; load5=0.023;1000000.000;1000000.000;0; load15=0.020;1000000.000;1000000.000;0;
Current Attempt:  1/3 (HARD state)
```

```
Check Type:  passive
Check Latency / Duration:  None / 0.0
Next Scheduled Active Check:  None
Last State Change:  2014-01-08 18:32:24
Last Update:  2014-02-06 10:07:06
------------------------------------------------------------------
cls12345n000  "Current Users":  OK  for 28d 15h 34m 45s  checked 2014-02-06 10:05:52  "USERS OK - 1 users currently logged in"
Performance Data:  users=1;10;50;0
Current Attempt:  1/3 (HARD state)
Check Type:  passive
Check Latency / Duration:  None / 0.0
Next Scheduled Active Check:  None
Last State Change:  2014-01-08 18:32:24
Last Update:  2014-02-06 10:07:06
 [root@cls12345n000 ~]# cscli monitor elements -S enclosures
cls12345n003-Enclosure-R1C1-21U  "FRU Fan Status":  OK  for 28d 15h 27m 54s  checked 2014-02-06 09:55:52  "All FRU's are operating normally"
cls12345n003-Enclosure-R1C1-21U  "FRU Power Supply Status":  OK  for 28d 15h 27m 54s  checked 2014-02-06 09:55:52  "All FRU's are operating normally"
cls12345n003-Enclosure-R1C1-21U  "FRU SBB Module Status":  OK  for 28d 15h 27m 54s  checked 2014-02-06 09:55:52  "All FRU's are operating normally"
cls12345n003-Enclosure-R1C1-21U  "Fan Statistics":  OK  for 15d 17h 19m 4s  checked 2014-02-06 09:58:06  "Summary: 4 Fan Sensors available. All Sensors readings are w
cls12345n003-Enclosure-R1C1-21U  "Power Statistics":  OK  for 15d 17h 19m 4s  checked 2014-02-06 09:58:06  "Summary: Total System Power 168W"
cls12345n003-Enclosure-R1C1-21U  "Thermal Statistics":  OK  for 15d 17h 19m 4s  checked 2014-02-06 09:58:06  "Summary: 6 Thermal Sensors available. All Sensors readin
cls12345n003-Enclosure-R1C1-21U  "Voltage Statistics":  OK  for 15d 17h 19m 4s  checked 2014-02-06 09:58:06  "Summary: 4 Voltage Sensors available. All Sensors readin
cls12345n005-Enclosure-R1C1-5U  "FRU Fan Status":  OK  for 28d 15h 27m 54s  checked 2014-02-06 09:55:52  "All FRU's are operating normally"
cls12345n005-Enclosure-R1C1-5U  "FRU Power Supply Status":  OK  for 20d 23h 0m 23s  checked 2014-02-06 09:55:52  "All FRU's are operating normally"
cls12345n005-Enclosure-R1C1-5U  "FRU SBB Module Status":  OK  for 28d 15h 27m 54s  checked 2014-02-06 09:55:52  "All FRU's are operating normally"
cls12345n005-Enclosure-R1C1-5U  "Fan Statistics":  OK  for 28d 15h 28m 40s  checked 2014-02-06 09:57:42  "Summary: 10 Fan Sensors available. All Sensors readings are w
cls12345n005-Enclosure-R1C1-5U  "Power Statistics":  OK  for 28d 15h 28m 40s  checked 2014-02-06 09:57:42  "Summary: Total System Power 1068W"
cls12345n005-Enclosure-R1C1-5U  "Thermal Statistics":  OK  for 28d 15h 28m 40s  checked 2014-02-06 09:57:42  "Summary: 13 Thermal Sensors available. All Sensors readin
cls12345n005-Enclosure-R1C1-5U  "Voltage Statistics":  OK  for 28d 15h 28m 40s  checked 2014-02-06 09:57:42  "Summary: 2 Voltage Sensors available. All Sensors readin
[root@cls12345n000 ~]#
[root@cls12345n000 ~]# cscli monitor nodes -n cls12345n004
cls12345n004:  UP  for 5d 17h 17m 26s  checked 2014-02-06 10:06:36  "PING OK - Packet loss = 0%, RTA = 0.17 ms"
[root@cls12345n000 ~]# cscli monitor elements  -n cls12345n004
cls12345n004  "Arrays and Disk Status":  OK  for 2d 14h 30m 42s  checked 2014-02-06 10:03:42  "All arrays are operating normally"
cls12345n004  "Current Load":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "OK - load average: 0.01, 0.01, 0.01"
cls12345n004  "Current Users":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "USERS OK - 0 users currently logged in"
cls12345n004  "Free Space":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "DISK OK - free space: /tmp 15966 MB (99% inode=99%):"
cls12345n004  "Lustre Health":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "OK:Lustre is ok"
cls12345n004  "Network statistics":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "NET OK - (Rx/Tx) eth0=(16.9B/5.8B), ib0=(169.5B/60.9B), ib1=(0.0B/0.0B), lo
cls12345n004  "RAM usage":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "OK - 12.9% (4203984 kB) used."
cls12345n004  "Swap Usage":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "SWAP OK - 100% free (16386 MB out of 16386 MB)"
cls12345n004  "Total Processes":  OK  for 28d 15h 34m 46s  checked 2014-02-06 10:03:42  "PROCS OK: 1239 processes with STATE = RSZDT"
[root@cls12345n000 ~]# cscli monitor elements  -g oss
cls12345n004  "Arrays and Disk Status":  OK  for 2d 14h 31m 42s  checked 2014-02-06 10:08:43  "All arrays are operating normally"
cls12345n004  "Current Load":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "OK - load average: 0.01, 0.01, 0.01"
cls12345n004  "Current Users":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "USERS OK - 0 users currently logged in"
cls12345n004  "Free Space":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "DISK OK - free space: /tmp 15966 MB (99% inode=99%):"
cls12345n004  "Lustre Health":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "OK:Lustre is ok"
cls12345n004  "Network statistics":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "NET OK - (Rx/Tx) eth0=(16.9B/5.8B), ib0=(169.5B/60.9B), ib1=(0.0B/0.0B), lo
cls12345n004  "RAM usage":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "OK - 12.9% (4204568 kB) used."
cls12345n004  "Swap Usage":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "SWAP OK - 100% free (16386 MB out of 16386 MB)"
cls12345n004  "Total Processes":  OK  for 28d 15h 35m 46s  checked 2014-02-06 10:08:43  "PROCS OK: 1239 processes with STATE = RSZDT"
cls12345n005  "Arrays and Disk Status":  OK  for 17d 14h 22m 41s  checked 2014-02-06 10:07:41  "All arrays are operating normally"
cls12345n005  "Current Load":  OK  for 28d 15h 38m 8s  checked 2014-02-06 10:07:41  "OK - load average: 0.01, 0.02, 0.02"
cls12345n005  "Current Users":  OK  for 28d 15h 38m 8s  checked 2014-02-06 10:07:41  "USERS OK - 0 users currently logged in"
cls12345n005  "Free Space":  OK  for 28d 15h 38m 8s  checked 2014-02-06 10:07:41  "DISK OK - free space: /tmp 15966 MB (99% inode=99%):"
cls12345n005  "Lustre Health":  OK  for 28d 15h 38m 7s  checked 2014-02-06 10:07:42  "OK:Lustre is ok"
cls12345n005  "Network statistics":  OK  for 28d 15h 38m 8s  checked 2014-02-06 10:07:41  "NET OK - (Rx/Tx) eth0=(25.8B/16.5B), ib0=(197.3B/64.8B), ib1=(0.0B/0.0B), l
cls12345n005  "RAM usage":  OK  for 28d 15h 38m 8s  checked 2014-02-06 10:07:41  "OK - 12.8% (4192544 kB) used."
cls12345n005  "Swap Usage":  OK  for 28d 15h 38m 8s  checked 2014-02-06 10:07:41  "SWAP OK - 100% free (16386 MB out of 16386 MB)"
cls12345n005  "Total Processes":  OK  for 28d 15h 38m 8s  checked 2014-02-06 10:07:41  "PROCS OK: 1241 processes with STATE = RSZDT"
[root@cls12345n000 ~]#
[root@cls12345n000 ~]# cscli monitor elements -S arrays
cls12345n000  "Arrays and Disk Status":  OK  for 28d 15h 38m 14s  checked 2014-02-06 10:05:52  "All arrays are operating normally"
cls12345n001  "Arrays and Disk Status":  OK  for 28d 15h 39m 56s  checked 2014-02-06 10:08:07  "All arrays are operating normally"
cls12345n002  "Arrays and Disk Status":  OK  for 28d 15h 36m 38s  checked 2014-02-06 10:07:56  "All arrays are operating normally"
cls12345n003  "Arrays and Disk Status":  OK  for 28d 15h 36m 36s  checked 2014-02-06 10:06:24  "All arrays are operating normally"
cls12345n004  "Arrays and Disk Status":  OK  for 2d 14h 32m 35s  checked 2014-02-06 10:08:43  "All arrays are operating normally"
cls12345n005  "Arrays and Disk Status":  OK  for 17d 14h 23m 34s  checked 2014-02-06 10:07:41  "All arrays are operating normally"
[root@cls12345n000 ~]# cscli monitor elements -S arrays -v
```

Subset of output:

```
cls12345n000  "Arrays and Disk Status":  OK  for 28d 15h 39m 16s  checked 2014-02-06 10:10:52  "All arrays are operating normally
Array: md64, status: Ok, t10: disabled
Total number of disk slots available: 24
Total number of disks found: 24
slot:  2, wwn: 5000c50043b1e71f, cap:       450098159616, dev:  sdl, parts:       0, status: Hot Spare, t10: 11110100000
slot: 21, wwn: 5000c500479061af, cap:       450098159616, dev:  sdv, parts:       0, status: Hot Spare, t10: 11110100000
MD RAID to Lustre mapping
Array /dev/md/cls12345n003:md64 doesn't have associated WIB array
Degraded Array information:
All arrays are in clean state on node cls12345n000"
Performance Data:  None
Current Attempt:  1/3 (HARD state)
Check Type:  passive
Check Latency / Duration:  None / 0.0
Next Scheduled Active Check:  None
Last State Change:  2014-01-08 18:32:24
Last Update:  2014-02-06 10:11:36
------------------------------------------------------------------
cls12345n001  "Arrays and Disk Status":  OK  for 28d 15h 40m 58s  checked 2014-02-06 10:08:07  "All arrays are operating normally
Array: md67, status: Ok, t10: disabled
Array: md127, status: Ok, t10: disabled
Total number of disk slots available: 24
Total number of disks found: 24
slot:  2, wwn: 5000c50043b1e71f, cap:       450098159616, dev:  sdv, parts:       0, status: Hot Spare, t10: 11110100000
slot: 21, wwn: 5000c500479061af, cap:       450098159616, dev:  sdc, parts:       0, status: Hot Spare, t10: 11110100000
MD RAID to Lustre mapping
Array /dev/md/cls12345n003:md67 doesn't have associated WIB array
Degraded Array information:
```

```
All arrays are in clean state on node cls12345n001"
Performance Data:  None
Current Attempt:  1/3 (HARD state)
Check Type:  passive
Check Latency / Duration:  None / 0.0
Next Scheduled Active Check:  None
Last State Change:  2014-01-08 18:30:42
Last Update:  2014-02-06 10:11:36
----------------------------------------------------------------------
cls12345n002  "Arrays and Disk Status":  OK  for 28d 15h 37m 40s  checked 2014-02-06 10:07:56  "All arrays are operating normally
Array: md65, status: Ok, t10: disabled
Total number of disk slots available: 24
Total number of disks found: 24
slot:   2, wwn: 5000c50043b1e71f, cap:        450098159616, dev:  sdv, parts:        0, status: Hot Spare, dev1: sdaj, t10: 11110100000
slot:  21, wwn: 5000c500479061af, cap:        450098159616, dev:  sdc, parts:        0, status: Hot Spare, dev1: sdat, t10: 11110100000
MD RAID to Lustre mapping
Array /dev/md/cls12345n003:md65 doesn't have associated WIB array
Target:     MGS
Degraded Array information:
All arrays are in clean state on node cls12345n002"
Performance Data:  None
Current Attempt:  1/3 (HARD state)
Check Type:  passive
Check Latency / Duration:  None / 0.0
Next Scheduled Active Check:  None
Last State Change:  2014-01-08 18:34:00
Last Update:  2014-02-06 10:11:36
---------------------------------------------------------------
[root@cls12345n000 ~]# cscli monitor elements -S disk
cls12345n000  "Arrays and Disk Status":  OK  for 28d 15h 43m 32s  checked 2014-02-06 10:10:52  "All arrays are operating normally"
cls12345n001  "Arrays and Disk Status":  OK  for 28d 15h 45m 14s  checked 2014-02-06 10:13:07  "All arrays are operating normally"
cls12345n002  "Arrays and Disk Status":  OK  for 28d 15h 41m 56s  checked 2014-02-06 10:12:56  "All arrays are operating normally"
cls12345n003  "Arrays and Disk Status":  OK  for 28d 15h 41m 54s  checked 2014-02-06 10:11:24  "All arrays are operating normally"
cls12345n004  "Arrays and Disk Status":  OK  for 2d 14h 37m 53s  checked 2014-02-06 10:13:42  "All arrays are operating normally"
cls12345n005  "Arrays and Disk Status":  OK  for 17d 14h 28m 52s  checked 2014-02-06 10:12:41  "All arrays are operating normally"
root@cls12345n000 ~]# cscli monitor elements -S fan
cls12345n003-Enclosure-R1C1-21U  "FRU Fan Status":  OK  for 28d 15h 43m 55s  checked 2014-02-06 10:10:52  "All FRU's are operating normally"
cls12345n003-Enclosure-R1C1-21U  "Fan Statistics":  OK  for 15d 17h 35m 5s  checked 2014-02-06 10:13:07  "Summary: 4 Fan Sensors available. All Sensors readings are w
cls12345n005-Enclosure-R1C1-5U  "FRU Fan Status":  OK  for 28d 15h 43m 55s  checked 2014-02-06 10:10:52  "All FRU's are operating normally"
cls12345n005-Enclosure-R1C1-5U  "Fan Statistics":  OK  for 28d 15h 44m 41s  checked 2014-02-06 10:12:42  "Summary: 10 Fan Sensors available. All Sensors readings are w
[root@cls12345n000 ~]# cscli monitor elements -S power
cls12345n003-Enclosure-R1C1-21U  "FRU Power Supply Status":  OK  for 28d 15h 44m 8s  checked 2014-02-06 10:15:53  "All FRU's are operating normally"
cls12345n003-Enclosure-R1C1-21U  "Power Statistics":  OK  for 15d 17h 35m 18s  checked 2014-02-06 10:16:25  "Summary: Total System Power 178W"
cls12345n005-Enclosure-R1C1-5U  "FRU Power Supply Status":  OK  for 20d 23h 16m 37s  checked 2014-02-06 10:15:53  "All FRU's are operating normally"
cls12345n005-Enclosure-R1C1-5U  "Power Statistics":  OK  for 28d 15h 44m 54s  checked 2014-02-06 10:12:42  "Summary: Total System Power 1061W"
[root@cls12345n000 ~]# cscli monitor elements -S sbb
cls12345n003-Enclosure-R1C1-21U  "FRU SBB Module Status":  OK  for 28d 15h 44m 23s  checked 2014-02-06 10:15:53  "All FRU's are operating normally"
cls12345n005-Enclosure-R1C1-5U  "FRU SBB Module Status":  OK  for 28d 15h 44m 23s  checked 2014-02-06 10:15:53  "All FRU's are operating normally"
[root@cls12345n000 ~]# cscli monitor elements -S volt
cls12345n003-Enclosure-R1C1-21U  "Voltage Statistics":  OK  for 15d 17h 35m 53s  checked 2014-02-06 10:16:24  "Summary: 4 Voltage Sensors available. All Sensors readin
cls12345n005-Enclosure-R1C1-5U  "Voltage Statistics":  OK  for 28d 15h 45m 29s  checked 2014-02-06 10:12:42  "Summary: 2 Voltage Sensors available. All Sensors readings
[root@cls12345n000 ~]# cscli monitor elements -S disk
cls12345n000  "Arrays and Disk Status":  OK  for 28d 15h 45m 0s  checked 2014-02-06 10:15:53  "All arrays are operating normally"
cls12345n001  "Arrays and Disk Status":  OK  for 28d 15h 46m 42s  checked 2014-02-06 10:13:07  "All arrays are operating normally"
cls12345n002  "Arrays and Disk Status":  OK  for 28d 15h 43m 24s  checked 2014-02-06 10:12:56  "All arrays are operating normally"
cls12345n003  "Arrays and Disk Status":  OK  for 28d 15h 43m 22s  checked 2014-02-06 10:16:24  "All arrays are operating normally"
cls12345n004  "Arrays and Disk Status":  OK  for 2d 14h 39m 21s  checked 2014-02-06 10:13:42  "All arrays are operating normally"
cls12345n005  "Arrays and Disk Status":  OK  for 17d 14h 30m 20s  checked 2014-02-06 10:12:41  "All arrays are operating normally"
[root@cls12345n000 ~]# cscli monitor elements -S arrays
cls12345n000  "Arrays and Disk Status":  OK  for 28d 15h 45m 10s  checked 2014-02-06 10:15:53  "All arrays are operating normally"
cls12345n001  "Arrays and Disk Status":  OK  for 28d 15h 46m 52s  checked 2014-02-06 10:13:07  "All arrays are operating normally"
cls12345n002  "Arrays and Disk Status":  OK  for 28d 15h 43m 34s  checked 2014-02-06 10:12:56  "All arrays are operating normally"
cls12345n003  "Arrays and Disk Status":  OK  for 28d 15h 43m 32s  checked 2014-02-06 10:16:24  "All arrays are operating normally"
cls12345n004  "Arrays and Disk Status":  OK  for 2d 14h 39m 31s  checked 2014-02-06 10:13:42  "All arrays are operating normally"
cls12345n005  "Arrays and Disk Status":  OK  for 17d 14h 30m 30s  checked 2014-02-06 10:12:41  "All arrays are operating normally"
[root@cls12345n000 ~]#
```

`monitor await` Subcommand

Introduced in Software Release: 6.0

The `monitor await` command is a subcommand of the `monitor` command. Use the subcommand to display current active RAID array information.

Synopsis

```
$ cscli monitor await
```

Optional Arguments	Description
`-n` *node_names* `|--NODE_SPEC` *node names*	Display pdsh-style node host names (e.g. node[100-110,120])
`-j |--json`	Print `await` information in JSON file format
`-a |--all`	Print RAID array information of all nodes
`-h |--help`	Display the help message and exit

Examples

```
$ cscli monitor await -h
```

```
$ cscli monitor await -n cls12345n005
```

```
$ cscli monitor await -n cls12345n005 -j
```

```
$ cscli monitor await -a
```

`monitor elements` Subcommand

Introduced in Software Release: 2.x

The `monitor elements` command is a subcommand of the `monitor` command. Use the subcommand to monitor individual elements.

> **IMPORTANT:** Calling this command with no options may result in thousands of elements on a large system.

Synopsis

```
$ cscli monitor elements [-h] [-y] [-v] [-n node_spec | -g genders_query] [-N {down,unreachable,up,pending}] [-U {unknown,warning,ok,critical,pending}] [-S element_fil
```

Optional Arguments	Description
`-y	--yaml`	Display output data in YAML format
`-v	--verbose`	Output extra data
`-n node_spec| --node node_spec| --nodes node_spec`	Look through passed hostname elements. Format: pdsh-style nodes host names (e.g. node[100-110,120])
`-g genders_query`	Display the node genders attributes query (e.g. mds=primary)
`-N {down,unreachable,up,pending}	--nodestatus {down,unreachable,up,pending} node status.`	Display node status
`-U {unknown,warning,ok,critical,pending}	--elementstatus {unknown,warning,ok,critical,pending}`	Display element status
`-S element_filter	--search element_filter`	Search by element name. The pattern is case-sensitive. Regular expressions are allowed.
`-h |--help`	Display the help message and exit

Synopsis

```
$ cscli monitor elements [-h] [-y] [-v] [-n node_spec | -g genders_query] [-N {down,unreachable,up,pending}] [-U {unknown,warning,ok,critical,pending}] [-S element_fil
```

`-v | --verbose`

`monitor health` Subcommand

Introduced in Software Release: 2.x

Updated in Software Release: 6.0

The `monitor health` command is a subcommand of the `monitor` command. Use the subcommand to view current overall health information and status summary.

Synopsis

```
$ cscli monitor health [-h] [-y]
```

Optional Arguments	Description	Release
`-y |--yaml`	Display output data in YAML file format	6.0+
`-h |--help`	Display the help message and exit	

`monitor nodes` Subcommand

Introduced in Software Release: 2.x

The `monitor nodes` command is a subcommand of the `monitor` command. Use the subcommand to monitor individual nodes.

Synopsis

```
$ cscli monitor nodes [-h] [-y] [-v] [-n node_spec | -g genders_query] [-N {down,unreachable,up,pending}]
```

Optional Arguments	Description
`-y	--yaml`	Display output data in YAML format
`-n node_spec	--node node_spec| --nodes node_spec`	Look through passed hostname elements. Format: pdsh-style nodes host names (e.g. node[100-110,120])
`-g genders_query`	Display the node genders attributes query (e.g. mds=primary)
`-N {down,unreachable,up,pending}	- nodestatus {down,unreachable,up,pending}`	Display node status
`-v	--verbose`	Output extra data
`-h |--help`	Display the help message and exit

`monitor nvme` Subcommand

Introduced in Software Release: 6.0

The `monitor nvme` command is a subcommand of the `monitor` command. Use the subcommand to display current NVMe information.

Synopsis

```
$ cscli monitor nvme
```

Optional Arguments	Description
`-d |--details`	Increase the verbosity of NVMe information
`-n node_names |--NODE_SPEC node_names`	Display pdsh-style node host names (e.g. node[100-110,120])
`-j |--json`	Print NVMe information in JSON file format
`-a |--all`	Print NVMe information of all nodes
`-i interval |--interval interval`	Use with `-a` option to set the interval at which the plex app publishes the NVMe smart report to the view for consumption, per node basis
`-h |--help`	Display the help message and exit

Example

```
$ cscli monitor nvme -ai 500
```

`mount` Command

Introduced in Software Release: 1.2.x

Updated in Software Release: 6.0

The `mount` command controls file system access to the Lustre targets (MDS, MGS, and OSSs). It enables file system access to the node.

- If one or more nodes are specified, then the mount action is only performed on the selected nodes in the file system.

- If no server nodes are specified, then the mount action is performed on all server nodes in the file system.

Synopsis

```
$ cscli mount [-h] [-f fs_name] [-n node_spec] [-c cluster_name]
                [--nowait] [--verbose]
```

Optional Arguments	Description	Release
`-f fs_name |--fs-name fs_name`	Specify the name of the file system	
`-n node_spec |--nodes node_spec`	Specify the node(s) on which the mount action is performed. Node hostnames should be passed in pdsh style. MGMT nodes are an exception.	
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	1.x only?
`--nowait`	Turn off crmwait during Lustre operation	3.0.0+
`--verbose`	Display more detailed command output or failure messages	3.0.0+
`-h |--help`	Display the help message and exit	

`netfilter_level` Command

Introduced in Software Release: 2.x

The `netfilter_level` command manages the netfilter level on the ClusterStor system. Modes: Site configuration, Daily

> **IMPORTANT:** Exercise caution before using the `--force` parameter.

Synopsis

```
$ cscli netfilter_level [-h] [-s] [-l level] [--force]
```

Optional Arguments	Description
`-h |--help`	Show the help message and exit
`-s |--show`	Show the current netfilter level
`-l level |--level level`	Set the netfilter level (`off`, `lustre`, `on`)
`--force`	Force the netfilter level to be set to off

`network` Command

Introduced in Software Release: 2.1.0

Deprecated in Software Release: 3.0.0 (See the `ean` Command topic for new command information.)

The `network` command and subcommands are used to configure the appliance network.

Synopsis

```
$ cscli network [-h] {apply,ean,show}
```

Positional Arguments	Description
`show`	Display networks
`apply`	Apply network configuration changes
`ean`	Configure DNS, NTP, and routing settings

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`network apply` Subcommand

Introduced in Software Release: 2.1.0

Deprecated in Software Release: 3.0.0 (See the `ean apply` Command topic for new command.)

The `network apply` command is a subcommand of the `network` command. Use it to apply EAN network settings after changing them with the `network ean` subcommands.

Synopsis

```
$ cscli network apply [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`network ean` Subcommand

Introduced in Software Release: 2.1.0

Deprecated in Software Release: 3.0.0 (See the `ean` Command topic for new command.)

The `network ean` command is a subcommand of the `network` command. Use the subcommands to configure DNS, NTP, and routing settings to the External Administration Network (EAN).

Synopsis

```
$ cscli network ean [-h] {ntp,dns,secondary,route} ...
```

Positional Arguments	Description
`ntp`	EAN NTP configuration
`dns`	EAN DNS configuration
`secondary`	EAN Secondary interface configuration
`route`	EAN Routing configuration

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`network show` Subcommand

Introduced in Software Release: 2.1.0

Deprecated in Software Release: 3.0.0 (See the `ean show` Command topic for new command.)

The `network show` command is a subcommand of the `network` command.

Synopsis

```
$ cscli network show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`node_type` Command

Introduced in Software Release: 3.4

Use the `node_type` command to display the type of node (in daily or custwiz mode).

Synopsis

```
# cscli list | grep node_type
node_type displays the type of node
```

```
# cscli node_type [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Sample Output

```
[root@cls1900 ~]# cscli node_type
          --------------------------------------------------
            Hostname                Node Type
          --------------------------------------------------
            cls1902                 MMU
            cls1903                 MMU
            cls1904                 SSU
            cls1905                 SSU

          --------------------------------------------------
```

`nxd` Command

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

> **NOTE:** The `nxd` command only applies to Cray ClusterStor L300/L300N storage systems. This command cannot be used on Cray ClusterStor E1000 storage systems.

Use the `nxd` command and subcommands to manage the NXD feature, which improves performance for small block IOs by caching them on SSD drives.

The full set of NXD subcommands is available only if the cluster is configured for NXD and it has been enabled. If NXD is configured but not enabled, only the `cscli nxd service` subcommand is available.

Synopsis

```
$ cscli nxd [-h] {service,enable,disable,list,modify} ...
```

Positional Arguments	Description
`service`	Start, stop, and check the status of the NXD service
`enable`	Enable caching on all OSS nodes
`disable`	Disable caching on all OSS nodes
`list`	Display basic NXD configuration
`modify`	Modify configurations for NXD

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
$ cscli nxd [-h] service {status | start | stop}
$ cscli nxd [-h] {enable | disable}
$ cscli nxd [-h] list [-a | --advance] [{-cg | --cache_group} <cg_name>]
$ cscli nxd [-h] modify --bypass_size bypass_size
```

`nxd disable` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd disable` command is a subcommand of the `nxd` command. Use the subcommand to disable caching globally on all SSUs.

Synopsis

```
$ cscli nxd disable [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`nxd enable` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd enable` command is a subcommand of the `nxd` command. Use the subcommand to enable caching globally on all SSUs.

Synopsis

```
$ cscli nxd enable [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`nxd list` Subcommand

Introduced in Software Release: 3.0.0

Updated in Software Release: 3.1

Deprecated in Software Release: 4.1

The `nxd list` command is a subcommand of the `nxd` command. Use the subcommand to display the basic NXD configuration of all the OSS nodes.

Synopsis

```
$ cscli nxd list [-h] [-a] [-cg cache_group] [-S] [-p] [-r]
```

Optional Arguments	Description	Release
`-a |--advance`	Display detailed NXD configuration and statistics	
`-cg cache_group |--cache_group cache_group`	Display configurations of given cache group	
`-S |--statistics`	Display stale statistical data of NXD. This data might be a few seconds old when compared with current data.	3.1+
`-p |--perfmon`	Display `perfmon` details	3.1+
`-r |--read-persistence`	Display NXD read persistence parameter	3.1+
`-h |--help`	Display the help message and exit	

`nxd modify` Subcommand

Introduced in Software Release: 3.0.0

Updated in Software Release: 3.1, 3.2, and 3.3

Deprecated in Software Release: 4.1

The `nxd modify` command is a subcommand of the `nxd` command. Use the subcommand to set the tunable parameter `bypass_size`. Prior to 3.3, the value takes effect when the NXD service restarts, and the file system must be taken offline before modifying the tunable parameters.

Synopsis 3.0.0-3.2

```
$ cscli nxd modify [-h] [--bypass_size bypass_size | --read_persistence {on,off}
                        | [--perfmon] [--reset] [--cg cache_group]
```

Synopsis 3.3 and beyond

```
$ cscli nxd modify [-h] {bypass_size,read_persistence,overlap_invalidate,perfmon,flush} ...
```

Positional Arguments	Description	Release
`--bypass_size bypass_size`	Update default configuration of I/O bypass size. The values for `bypass_size` must be within 32 (16K) to 2048 (1M) and power of 2 (32,64,128,256,....).	3.0.0 - 3.2
`bypass_size bypass_size`	Update default configuration of I/O `bypass size`	3.3+
`--read_persistence {on,off}`	Enable/disable read persistence (Values: `enable` or `disable`)	3.1+
`--perfmon`	Modify `perfmon` for cache groups	3.1+
`--reset`	Reset `perfmon` counters	3.1 - 3.2
`--cg cache_group`	Specify the name of cache group	3.1 - 3.2
`flush`	Modify flush-related tunables	
`overlap_invalidate`	Enable/disable overlap IO invalidation. (Values: `enable` or `disable`)	3.1+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`nxd modify bypass_size` Subcommand for SW releases 3.3 - 4.1

Introduced in Software Release: 3.3

Deprecated in Software Release: 4.1

The default size of small blocks cached by the NXD feature is 32 KiB. This means

- all IOs smaller than or equal to 32 KiB are considered "small blocks" and will be cached.

- all IOs larger than 32 KiB will bypass the caching layer in NXD.

The small block size, however, is a tunable parameter that may be specified using the `cscli nxd modify` subcommand with the `--bypass_size` option, by supplying a value in units of 512-Byte sectors.

Sample output when changing the `bypass-size` from the default value of 32 KiB to 64 KiB:

```
root@cls12345n000# cscli nxd modify bypass_size --size 128
nxd: Please wait while updating parameters...
nxd: IEC: 014008004: NXD Parameter changed:
{"from_io_bypass_size": 64, "to_io_bypass_size": 128}
nxd: NXD Parameters Update: Success.
```

The `bypass-size` of 128 that is passed to the `cscli nxd modify` subcommand in the above example is the number of 512-Byte sectors in 64 KiB.

```
$ cscli nxd modify bypass_size [-h] --size bypass_size
```

Optional Arguments	Description
`--size bypass_size`	The values for `I/O_bypass_size` must be within 32(16K) to 2048(1M) and power of 2 (32,64,128,256,....)
`-h |--help`	Display the help message and exit

`nxd modify bypass size` Subcommand for SW releases 3.0.0 - 3.2

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 3.2

The default size of small blocks cached by the NXD feature is 32 KiB. This means

- all I/Os smaller than or equal to 32 KiB are considered "small blocks" and will be cached.

- all I/Os larger than 32 KiB will bypass the caching layer in NXD.

The small block size, however, is a tunable parameter that may be specified using the `cscli nxd modify` subcommand with the `--bypass_size` option, by supplying a value in units of 512-Byte sectors.

Note that NXD caching must be disabled and the file system stopped before modifying the "Small Block" size. For a change in the small block size to take effect, the NXD service must be restarted across all nodes in the cluster. This service restart requires no user intervention. When small block size is changed using the `cscli nxd modify` subcommand, the subcommand restarts the NXD service automatically.

Sample output when changing the `bypass-size` from the default value of 32 KiB to 64 KiB:

```
[admin@cls12345n000 ~]$ cscli nxd modify --bypass_size 128
xd: Please wait while updating parameters...
nxd: IEC: 014008004: NXD Parameter changed:

{"from_io_bypass_size": 64, "to_io_bypass_size": 128}
nxd: NXD Parameters Update: Success.
```

The `bypass-size` of 128 that is passed to the `cscli nxd modify` subcommand in the preceding example is the number of 512-Byte sectors in 64 KiB.

If the `cscli nxd modify` subcommand determines that the file system is still mounted, the command will provide a warning that the file system must be unmounted first, and then the command exits. For example, on a Lustre file system mounted on the NXD device, the following error appears:

```
[admin@cls12345n000 ~]$ cscli nxd modify --bypass_size 128
nxd: Error: Lustre targets are still mounted. Please unmount Lustre
targets before changing NytroXD Parameters.
To do this please use UI or 'cscli unmount' command.
```

In this case, use the following steps to check if the file system is mounted and, if necessary, unmount the file system before running the `cscli nxd modify` subcommand:

1. Check if the Lustre file system is mounted: run `cscli show_nodes`.

2. Verify that the NXD cached state is DISABLED: run `cscli nxd list`. When the cache state is DISABLED, there is no outstanding dirty data in the cache device and it is safe to unmount Lustre.

3. Unmount the Lustre file system: run `cscli unmount`.

`nxd modify flush` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd modify flush` command is a subcommand of the `nxd modify` command. This command can be used to configure the flush start and stop threshold and queue depth.

Synopsis

```
$ cscli nxd modify flush [-h] ...
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`nxd modify read_persistence` Subcommand

Introduced in Software Release: 3.1

Deprecated in Software Release: 4.1

The `nxd modify read_persistence` command is a subcommand of the `nxd modify` command.

The NXD caching layer is based on the write-back caching mechanism. In addition, NXD retains the cached data to support READ operations. This default behavior is referred to as read persistence. When write-intensive workloads occur, where there are a negligible number of READ operations, read persistence contributes to additional overhead.

Therefore, NXD read-persistence is a tunable parameter that can be modified by the system administrator to support write-intensive workload situations. This is accomplished by using the read persistence option (`--read_persistence`) of the `cscli nxd modify` subcommand to disable or enable read persistence.

Synopsis

```
$ cscli nxd modify read_persistence [-h] (--enable | --disable)
```

Optional Arguments	Description
`--enable`	Enable read persistence
`--disable`	Disable read persistence
`-h |--help`	Display help message and exit

Sample command and corresponding output when changing the read persistence from enable to disable:

```
root@cls12345n000# cscli nxd modify read_persistence --disable
nxd: Please wait while updating parameters...
nxd: NXD Parameters Update: Success.
```

To determine the current state of NXD read persistence, run the following command:

```
root@cls12345n000# cscli nxd list -r
-----------------------------------------
 Host          Cache Group  Read Persistence
-----------------------------------------
 cls12345n004  nxd_cache_0     disabled
 cls12345n005  nxd_cache_1     disabled
 cls12345n006  nxd_cache_0     disabled
 cls12345n007  nxd_cache_1     disabled
-----------------------------------------
```

`nxd service` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd service` command is a subcommand of the `nxd` command. Use the subcommand to start and stop the NXD service across all OSS nodes and to display the status of the NXD service.

Synopsis

```
$ cscli nxd service [-h] {status,start,stop} ...
```

Positional Arguments	Description
status	Display the status of the NXD service across all (OSS) nodes
start	Start the NXD service across all (OSS) nodes
stop	Stop the NXD service across all (OSS) nodes

Optional Arguments	Description
-h |--help	Display the help message and exit

`nxd service start` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd service start` command is a subcommand of the `nxd service` command. Use the subcommand to start the NXD service across all OSS nodes.

Synopsis

```
$ cscli nxd service start [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`nxd service status` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd service status` command is a subcommand of the `nxd service` command. Use the subcommand to display the status of the NXD service across all OSS nodes.

Synopsis

```
$ cscli nxd service status [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`nxd service status` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd service status` command is a subcommand of the `nxd service` command. Use the subcommand to display the status of the NXD service across all OSS nodes.

`nxd service stop` Subcommand

Introduced in Software Release: 3.0.0

Deprecated in Software Release: 4.1

The `nxd service stop` command is a subcommand of the `nxd service` command. Use the subcommand to stop the NXD service across all OSS nodes.

Synopsis

```
$ cscli nxd service stop [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`power_manage` Command

Introduced in Software Release: 2.x

Use the `power_manage` commands to manage the power on the ClusterStor system. These commands power-cycle nodes on and off and also control HA resource hand-offs.

> **IMPORTANT:** Exercise caution before using the `--force` parameter.
>
> Only use `--force` with `--power-off`

Synopsis

```
$ cscli power_manage [-h] (--filter filter_sid | -n node_spec)
        (--power-on | --power-off | --reboot | --cycle | --reset | --hand-over)
        [--force] -c cluster_name, --cluster cluster_name
```

Optional Arguments	Description	Release
`-f filter_sid |--filter filter_sid`	The filter identifier for the specified node. Failover and failback actions run on the nodes by filtering this filter. If `--filter` is specified, then `- nodes` is ignored.	2.x+
`-n node_spec`	Specify the nodes on which failover/failback operations are performed. Node hostnames should be passed in pdsh style	2.x+
`--power-on`	Power on the specified nodes	2.x+
`--power-off`	Power off the specified nodes	2.x+
`--reboot`	Reboot the specified node	2.x+
`--cycle`	Power-cycle the specified nodes	2.x+
`--reset`	Reset the specified nodes	2.x+
`--hand-over`	Hands over resources.	2.x+
`--force`	An optional flag that indicates the node operation should be performed in force mode; should only be used with `--power-off`	2.x+
`-c cluster_name|--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	Prior to 2.1?
`-h |--help`	Display the help message and exit	

`rack` Command

Introduced in Software Release: 1.4.0

Updated in Software Release: 3.0.0 and 4.4

The `rack` command and its subcommands are used to manage racks.

Synopsis

```
$ cscli rack [-h] {list,show,create,delete,move,rename,update,set_default,apply} ...
```

Positional Arguments	Description	Release
`list`	List racks	
`show`	Show racks	
`create`	Create racks	
`delete`	Delete racks	
`move`	Move racks	
`rename`	Rename racks	
`update`	Update the enclosure chassis serial number	4.4+
`set_default`	Rename default rack name	3.0.0+
`apply`	Apply all changes from move/create/delete/update/rename to the system configuration	3.0.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`rack apply` Subcommand

Introduced in Software Release: 3.0.0

The `rack apply` command is a subcommand of the `rack` command. Use the subcommand to apply all changes from move/create/delete/rename to the system configuration.

Synopsis

```
$ cscli rack apply [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`rack create` Subcommand

Introduced in Software Release: 1.4.0

The `rack create` command is a subcommand of the `rack` command. Use the command to create a new rack.

Synopsis

```
$ cscli rack create [-h] -n name
```

Optional Arguments	Description
`-n name` `| --name name`	Name of the rack (For example, Rack2, R1C2)
`-h |--help`	Display the help message and exit

`rack delete` Subcommand

Introduced in Software Release: 1.4.0

The `rack delete` command is a subcommand of the `rack` command. Use the command to remove a rack from the system.

Synopsis

```
$ cscli rack delete [-h] -n name
```

Optional Arguments	Description
`-n name` `| --name name`	Name of the rack (For example, Rack2, R1C2)
`-h |--help`	Display the help message and exit

`rack list` Subcommand

Introduced in Software Release: 1.4.0

The `rack list` command is a subcommand of the `rack` command. Use the command to display a list of racks in the system.

Synopsis

```
$ cscli rack list [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`rack move` Subcommand

Introduced in Software Release: 1.4.0

The `rack move` command is a subcommand of the `rack` command. Use the subcommand to move a rack to a new location.

Synopsis

```
$ cscli rack move [-h] --location new_location
                      (--enclosure old_location | --serial_no serial_no)
```

Optional Arguments	Description
`-l new_location` `|--location new_location`	New rack location of the enclosure. Rack2/1U, R1C2/5U for example.
`-e old_location` `|--enclosure old_location`	Current rack location of the enclosure. Rack777/1U, R1C1/5U for example.
`-s serial_no` `|--serial_no serial_no`	SerialNo of the enclosure to move.
`-h |--help`	Displays the help message and exits.

`rack rename` Subcommand

Introduced in Software Release: 1.4.0

The `rack rename` command is a subcommand of the `rack` command. Use the command to rename a rack.

Synopsis

```
$ cscli rack rename [-h] -o old_name -n new_name
```

Optional Arguments	Description
`-o old_name` `| --old old_name`	Old name of the rack (For example, Rack2, R1C2)
`-n new_name` `| --new new_name`	New name of the rack. (For example, Rack2, R1C2)
`-h |--help`	Display the help message and exit

`rack set_default` Subcommand

Introduced in Software Release: 3.0.0

The `rack set_default` command is a subcommand of the `rack` command. Use the command to set the new default name of the rack.

Synopsis

```
$ cscli rack set_default [-h] -n new_name
```

Optional Arguments	Description
`-n new_name` `|--new new_name`	New default name of the rack (For example, Rack2, rack77)
`-h |--help`	Display the help message and exit

`rack show` Subcommand

Introduced in Software Release: 1.4.0

The `rack show` command is a subcommand of the `rack` command. Use the subcommand to display details about a specific rack.

Synopsis

```
$ cscli rack show [-h] -n name
```

Optional Arguments	Description
`-n name |--name name`	Name of the rack (For example, Rack2, R1C2)
`-h |--help`	Display the help message and exit

`rack update` Subcommand

Introduced in Software Release: 4.4

The `rack update` command is a subcommand of the `rack` command. Use the subcommand to update the enclosure chassis serial number.

Synopsis

```
$ cscli rack update [-h] --type {nvme,sas} --old_serial_no old_serial_no                    --new_serial_no new_serial_no
```

Optional Arguments	Description
`-t {nvme,sas}` `|--type {nvme,sas}`	Specify the type of enclosure
`-o old_serial_no |--old_serial_no old_serial_no`	Specify the old serial number of the enclosure
`-s new_serial_no |--new_serial_no new_serial_no`	Specify the new serial number of the enclosure
`-h |--help`	Display the help message and exit

`raid` Command

Introduced in Software Release: 2.1

Use the `raid` command to manage the system's RAID configuration.

Synopsis

```
$ cscli raid [-h] {disk_fail,speed,check,show}
```

Positional Arguments	Description	Release
`show`	Show raid configuration	2.1+
`check`	Show settings related to RAID and disk checks, and whether checks are running	2.1+
`speed`	Show raid configuration	2.1+
`disk_fail`	Settings for whether a disk will be forced to a "failed" state	2.1+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check` Subcommand

Introduced in Software Release: 2.1 (and updated in 4.0)

The `raid check` command is a subcommand of the `raid` command. Use the subcommand to show settings related to RAID and disk checks and to show whether the checks are running.

Synopsis

```
$ cscli raid check [-h] {show,now,abort,schedule,disks,limit,urc} ...
```

Positional Arguments	Description	Release
`show`	Show RAID configuration	2.1+
`now`	Perform an immediate RAID check	2.1+
`abort`	Cancel a running RAID check	2.1+
`schedule`	Enable, disable, or change schedule of RAID checks	2.1+
`disks`	Set interval in seconds for disk checks	2.1+
`limit`	Set RAID check concurrency	2.1+
`urc`	Manage RAID URC utility	4.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check abort` Subcommand

Introduced in Software Release: 2.1

The `raid check abort` command is a second-level subcommand of the `raid` command. Use the subcommand to cancel a RAID check operation that is already running.

Synopsis

```
$ cscli raid check abort [-h] [-n nodespec]
```

Positional Arguments	Description
`-n nodespec |--node nodespec`	Look through passed hostnames elements. pdsh-style nodes hostnames

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check abort` Subcommand

`raid check disks` Subcommand

Introduced in Software Release: 2.1

The `raid check disks` command is a subcommand of the `raid check` command. Use the subcommand to set the interval for disk checks.

Synopsis

```
$ cscli raid check disks [-h] (--interval interval | --reset) [-n nodespec]
```

Positional Arguments	Description
`--interval` *interval*	Configure the interval on which DWD will recheck drives. This parameter expects an integer (number) as an argument. The interval is set in seconds and defaults to 24 hours (86,400 seconds).
`--reset`	Reset the interval to the default of 24 hours (86,400 seconds) on which DWD will recheck drives
`-n` *nodespec* `|--node` *nodespec*	Look through passed host names elements. pdsh-style nodes host names

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check limit` Subcommand

Introduced in Software Release: 2.1

The `raid check limit` command is a subcommand of the `raid check` command. Use the subcommand to set RAID check concurrency.

Synopsis

```
$ cscli raid check limit [-h] [-n nodespec] (--concurrent concurrency | --reset)
```

Positional Arguments	Description
`--concurrent concurrency |-c concurrency`	Limit the number of simultaneous RAID checks to NUM on the specified nodes. If no nodes are specified, apply the setting to all nodes.
`--reset`	Reset the limit to the default value of 8
`-n nodespec |--node nodespec`	Look through passed host names elements. pdsh-style nodes host names

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check now` Subcommand

Introduced in Software Release: 2.1

The `raid check now` command is a second level subcommand of the `raid` command. Use the subcommand to perform an immediate RAID check.

Synopsis

```
$ cscli raid check now [-h] [-n nodespec]
```

Positional Arguments	Description
`-n nodespec |--node nodespec`	Look through passed hostnames elements. pdsh-style nodes hostnames.

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check schedule` Subcommand

Introduced in Software Release: 2.1
The `raid check schedule` command is a subcommand of the `raid` command. Use the subcommand to change the schedule for running RAID checks.

Synopsis

```
$ cscli raid check schedule [-h] {disks,abort,limit,show,now} (--enable | - disable) [--at atime] [-n nodespec]
```

Positional Arguments	Description
`--enable`	Enable cron job for raid check
`--disable`	Disable cron job for raid check
`--at atime`	Time when command should be run (see "man at")
`-n nodespec |--node nodespec`	Look through passed hostnames elements. pdsh-style nodes hostnames

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check urc` Subcommand

Introduced in Software Release: 4.0

The `raid check urc` command is a subcommand of the `raid` command. Use the subcommand to manage the Userspace RAID Check (URC) utility.

Synopsis

```
$ cscli raid check urc [-h] {show,status,enable,disable,config} ...
```

Positional Arguments	Description	Release
`show`	Show URC settings	4.0+
`status`	Show status of running URC instances	4.0+
`enable`	Enable URC and disable in-kernel RAID check	4.0+
`disable`	Disable URC and enable in-kernel RAID check	4.0+
`config`	Set configuration for URC	4.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check urc config` Subcommand

Introduced in Software Release: 4.0

The `check urc config` command is a subcommand of the `raid` command. Use the subcommand to configure Userspace RAID Check (URC) speed and thread count.

Synopsis

```
$ cscli raid check urc config [-h] [--max-speed MAX_SPEED]
                                   [--threads TCOUNT]
```

Optional Arguments	Description
`--max-speed MAX_SPEED`	Set the target per-drive speed of URC. Default is 10MB/s.
`--threads TCOUNT`	Number of threads used by URC (dynamically configured). Default is 0 -- automatically determine the optimal number of threads.
`-h |--help`	Display the help message and exit

Usage

```
# cscli raid check urc config --threads 5
Sync puppet on nodes ...
raid: done
```

```
# cscli raid check urc config --max speed 8
Sync puppet on nodes ...
raid: done
```

```
# cscli raid check urc show
threadcount: 5
maxspeed: 8
enabled: true
```

`raid check urc disable` Subcommand

Introduced in Software Release: 4.0

The `check urc disable` command is a subcommand of the `raid` command. Use the subcommand to disable the Userspace RAID Check (URC) utility.

Synopsis

```
$ cscli raid check urc disable
Sync puppet on nodes
raid: done
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

The `check urc disable` command is a subcommand of the `raid` command. Use the subcommand to disable the Userspace RAID Check (URC) utility.

`raid check urc enable` Subcommand

Introduced in Software Release: 4.0

The `check urc enable` command is a subcommand of the `raid` command. Use the subcommand to enable the Userspace RAID Check (URC) utility.

Synopsis

```
$ cscli raid check urc enable
Sync puppet on nodes ...
raid: done
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check urc show` Subcommand

Introduced in Software Release: 4.0

The `raid check urc show` command is a subcommand of the `raid` command. Use the subcommand to show Userspace RAID Check (URC) utility speed and threadcounts.

Synopsis

```
$ cscli raid check urc show
threadcnt: None
maxspeed: None
enabled: None
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid check urc status` Subcommand

Introduced in Software Release: 4.0

The `check urc status` command is a subcommand of the `raid` command. Use the subcommand to check the Userspace RAID Check (URC) utility status.

Synopsis

```
$ cscli raid check urc status
No URC Instance Running
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid disk_fail` Subcommand

Introduced in Software Release: 2.0.0

The `raid disk_fail` command is a subcommand of the `raid` command. Use the subcommand to configure settings for forced disk failure.

Synopsis

```
$ cscli raid disk_fail [-h] {read_errors_raid6,offline,scsi_aborts,read_errors,show,smart_interval}
```

Positional Arguments	Description	Release
`show`	Show all settings related to forced disk failure	2.0+
`read_errors`	Set the number of read errors that will cause a disk to be force-failed. Applies to GridRAID and/or RAID-6	2.0+
`read_errors_raid6`	Set the number of read errors that will cause a disk to be force-failed. Overrides "read_errors" for RAID-6	2.0+
`smart_interval`	Set the interval (in seconds) for checking SMART data for prediction of disk failure	3.0.0+
`scsi_aborts`	Set the number of SCSI Task Aborts that will cause a disk to be force-failed	2.0+
`offline`	Enable or disable taking a disk drive offline (power-off) for either a predictive SMART failure or too many SCSI Task Aborts	2.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid disk_fail offline` Subcommand

Introduced in Software Release: 2.0

The `raid disk_fail offline` command is a subcommand of the `raid` command. Use the subcommand to enable or disable taking a disk drive offline (power-off) for either a predictive SMART failure or too many SCSI Task Aborts.

Synopsis

```
$ cscli raid disk_fail offline [-h] (--enable | --disable | --reset) [-n nodespec | -a]
```

Positional Arguments	Description
`--enable`	Enable taking a disk drive offline
`--disable`	Disable taking a disk drive offline
`--reset`	Reset (enable as its default) taking a disk drive offline
`-n nodespec |--node nodespec`	Look through passed node names. pdsh-style nodes hostnames
`-a |--all`	All nodes

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid disk_fail read_errors` Subcommand

Introduced in Software Release: 2.0

The `raid disk_fail read_errors` command is a second-level subcommand of the `raid` command. Use the subcommand to set the number of read errors that will cause a disk to be force-failed. Applies to GridRAID and/or RAID-6.

Synopsis

```
$ cscli raid disk_fail read_errors [-h] (--set max_read_errs | --reset) [-n nodespec | -a]
```

Positional Arguments	Description
`--set max_read_errs`	Set max number of read errors threshold
`--reset`	Reset max number of read errors to default value
`-n nodespec |--node nodespec`	Look through passed node names. pdsh-style nodes hostnames
`-a |--all`	All nodes

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid disk_fail read_errors_raid6` Subcommand

Introduced in Software Release: 2.0

The `raid disk_fail read_errors_raid6` command is a second-level subcommand of the `raid` command. Use the subcommand to set the number of read errors that will cause a disk to be force-failed. Overrides "read_errors" for RAID-6.

Synopsis

```
$ cscli raid disk_fail read_errors_raid6 [-h] [--set max_read_errs_r6 | --reset] [-n nodespec | -a]
```

Positional Arguments	Description
`--set max_read_errs_r6`	Set max number of read errors threshold
`--reset`	Reset max number of read errors to default value
`-n nodespec |--node nodespec`	Look through passed node names. pdsh-style nodes hostnames
`-a |--all`	All nodes

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid disk_fail scsi_aborts` Subcommand

Introduced in Software Release: 2.0

The `raid disk_fail scsi_aborts` command is a subcommand of the `raid disk_fail` command. Use the subcommand to set the number of SCSI Task Aborts that will cause a disk to be force-failed.

Synopsis

```
$ cscli raid disk_fail scsi_aborts [-h]
                              (--none | --auto | --set max_aborts | --reset)
                              [-n nodespec | -a]
```

Optional Arguments	Description
`--none`	Disable monitoring completely
`--auto`	Enable auto-calculation
`--set max_aborts`	Set max number of aborts that will cause a disk to be force-failed. This argument accepts a non-negative integer.
`--reset`	Reset max number of aborts to defaults
`-n nodespec |--node nodespec`	Look through passed node names. pdsh-style nodes hostnames
`-a |--all`	All nodes
`-h |--help`	Display the help message and exit

`raid disk_fail smart_interval` Subcommand

Introduced in Software Release: 3.0.0

The `raid disk_fail smart_interval` command is a second-level subcommand of the `raid` command. Use the command to set the interval (in seconds) for checking SMART data for prediction of disk failure.

Synopsis

```
$ cscli raid disk_fail smart_interval [-h] (--set smart_interval | --reset)
                                      [-n nodespec | -a]
```

Optional Arguments	Description
`--set smart_interval`	Set the non-negative integer interval(in seconds) for checking SMART data for prediction of disk failure. Setting '0' will disable SMART checks.
`-n nodespec` `| --node nodespec`	Look through passed node names. pdsh style nodes hostnames
`--reset`	Reset SMART data check interval to default 86400
`-a |--all`	All nodes
`-h |--help`	Display the help message and exit

`raid show` Subcommand

Introduced in Software Release: 2.1
The `raid show` command is a subcommand of the `raid` command. Use the subcommand to show raid configuration.

Synopsis

```
$ cscli raid show [-h] [-n nodespec]
```

Optional Arguments	Description
`-n nodespec |--node nodespec`	Node specification
`-h |--help`	Display the help message and exit

`raid speed` Subcommand

Introduced in Software Release: 2.1

The `raid speed` command is a subcommand of the `raid` command. Use the subcommand to show raid configuration.

Synopsis

```
$ cscli raid speed [-h] {multiple,first,rebalance,check,show}
```

Positional Arguments	Description
`show`	Show RAID configuration
`first`	This speed (in KiB/s) controls the rebuild rate for a RAID-6 array after a single drive loss
`rebalance`	Use this speed in KB/s to rebalance data, parity, and spare space after GridRAID reconstruction for a one-drive failure. For RAID-6, this setting is ignored
`multiple`	When multiple disks fail in an array, increase to this speed in KB/s. For GridRAID, this applies both to reconstruction and rebalancing. For RAID-6, this applies to rebuild
`check`	Use this speed in KB/s to perform periodic data integrity checks on arrays. See "cscli raid check" for scheduling options

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid speed check` Subcommand

Introduced in Software Release: 2.1

The `raid speed check` command is a second-level subcommand of the `raid` command. Use the subcommand to specify the speed, in KB/s, to perform periodic data integrity checks on arrays. See `cscli raid check` for scheduling options.

Synopsis

```
$ cscli raid speed check [-h] [--set-min CHECK_MIN_RATE] [--set-max CHECK_MAX_RATE] [--reset] [-n NODESPEC | -a]
```

Positional Arguments	Description
`--set-min CHECK_MIN_RATE`	Min speed in KB/s to perform periodic data integrity checks on array
`--set-max CHECK_MAX_RATE`	Max speed in KB/s to perform periodic data integrity checks on array
`--reset`	Reset MIN and MAX speed check rate to factory defaults
`-n NODESPEC |--node NODESPEC`	Look through passed hostnames elements. pdsh-style nodes hostnames
`-a |--all`	If "-a" is used, it updates ONLY node-specific values but shows both updated node-specific values and unchanged global values. If "-a" is not used, it updates ONLY global values and shows ONLY global values.

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid speed first` Subcommand

Introduced in Software Release: 2.1

The `raid speed first` command is a second-level subcommand of the `raid` command. Use the subcommand to specify the speed (in KiB/s) to control the rebuild rate for a RAID-6 array after a single drive loss.

Synopsis

```
$ cscli raid speed first [-h] [--set-min SINGLE_MIN_RATE]
                         [--set-max SINGLE_MAX_RATE] [--reset]
                         [-n NODESPEC | -a]
```

Positional Arguments	Description
`--set-min SINGLE_MIN_RATE`	After a single drive failure, use this min rate to recover array redundancy. For RAID-6, this is the min rebuild rate. For GridRAID, this is the min reconstruction rate
`--set-max SINGLE_MAX_RATE`	After a single drive failure, use this max rate to recover array redundancy. For RAID-6, this is the max rebuild rate. For GridRAID, this is the max reconstruction rate
`--reset`	For RAID-6, reset min and max rebuild rate to factory defaults. For GridRAID, reset min and max reconstruction rate to factory defaults.
`-n NODESPEC |--node NODESPEC`	Look through passed hostnames elements. pdsh-style nodes hostnames
`-a |--all`	All nodes

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid speed multiple` Subcommand

Introduced in Software Release: 2.1

The `raid speed multiple` command is a second-level subcommand of the `raid` command. Use the subcommand to specify an increase in speed, in KB/s, to use when multiple disks fail in an array. For GridRAID, this applies both to reconstruction and rebalancing. For RAID-6, this applies to rebuild.

Synopsis

```
$ cscli raid speed multiple [-h] [--set-min MULTIPLE_MIN_RATE]
                            [--set-max MULTIPLE_MAX_RATE] [--reset]
                            [-n NODESPEC | -a]
```

Positional Arguments	Description
`--set-min MULTIPLE_MIN_RATE`	After multiple drive failure, increase to this min rate. For RAID-6, this is the min rebuild rate. For GridRAID, this is the min reconstruction rate and the min rebalance rate
`--set-max MULTIPLE_MAX_RATE`	After multiple drive failure, increase to this max rate. For RAID-6, this is the max rebuild rate. For GridRAID, this is the max reconstruction rate and the max rebalance rate
`--reset`	For RAID-6, reset min and max rebuild rate to factory defaults. For GridRAID, reset min and max reconstruction/rebalance rate to factory defaults
`-n NODESPEC |--node NODESPEC`	Look through passed hostnames elements. pdsh-style nodes hostnames
`-a |--all`	All nodes

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`raid speed rebalance` Subcommand

Introduced in Software Release: 2.1

The `raid speed rebalance` command is a second-level subcommand of the `raid` command. Use the subcommand to specify the speed in KB/s to rebalance data, parity, and spare space after GridRAID reconstruction for a one-drive failure. For RAID-6, this setting is ignored.

Synopsis

```
$ cscli raid speed rebalance [-h] [--set-min REBALANCE_MIN_RATE]
                             [--set-max REBALANCE_MAX_RATE] [--reset]
                             [-n NODESPEC | -a]
```

Positional Arguments	Description
`--set-min REBALANCE_MIN_RATE`	For GridRAID, use this min rate to rebalance data, parity, and spare space after reconstruction is completed for a single drive failure. For RAID-6, this parameter is ignored
`--set-max REBALANCE_MAX_RATE`	For GridRAID, use this max rate to rebalance data, parity, and spare space after reconstruction is completed for a single drive failure. For RAID-6, this parameter is ignored
`--reset`	Reset GridRAID min and mzx data rebalance rate to factory defaults
`-n NODESPEC |--node NODESPEC`	Look through passed node names. pdsh-style nodes hostnames
`-a |--all`	All nodes

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`remove_unit` Command

Introduced in Software Release: 2.x
Updated in Software Release: 4.1

Use the `remove_unit` command to remove unit(s) from the cluster.

Synopsis

```
# cscli remove_unit [-h] [-n NODES] [-p DUMP_PATH] [--partially-added]
```

Optional Arguments	Description	Release
`-n NODES |--node NODES`	Indicate pdsh-style nodes hostnames that should be removed	2.x+
`-p DUMP_PATH |--dump-path DUMP_PATH`	Path to file for dumping removed nodes information	2.x+
`--partially-added`	Remove partially-added enclosures	4.1+
`-h |--help`	Display the help message and exit	2.x+

`remove_unit --partially-added` Example

```
[root@cls12345 ~]# mysql test_t0db -e 'select enclosure_id, hostname from node WHERE failover_partner_info is NULL \
AND enclosure_id is not NULL AND link_grp like "%add%" ';
-----------------------+
enclosure_id hostname
-----------------------+
        38 cls01041n74
-----------------------+
[root@cls12345 ~]# cscli remove_unit --partially-added
Are you sure to remove the partial added enclosure?[yes/no]yes
remove_unit: Partially added enclosures removed successfully
remove_unit: Updating puppet configuration...
remove_unit: Restarting nodes-monitor service...
remove_unit: Done
[root@cls12345 ~]# mysql test_t0db -e 'select enclosure_id, hostname from node WHERE failover_partner_info is NULL AND enclosure_id is not NULL AND link_grp like "%add
[root@cls12345 ~]#
```

`reset_network_setup` Command

Introduced in Software Release: 2.x

Use `reset_network_setup` command to reset the Lustre network parameters by removing old values from the database and replacing them with default values.

> **IMPORTANT:** Exercise caution before using the `-y` or `|--yes` parameter.

Synopsis

```
$ cscli reset_network_setup [-h] [-y] [-c cluster_name]
```

Optional Arguments	Description
`-y |--yes`	Confirm the action to reset the network parameters
`-c cluster_name|--cluster cluster_name`	Specify the cluster name
`-h |--help`	Display the help message and exit

`restore_mgmt` Command

Introduced in Software Release: 2.x

Use the `restore_mgmt` command to enable MGMT node recovery. When enabled, the MGMT node that boots is restored from the latest good backed-up nodes. This command is used to format and copy data to the internal drives on the MGMT nodes.

When run on MGMT0 node with the `enable` parameter, it copies data from the MGMT node backup image (which is created using a nightly cron job) to the internal drive on the MGMT1 node. When run with the `enable` command on the MGMT1 node, it will do likewise on the MGMT0 internal drive.

The `disable` command switches from recovery mode to normal boot mode. It is automatically invoked once the enable is finished and under most circumstances should not be manually invoked.

If run without either `enable` or `disable`, the command will print its help information.

Synopsis

```
$ cscli restore_mgmt [-h] [-s] [--enable | --disable]
```

Optional Arguments	Description	Release
`-s |--show`	Display the MGMT recovery status	2.x+
`--enable`	Enable the MGMT recovery, boot MGMT normally	2.x+
`--disable`	Disable the MGMT recovery, boot MGMT normally	2.x+
`-h |--help`	Display the help message and exit	

`security` Command

Introduced in Software Release 3.1.0

The `security` command and its subcommands are used to configure Meltdown and Spectre security vulnerabilities on the cluster.

Synopsis

```
$ cscli security [-h] {spectre,drive} ...
```

Positional Arguments	Description	Release
`spectre`	Configure Meltdown and Spectre security vulnerabilities on cluster	3.1+
`drive`	Manage the key management server and drive security (See the `security drive` Subcommand topics for additional subcommands introduced in 3.2.)	3.0.0 SU-015

Optional Arguments	Description
`-h|--help`	Display the help message and exit

`security drive` Subcommand

Introduced in Software Release: 3.0.0 SU-017

The `security drive` command is a subcommand of the `security` command. Use the subcommand to manage the key management server and drive security.

Synopsis

```
# cscli security drive [-h] {key-mgmt-server,config} ...
```

Positional Arguments	Description
`key-mgmt-server`	Key management tool
`config`	Drive security tool

Optional Arguments	Description
`-h|--help`	Display the help message and exit

`security drive config` Subcommand

Introduced in Software Release 3.0.0 SU-017

The `security drive config` command is a subcommand of the `security drive` command. Use this subcommand to list and invoke drive-level data-at-rest operations and to list drive security configuration settings and modify those settings.

Synopsis

```
$ cscli security drive config [-h]{list,modify}
```

Positional Arguments	Description
`list`	Display information about data-at-rest security
`modify`	Change drive data-at-rest security settings

Optional Arguments	Description
`-h|--help`	Display the help message and exit

`security drive config list` Subcommand

Introduced in Software Release 3.0.0 SU-017

The `security drive config list` command is a subcommand of the `config` command. This subcommand shows data-at-rest security information for individual drives, nodes, or all drives in the system. Only one type of optional argument can be used in a command. If none of the optional arguments are specified, it will list the drives for the entire system.

Synopsis

```
$ cscli security drive config list [-h] [-wwn drivewwn [drivewwn ...] |
   -sl slot [slot ...] | -n nodeid [nodeid ...]]
```

Optional Arguments	Description
`-wwn drivewwn`	Specify the wwn of drives(s)
`-sl slot`	Specify the slot number of drives(s)
`-n nodeid`	Specify node(s) hostname(s)
`-h |--help`	Display the help message and exit

Usage

```
    # cscli security drive config list
[root@cls12345n001 ~]# cscli security drive config list
host                          serial_no        wwn                  sedStatus      fipsStatus
----                          ----             ---                  ---------      ----------
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c50076eb88c1   NotSED           notFIPS
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c500766ff0b1   NotSED           notFIPS
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c500769f65d9   NotSED           notFIPS
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c500769fc42d   NotSED           notFIPS
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c500762bb11d   NotSED           notFIPS
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c500720d3739   NotSED           notFIPS
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c500720d568d   NotSED           notFIPS
['cls12345n002', 'cls12345n003']    SHX0998231G4WPJ  0x5000c500762bbd81   NotSED           notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c5009954df16   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c500994d3752   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50099522142   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50099521a72   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50098c3c73a   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c5009954e2d2   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50098c6d042   Managed          notFIPS
```

```
# cscli security drive config list -wwn 0x5000c500994ddfba 0x5000c50098c6d042
host                          serial_no        wwn                  sedStatus      fipsStatus
----                          ----             ---                  ---------      ----------
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c500994ddfba   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50098c6d042.  Managed          notFIPS
```

```
# cscli security drive config list -n cls12345n004
host                          serial_no        wwn                  sedStatus      fipsStatus
----                          ----             ---                  ---------      ----------
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c5009954df16   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c500994d3752   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50099522142   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50099521a72   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50098c3c73a   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c5009954e2d2   Managed          notFIPS
['cls12345n004', 'cls12345n005']    SHX1004526Y0B2N  0x5000c50098c6d042   Managed          notFIPS
```

`security drive config modify` Subcommand

Introduced in Software Release 3.0.0 SU-017

The `security drive config modify` is a subcommand of the `config` command. This subcommand modifies the data-at-rest configuration by either rotating keys for all drives or unlocking individual drives, nodes, or all drives in the system. Only one (1) type of optional argument can be used with unlock. If none of the optional arguments are specified, it will operate on all the drives for the entire system. No optional arguments can be used with key-rotate.

Synopsis

```
$ cscli security drive config modify [-h] -s {key-rotate,unlock}
[-wwn DRIVEWWN [DRIVEWWN ...] | -sl SLOT [SLOT ...] | -n NODEID
[NODEID ...]]
```

Required Arguments	Description
`-s {key-rotate,unlock}| --security {key-rotate,unlock}`	Modify the data-at-rest security properties by either rotating the keys of all the drives or unlocking specified drives

Optional Arguments	Description
`-wwn DRIVEWWN`	Specify the wwn of drives(s)
`-sl SLOT`	Specify the slot number of drives(s)
`-n NODEID`	Specify node(s) hostname(s)
`-h|--help`	Display the help message and exit

Usage

```
# cscli security drive config modify -s unlock
Successfully unlocked the drives
```

```
# cscli security drive config modify -s unlock  -n cls12345
Successfully unlocked the drives
```

```
# cscli security drive config modify -s unlock
Successfully unlocked the drives
```

```
# cscli security drive config key-rotate
Successfully completed key-rotation of the drives
```

`security drive key-mgmt-server` Subcommand

Introduced in Software Release 3.0.0 SU-017

The `security drive key-mgmt-server` command is a subcommand of the `security drive` command. This subcommand configures the key management server for the ClusterStor storage users. It provides status, sets up the server, and modifies the server.

Synopsis

```
# cscli security drive key-mgmt-server [-h] {list,setup,modify,check-connection}...
```

Positional Arguments	Description
`list`	Display information about the system-wide key management configuration
`modify`	Modify key management specific configuration setting
`setup`	Setup and initialize the key management configuration
`check-connection`	Check key manager connectivity

Optional Arguments	Description
`-h|--help`	Display the help message and exit

`security drive key-mgmt-server check-connection` Subcommand

Introduced in Software Release: 3.0.0 SU-017

The `check-connection` is a subcommand of the `key-mgmt-server` command. The subcommand checks the key manager connectivity.

Synopsis

```
$ cscli security drive key-mgmt-server check-connection
```

Optional Arguments	Description
`-h|--help`	Display the help message and exit

Usage

```
# cscli security drive key-mgmt-server check-connection
Connection to key manager is Success!!!
```

`security drive key-mgmt-server list` Subcommand

Introduced in Software Release: 3.0.0 SU-017

The `security drive key-mgmt-server list` command is a subcommand of the `key-mgmt-server` command. The subcommand shows the current configuration of the key management server.

Synopsis

```
$ cscli security drive key-mgmt-server list [-h]
```

Optional Arguments	Description
`-h|--help`	Display the help message and exit

Usage

```
# cscli security drive key-mgmt-server list
  Server type   : ko
  Server URL    : fornetix.dev.cray.com
  Cluster       : cslmo43
  Fips          : on
  Recovery Erase : disable
```

```
# cscli security drive key-mgmt-server list
No key management server is currently configured.
```

`security drive key-mgmt-server modify` Subcommand

Introduced in Software Release: 3.0.0 SU-017

The `security drive key-mgmt-server modify` command is a subcommand of the `key-mgmt-server` command. The subcommand modifies the key management specific configuration setting.

Synopsis

```
$ cscli security drive key-mgmt-server modify [-h] [-s {off}]
```

Optional Arguments	Description
`-s {off}, --server {off}`	Turn off the key management server
`-h|--help`	Display the help message and exit

Usage

```
# cscli security drive key-mgmt-server modify -s off
   Before disabling, clearing the fips...
Unenrolling the devices. This can take several minutes...
Progress ################################################################################################## [107/107]complete
Server disabled successfully.
```

```
# cscli security drive key-mgmt-server modify -s off
security: Error: sedKeyType is already off.
```

`security drive key-mgmt-server setup` Subcommand

Introduced in Software Release: 3.0.0 SU-017

The `security drive key-mgmt-server setup` command is a subcommand of the `key-mgmt-server` command.

Synopsis

```
$ cscli security drive key-mgmt-server setup [-h] -s {ko} -u URL
```

Optional Arguments	Description
`-s {ko}, --server {ko}`	Set the key management server as `ko`
`-u URL, --url URL`	Set the url or IP address of the key management server
`-h|--help`	Display the help message and exit

Usage

```
# cscli security drive key-mgmt-server setup -s ko -u  fornetix.dev.cray.com
Starting bootstrap process...
Enter Key Management Server username: admin
Enter Key Management Server password:
Creating the property 'sedKeyServerType' and setting to 'ko'.
Creating the property 'sedKeyServerUrl' with value fornetix.dev.cray.com.
Updating Puppet...
keystore update system
KeyStore system attributes are now set to:
Server type   : ko
Server URL    : fornetix.dev.cray.com
Cluster       : cslmo43
Fips          : on
Recovery Erase : disable
Enrolling the devices. This can take several minutes...
 Progress ################################################################################################### [107/107]complete

Key manager setup is finished successfully...
```

```
# cscli security drive key-mgmt-server setup -s ko -u    fornetix.dev.cray.com
security: Error: Cannot setup server. Server ko already exists.
```

`security spectre` Subcommand

Introduced in Software Release: 3.1.0

The `security spectre` command is a subcommand of the `security` command. Use the subcommand to display the current Meltdown and Spectre configuration and to enable/disable Meltdown and Spectre mitigation on all nodes.

Synopsis

```
$ cscli security spectre [-h] [--show | --enable | --disable | --auto]
```

Optional Arguments	Description
`--show`	Display the current Meltdown and Spectre configuration
`--enable`	Enable Meltdown and Spectre mitigation on all nodes
`--disable`	Disable Meltdown and Spectre mitigation on all nodes
`--auto`	This is the default configuration. Enable Meltdown and Spectre mitigation on MGMT nodes and disable on OSS and MDS nodes
`-h |--help`	Display the help message and exit

Usage

Following is sample output when changing the Spectre and Meltdown option from the default value of auto to disable:

```
[root@cls12345n000 ~]# cscli security spectre --disable
security: Please wait while updating parameters...
security: Meltdown/Spectre mitigation Update: Success
```

Example output from the `security spectre show` command:

```
[root@cls12345n000 ~]# cscli security spectre --show
Meltdown/Spectre mitigation = disable
```

`service_console` Command

Introduced in Software Release: 2.1.0

The `service_console` command lets a site administrator manage the system service console and block or allow its use for a service technician.

The service console is an alternate system management interface that is limited to maintenance functions and is for use by authorized service personnel only. Even though it bypasses the normal administrative login, the service console cannot be used to access the root account, or to access data on the Lustre file system.

While it is not necessary to disable the service console for any system that is physically secure, administrators in high-security environments might prefer to disable it. In that case, they will need to re-enable the service console each and every time a service technician arrives on site to perform system maintenance, including replacement of failed disk drives and other parts.

Configuration consists of two main areas:

- Configuring the SMTP relay to allow the system to send emails to users and service emails

- Configuring user email addresses to allow service email to go to system users

Synopsis

```
$ cscli service_console [-h] {enable,disable,show,notifications,configure}
```

Subcommands	Description	Release
`enable`	Enable the service console	2.1.0
`disable`	Disable the service console	2.1.0
`show`	Show service console enabled status	2.1.0
`notifications`	View RAS notifications	2.1.0
`configure`	Configure RAS notifications	2.1.0

Optional Arguments	Description
`-h |--help`	Display the help message and exits

Usage Examples

Enable the service console

```
$ cscli service_console enable
Service Console enabled.
```

Disable the Service console

```
$ cscli service_console disable
Service Console disabled.
```

Show the status of the service console (enabled)

```
$ cscli service_console show
Service console enabled.
```

Show service console notifications (service events)

```
$ cscli service_console notifications show
Current outstanding service call events:
Item 1 : "Disk drive needs replacement"
Service Code: 002005001
Time the event was first detected: Wed, 17 Jun 2015 17:18:14 EDT
Details of failed component
    Disk Serial #: S0M122HN0000B40298QD
    Disk Model: ST600MM0006 Drive
    Manufacturer: SEAGATE
    Firmware version of drive at time of failure: XLGE T10
```

```
Location of failed component
    Rack Name: Rack1
    Enclosure Model: 2U24
    Enclosure Location: 36U
    Disk located in slot: 15
Item 2: "Power supply issue detected"
Enabled: Yes
Service Code: 002005003
Time the event was first detected: Wed, 02 Dec 2015 12:58:57 PST
Details of failed component
    Power supply chassis type: OneStor Power One 764W_AC_PCM (Original Silver DFM).
    Power supply part number: 0945768-10
    Power supply product version: 0314
    Power supply serial number: PMW0945768J1BDY
Location of failed component
    Rack Name: R1C1
    Enclosure Model: 2U24
    Enclosure Location: 24U
    Power supply located in bay: 1
```

Show service console configuration options.

```
$ cscli service_console configure
Commands:
    smtp        Configure SMTP settings
    snmp        Configure SNMP settings
    email       Configure email for sending RAS notifications
    system      Configure system settings
    rest_api    Configure REST API settings
```

`service_console configure` Subcommand

Introduced in Software Release: 2.1.0

The `service_console configure` command is a subcommand of the `service_console` command. Use this subcommand to configure Service Command help.

Synopsis

```
$ cscli service_console configure -h
```

Usage:

```
cscli service_console [options] configure [options]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Subcommands	Description	Release
`smtp`	Configures SMTP settings	2.1.0+
`snmp`	Configure SNMP settings	2.1.0+
`remote_support`	Configure remote support RAS notifications	2.1.0+
`email`	Configure e-mail for sending RAS notifications	2.1.0+
`system`	Configure system settings	2.1.0+
`rest_api`	Configure REST API settings	2.1.0+

`service_console configure email` Subcommand

Introduced in Software Release: 2.1.0

The `configure email` command is a second-level subcommand of the `service_console` command. Use this subcommand to configure email notifications, including enabling or disabling notification functionality, to add or delete email addresses to the user list, to show user list entries, and to send test email to determine if user notifications can be sent successfully.

Synopsis

```
$ cscli service_console configure email [-h] {show,add,delete,enable,diable,send_test_email}
```

Subcommands	Description	Release
`enable`	Enable email notifications	2.1.0+
`disable`	Disable email notifications	2.1.0+
`show`	Show all notification email addresses	2.1.0+
`add`	Add a notification email address. Also specify the email address to be added (required): `-A email_address |--address email_address`	2.1.0+
`delete`	Delete a notification email address. Also specify the email address to be added (required): `-A email_address |--address email_address`	2.1.0+
`send_test_email`	Send test email to all enabled services	2.1.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Examples:

Show email addresses configured to receive RAS notifications (no configured addresses).

```
$ cscli service_console configure email show
No email addresses are configured to receive service notifications.
```

Show email addresses configured to receive RAS notifications (several configured addresses)

```
$ cscli service_console configure email show
The following email addresses are configured to receive service notifications:
sam_jones@xyzcorp.com
amy_cooper@xyzcorp.com
```

Add an email address to the user list (success)

```
$ cscli service_console configure email add -A sam_jones@xyzcorp.com
Successfully added 'sam_jones@xyzcorp.com' to receive notification emails.
```

Add an email address to the user list (fails because it is currently associated with the user list)

```
$ cscli service_console configure email add -A sam_jones@xyzcorp.com
Unable to add: 'sam_jones@xyzcorp.com' is already configured for receiving notification emails.
```

Delete an email address from the user list (success)

```
$ cscli service_console configure email delete -A sam_jones@xyzcorp.com
Successfully removed 'sam_jones@xyzcorp.com' from receiving notification emails.
```

Delete an email address from the user list (fails because it is not associated with the user list).

```
$ cscli service_console configure email delete -A sam_jones@xyzcorp.com
Unable to delete: 'sam_jones@xyzcorp.com' is not configured for receiving notification emails.
```

Enable email notifications

```
$ cscli service_console configure email enable
```

```
OK.
```

Disable email notifications

```
$ cscli service_console configure email disable
OK.
```

`service_console configure email add` Subcommand

Introduced in Software Release: 2.1.0

The `configure email add` command is a third-level subcommand of the `service_console` command. Use this subcommand to add email addresses to the user list.

Synopsis

```
$ cscli service_console configure email add -h
```

Optional Arguments	Description
`-A	--address`	Email address (required)
`-h |--help`	Display the help message and exit

Examples

Add an email address to the user list (success)

```
$ cscli service_console configure email add -A sam_jones@xyzcorp.com
Successfully added 'sam_jones@xyzcorp.com' to receive notification emails.
```

Add an email address to the user list (fails because it is currently associated with the user list)

```
$ cscli service_console configure email add -A sam_jones@xyzcorp.com
Unable to add: 'sam_jones@xyzcorp.com' is already configured for receiving notification emails.
```

`service_console configure email delete` Subcommand

Introduced in Software Release: 2.1.0

The `configure email delete` command is a third-level subcommand of the `service_console` command. Use this subcommand to delete email addresses from the user list.

Synopsis

```
$ cscli service_console configure email delete -h
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit
`-A	--address`	Email address (required)

Usage

```
cscli service_console configure [options]
email [options] delete [options]
```

Examples

```
$ cscli service_console configure email delete -A junk@example.com
Successfully removed 'junk@example.com' from receiving notification emails.
```

```
$ cscli service_console configure email delete -A junk@example.com
Unable to delete: 'junk@example.com' is not configured for receiving notification emails.
```

`service_console configure remote_support` Subcommand

Introduced in Software Release: 2.1.0

The `service_console configure remote_support` command is a second-level subcommand of the `service_console` command. Use the subcommand to configure remote support.

Synopsis

```
$ cscli service_console configure remote_support -h {enable,disable,show}
```

Subcommands	Description
`enable`	Enable remote support
`disable`	Disable remote support
`show`	Show current remote support status

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Examples

Disable remote support.

```
$ cscli service_console configure remote_support disable
Remote Support disabled.
```

Display remote support status.

```
$ cscli service_console configure remote_support show
Remote Support enabled.
```

Enable remote support.

```
$ cscli service_console configure remote_support enable
Remote Support enabled.
```

`service_console configure rest_api` Subcommand

Introduced in Software Release: 1.5.0

The `service_console configure rest_api` command is a second-level subcommand of the `service_console` command. Use the subcommand to configure REST API settings.

Synopsis

```
$ cscli service_console configure rest_api -h {enable,disable,show}
```

Subcommands	Description	Release
`enable`	Enable the REST API	1.5.0+
`disable`	Disable the REST API	1.5.0+
`show`	Show the current status of the REST API	1.5.0+
`user_add`	Add a user to the list of REST API authorized users	2.1.0+?
`user_delete`	Remove a user to the list of REST API authorized users	2.1.0+?

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`service_console configure smtp` Subcommand

Introduced in Software Release: 2.1.0

Updated in Software Release: 6.0

The `service_console configure smtp` command is a subcommand of the `service_console configure` command. Use this subcommand to configure SMTP.

Synopsis

```
$ cscli service_console configure smtp -h -H {relay,from,show}
```

Positional Arguments	Description	Release
`relay`	Configure SMTP relay for sending RAS notifications	
`from`	Configure SMTP from the email address for sending RAS notifications	6.0+
`show`	Display the current SMTP configuration	

Optional Arguments	Description	Release
`-H |--host`	Deprecated in 6.0. Specify the SMTP host (required).	2.1.0 - 6.0
`-h |--help`	Display the help message and exit	

`service_console configure smtp relay` Subcommand

Introduced in Software Release: 2.1.0
The `service_console configure smpt relay` command is a third-level subcommand of the `service_console` command. Use the subcommand to configure SMTP settings.

Synopsis

```
$ cscli service_console configure smtp relay [-h] -H smtp_host -P smtp_port
```

Subcommands	Description	Release
`-P smtp_port |--port smtp_port`	SMTP port [default: 25]	2.1.0+
`-H smtp_host |--host smtp_host`	SMTP host (required)	2.1.0+
`-h |--help`	Display the help message and exit	2.1.0+

Examples:

Configure the SMTP relay

```
$ cscli service_console configure smtp relay -H
mailrelayus.xyus.xyratex.com
OK.
```

Show the current SMTP configuration

```
$ cscli service_console configure smtp show
SMTP relay: mailrelayus.xyus.xyratex.com:25
```

`service_console configure snmp` Subcommand

Introduced in Software Release: 2.1.0

The `service_console configure snmp` command is a second-level subcommand of the `service_console` command. Use the subcommand to configure SNMP settings.

Synopsis

```
$ cscli service_console configure snmp -h {enable,disable,show}
```

Subcommands	Description
`enable`	Enable SNMP monitoring
`disable`	Disable SNMP monitoring
`show`	Show current SNMP setting

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`service_console configure system` Subcommand

Introduced in Software Release: 2.1.0

The `service_console configure system` command is a second-level subcommand of the `service_console` command. Use the subcommand to configure system settings.

Synopsis

```
$ cscli service_console configure system [-h] {identifier,show}
```

Subcommands	Description
`identifier`	Set the system identifier
`show`	Show the current system identifier (name)

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Examples

Show the current system identifier (name specified)

```
$ cscli service_console configure system show System settings:
System identifier name: snx-002
```

Show the current system identifier (no name set)

```
$ cscli service_console configure system show
```

`service_console configure system identifier` Subcommand

Introduced in Software Release: 2.1.0

The `service_console configure system identifier` command is a subcommand of the `service_console` command. Use the subcommand to set the system identifier name.

Synopsis

```
$ cscli service_console configure system identifier -h -n id_name
```

Optional Arguments	Description
`-n id_name` |`--name=id_name`	Name (required)
`-h` |`--help`	Display the help message and exit

Example

Set the system identifier

```
$ cscli service_console configure system identifier —name=snx-002
System identifier name has been set to: snx-002
```

`service_console notifications` Subcommand

Introduced in Software Release: 2.1.0

The `service_console notifications` command is a subcommand of the `service_console` command. Use the subcommand to view notifications.

Synopsis

```
$ cscli service_console notifications -h {show}
```

Subcommand	Description	Release
`show`	Show outstanding notifications	2.1.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`set_admin_passwd` Command

Introduced in Software Release: 1.x?

Use the `set_admin_passwd` command to change and set an administrator password.

Synopsis

```
$ cscli set_admin_passwd [-h] [-p password]
```

Arguments	Description
`-p |--password`	Specify the new administrator password string
`-h |--help`	Display the help message and exit

`set_date` Command

Introduced in Software Release: 1.2x

Use the `set_date` command to manage the date on the storage system.

> **IMPORTANT:** Exercise caution before using the `--force-ntp` parameter.

Synopsis

```
$ cscli set_date [-h] [-s new_date] [--override-ntp] [--force-ntp]
```

Optional Arguments	Description	Release
`-s new_date` |`--set new_date`	Specify the new date in *MMDDhhmmCCYY.ss* format	1.x+
`--override-ntp`	Override external ntp server and set new date	3.0.0+
`--force-ntp`	Deprecated in 3.0.0. Forces NTP configuration.	1.x - 3.0.0
`-h` |`--help`	Display the help message and exit	

`set_network` Command

Introduced in Software Release: 2.1

Updated in Software Release: 3.0

Deprecated in Software Release: 3.1 (See the `lustre_network` Command topic for new command information.

Use the `set_network` command to specify new Lustre network parameters and add them to the database.

Synopsis

For release 2.1.0:

```
$ cscli set_network [-h] -k netmask -r ipranges [-d dns] [-t ntp] [-c cluster_name]
```

For release 3.0:

```
$ cscli set_network [-h] -k netmask [-d dns] [-t ntp]
```

Optional Arguments	Description	Release
`-k netmask |--netmask netmask`	Specify the network mask value of the IP address	2.x - 3.0
`-r ipranges |--range ipranges`	Specify the IP address range	2.1.0 only
`-d dns |--dns dns`	Specify the DNS server IP address (optional)	2.x - 3.0
`-t ntp |--ntp ntp`	Specify the NTP server's IP address (optional)	2.x - 3.0
`-c cluster_name |--cluster cluster_name`	Specify the cluster name	2.1.0 only
`-h |--help`	Display the help message and exit	

`set_node_version` Command

Introduced in Software Release: 2.1.0

Use the `set_node_version` command to change the image of diskless node(s). Use this command to boot a given set of diskless appliance nodes into the specified version of the appliance for a system upgrade. This command is available for the "admin" account only.

Synopsis

```
$ cscli set_node_version [-h] -n nodes -v version
```

Optional Arguments	Description	Release
`-v version |--version version`	Version of the image to use	2.1.0
`-n nodes |--node nodes`	Displays pdsh-style nodes hostnames	2.1.0
`-h |--help`	Display the help message and exit	2.1.0

`set_rack_position` Command

Introduced in Software Release: 2.x

Deprecated in Software Release: 3.0.0. (See the `rack_move` Command topic for new command information.)

Use the `set_rack_position` command to set the location of server nodes in the ClusterStor rack. It changes the position of one node in the rack (or moves the node to another rack).

> **IMPORTANT:** Exercise caution before using the `--force` parameter.

Synopsis

```
$ cscli set_rack_position [-h] (-y yaml_path | -r rack_name -n node_name -p position)
```

Optional Arguments	Description
`-y yaml path |--yaml yaml_path`	Load rack position information from YAML file format
`--force`	Create a new rack if not found
`-s |--skip`	Skip reboot and Puppet run at the end
`-r rack_name |--rack rack_name`	Specify the rack containing the node(s). This can be set manually.
`-n node_name |--node node_name`	Specify the host name of one node. This can be set manually.
`-p position |--position position`	Specify the node position in rack units. This can be set manually.
`-h |--help`	Display the help message and exit

`set_timezone` Command

Introduced in Software Release: 1.2x

Use the `set_timezone` command to manage the system's time zone setting.

Changing the time zone is optional. By default, the time zone is set to PDT (UTC/GMT -7). If necessary, the time zone setting can be changed. However, if after using the `cscli set_timezone` command on the system, it is not propagated completely to all components, a reboot is the safest way to ensure that all processes are using the same time zone. Thus, it is recommended to do a full system restart of the system after setting the time zone.

Synopsis

```
$ cscli set_timezone [-h] (-s new_timezone | -l | --show)
```

Optional Arguments	Description	Release
`-s new_timezone` `|--set new_timezone`	Specify the new time zone location name. For example, "America/Los_Angeles"	1.x+
`-l |--list`	List the available time zones	1.x+
`--show`	Show the current time zone	3.0.0+
`-h |--help`	Display the help message and exit	

`show_filters` Command

Introduced in Software Release: 2.x

The `show_filters` command shows all filters.

Synopsis

```
$  cscli show_filters [-h] [-P] [-C]
```

Optional Arguments	Description
`-C |--custom`	Display only custom filters
`-P |--predefined`	Display only predefined filters
`-h |--help`	Display the help message and exit

`show_network_setup` Command

Introduced in Software Release: 2.x

Use the `show_network_setup` command to display the Lustre network configuration. This command includes functions to show, set, apply, and reset Lustre network parameters. Users can also specify SSH TCP port settings.

Synopsis

```
$ cscli show_network_setup [-h] [-c cluster_name]
```

Optional Arguments	Description
`-c cluster_name |--cluster cluster_name`	Specify the cluster name
`-h |--help`	Display the help message and exit

`show_new_nodes` Command

Introduced in Software Release: 2.x

Use the `show_new_nodes` command to display a table of new OSS nodes and their resources.

Synopsis

```
$ cscli show_new_nodes [-h] [-v] |-c cluster_name |--cluster cluster_name
```

Optional Arguments	Description	Release
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility	2.x only
`-v |--verbose`	Specify the verbose mode	2.x+
`-h |--help`	Display the help message and exit	

`show_node_versions` Command

Introduced in Software Release: 2.x

Use the `show_node_versions` command to display the ClusterStor software version running on specified nodes.

Synopsis

```
$ cscli show_node_versions [-h] [-q] [-n node_spec] [-g genders_query]
```

Optional Arguments	Description
`-q |--query`	Control output format. If this flag is specified, nodes in the output should be in genders style. For example, `cls12345n[002-005,097-098]`
`-n node_spec, --nodes node_spec`	Specify nodes to indicate the ClusterStor software version
`-g genders_query`	Specify a gender's style query
`-h |--help`	Display the help message and exit

`show_nodes` Command

Introduced in Software Release: 2.x

Use the `show_nodes` command to display information about specified system nodes.

Synopsis

```
$ cscli show_nodes [-h] [-F filter_sid] [-r] |-c cluster_name |--cluster
cluster_name
```

Optional Arguments	Description	Release
`-F filter_sid |--filter filter_sid`	Specify the node filter	2.x+
`-r |--refresh`	Specify the refresh mode (press q for quit)	2.x+
`-c cluster_name|--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	Prior to 2.x?
`-h |--help`	Display the help message and exit	

`show_update_versions` Command

Introduced in Software Release: 2.x

Deprecated in Software Release: 6.0

Use the `show_update_versions` command to list software versions available in the ClusterStor Management (MGMT) Server repository.

Synopsis

```
$ cscli show_update_versions [-h]
```

Optional Arguments	Description
-h |--help	Display the help message and exit

`show_version_nodes` Command

Introduced in Software Release: 2.1

Deprecated in Software Release: 6.0

The `show_version_nodes` command is used to list all system nodes at the specified software version. It applies to daily mode.

Synopsis

```
$ cscli show_version_nodes [-h] [-q] -v sw_version
```

Optional Arguments	Description
`-q |--query`	Control the format of the command output. If this flag is specified, nodes in output should display in genders style. For example, `cls12345n[002-005,097-098]`.
`-v sw_version |--version sw_version`	Specify the ClusterStor software version
`-h |--help`	Display the help message and exit

sm Command

Introduced in Software Release: 1.2x

Deprecated in Software Release: 3.0 (See `lustre_network sm`.)

The `sm` command manages (enables, disables, or prioritizes) the InfiniBand Subnet Manager (SM) integrated with the storage system. The local SM ensures that InfiniBand is properly configured and enabled for use. In situations where the storage system is connected to a larger InfiniBand network that already uses a subnet manager, the local SM should be disabled. The `sm` command can also be used to modify subnet manager priorities.

Synopsis

```
$ cscli sm [-h] (-e | -d | -s) [-P priority] [-V max_op_vls]
                               [-c cluster_name]
```

Optional Arguments	Description	Release
`-e |--enable`	Enable the IB storage manager used with the system	1.2 - 2.x
`-d |--disable`	Disable the IB storage manager used with the system	1.2 - 2.x
`-s |--status`	Display subnet manager status	2.x - 3.0.0
`-P priority`	Set the *PRIORITY* [0..15] of the IB storage manager used with the system	1.2 - 2.x
`-V max_op_vls |--map_op_vls max_op_vls`	Set *MAX_OP_VLS* [1..255]	2.x
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility	1.x
`-h |--help`	Display the help message and exit	

`ssh_port` Command

Introduced in Software Release: 2.1.0
Use the `ssh_port` command to specify the SSH TCP port settings, while in Site Configuration mode.

Synopsis

```
$ cscli ssh_port [-h] [--yes] {status,apply,clear,set}
```

Positional Arguments	Description
`clear`	Disable SSH port redirection, return SSH to default port (22)
`set`	Assign new port to SSH, leave existing one as a backup
`status`	Show current SSH port status
`apply`	Stop listening to backup port

Optional Arguments	Description
`-h |--help`	Display the help message and exit

```
$ cscli ssh_port [-h] [--yes] {status,apply,clear,set}
```

`ssh_port set` Subcommand

Introduced in Software Release: 2.1.0

The `ssh_port set` command is a subcommand of the `ssh_port` command. Use the subcommand to assign new port to SSH, leave existing one as a backup.

Synopsis

```
$ cscli ssh_port set [-h] [-p 22022]
```

Optional Arguments	Description
`-p 22022 |--port 22022`	New SSH port to listen to
`-h |--help`	Display the help message and exit

`ssl` Command

Introduced in Software Release: 1.x

Use the `ssl` command and subcommands to manage the SSL certificate.

Synopsis

```
$ cscli ssl [-h] {install,show}
```

Positional Arguments	Description
`show`	Show currently-installed certificate
`install`	Install new SSL certificate

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`ssl install` Subcommand

Introduced in Software Release: 1.x

The `ssl install` command is a subcommand of the `ssl` command. Use the subcommand to view the currently-installed SSL certificate or to install a new SSL certificate.

Synopsis

```
$ cscli ssl install [-h] -f FILE
```

Optional Arguments	Description
`-f FILE` `|--cert-file FILE`	PEM file containing the new certificate and key
`-h |--help`	Display the help message and exit

`support_bundle` Command

Introduced in Software Release: 1.3.1 (updated in 3.0.0)

Use the `support_bundle` command and its subcommands to manage support bundles and support bundle settings. When a support bundle is collected, it contains extra information about RAID configuration and local Lustre users (if any are defined). Additional log files are available in the support bundle for MDRAID examine output and Lustre users/groups.

Synopsis

```
$ cscli support_bundle [-h] {collect,set,export,show,delete}
```

Positional Arguments	Description	Release
`collect`	Initiate (request) collection of the support bundle on specified set of nodes	1.3.1+
`show`	Support bundle show command	1.3.1+
`export`	Export support bundles as Tar.GZ archive (into the current folder)	1.3.1+
`set`	Support bundle set command	1.3.1+
`delete`	Delete support bundle	3.0.0+

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`support_bundle collect` Subcommand

Introduced in Software Release: 1.3.1

Updated in Software Release: 6.0

The `support_bundle collect` command is a subcommand of the `support_bundle` command. Use this subcommand to display help, pdsh-style node names, and the time window in minutes.

Synopsis

```
$ cscli support_bundle collect [-h] [-n nodes] [-t minutes]
                               [-D date_spec] [-T time_spec]
```

Optional Arguments	Description	Release
`-n nodes |--nodes nodes`	Display pdsh-style node names. The default is all nodes.	
`-t minutes |--time-window minutes`	Display the time window in minutes. The default is 45 minutes.	
`-D date_spec |--start-date date_spec`	Specify the date to start collecting the bundle in `[[[YY]YY-]MM-]DD` format. The default is today.	6.0+
`-T time_spec |--start-time time_spec`	Specify the time to start collecting the bundle in `HH:MM[:SS]` format. If a date is specified, the default is the start of that day. If no date is specified, the default is `now-WINDOW`.	6.0+
`-h |--help`	Display the help message and exit	

`support_bundle delete` Subcommand

Introduced in Software Release: 3.0.0

The `support_bundle delete` command is a subcommand of the `support_bundle` command. Use the subcommand to delete the support bundle identified by the bundle ID.

Synopsis

```
$ cscli support_bundle delete [-h] [--force] bundle_id
```

Positional Arguments	Description
`bundle_id`	ID number of the support bundle file, which can be obtained using the `cscli support_bundle show` command

Optional Arguments	Description
`--force`	Force deletion of support bundle in progress
`-h |--help`	Display the help message and exit

`support_bundle export` Subcommand

Introduced in Software Release: 1.3.1

The `support_bundle export` command is a subcommand of the `support_bundle` command. Use the subcommand to display help and the bundle ID.

Synopsis

```
$ cscli support_bundle export [-h] bundle_id
```

Optional Arguments	Description	Release
bundle_id	ID number of the support bundle file, which can be obtained using the `cscli support_bundle show` command	1.3.1+
`-h |--help`	Display the help message and exit	1.3.1+

`support_bundle show` Subcommand

Introduced in Software Release: 1.3.1

The `support_bundle show` command is a subcommand of the `support_bundle` command. Use the subcommand to display help, display triggers that initiate automatic bundle collection, display a list of support bundles collected, and/or display the purge limit.

Synopsis

```
$ cscli support_bundle show [-h] (--triggers | --bundles | --purge-limit)
```

Optional Arguments	Description	Release
`-t |--triggers`	Display triggers that initiate automatic bundle collection	1.3.1+
`-b |--bundles`	Display a list of support bundles collected	1.3.1+
`-p |--purge-limit`	Display the purge limit. Free file system space limit in percents; after reaching, system will purge old support bundle files.	1.3.1+
`-h |--help`	Display the help message and exit	1.3.1+

`support_bundle set` Subcommand

Introduced in Software Release: 1.3.1

The `support_bundle set` command is a subcommand of the `support_bundle` command. Use the subcommand to display help, display purge limit for the support bundle, and/or display the triggers that initiate automatic bundle collection.

Synopsis

```
$ cscli support_bundle set [-h]
(-p purge_limit | --trigger {lbug,Failover})
[--on | --enable | --off | --disable]
```

Optional Arguments	Description	Release

`-p purge_limit |--`
`purge-limit`
`purge_limit`
	Set the purge-limit in percentage for support bundles	1.3.1+

`-t |--trigger`
`{lbug,Failover},`
`{lbug,Failover}`
	Display triggers that initiate automatic bundle collection	1.3.1+

`--on`	Turn the command on	1.3.1+
`--enable`	Enable the command	1.3.1+
`--off`	Turn the command off	1.3.1+
`--disable`	Disable the command	1.3.1+
`-h |--help`	Display the help message and exit	1.3.1+

`syslog` Command

Introduced in Software Release: 1.x

Use the `syslog` command to display Lustre log entries.

Synopsis

```
$ cscli syslog [-h] [-m max] [-F] [-d duration] [-s start_time] [-e end_time] [-r]
```

Optional Arguments	Description
`-d duration |--` `duration=duration`	Specify duration (in seconds) to follow output. Only valid with `-F` argument
`-e end_time |--end_time` `end_time`	Specify the latest time messages should be received
`-F |--follow`	Poll for future messages. Only valid without `-e` , `-r` arguments
`-m max |--max=max`	Specify the maximum number of entries to return
`-r |--reverse`	Sort entries in descending order (by time)
`-s start_time |--` `start_time=start_time`	Specify the earliest time messages should be received
`-h |--help`	Display the help message and exit

`syslog_consumer` Command

Introduced in Software Release: 3.1.0

Use the `syslog_consumer` command and its subcommands to manage streaming of system logs to an external server.

Synopsis

```
$ cscli syslog_consumer [-h] {show,add,delete} ...
```

Positional Arguments	Description
show	Show external servers
add	Add a new external server
delete	Delete an external server

Optional Arguments	Description
-h |--help	Display the help message and exit

`syslog_consumer add` Subcommand

Introduced in Software Release: 3.1.0

Updated in Software Release: 6.0

The `syslog_consumer add` command is a subcommand of the `syslog_consumer` command. Use the subcommand to specify a new external server to which system logs will be streamed.

Synopsis

```
$ cscli syslog_consumer add [-h] --host host --port port
                            --proto {udp,tcp} --format {ietf,bsd}
                            [--timezone timezone]
```

Optional Arguments	Description	Release
`--host host`	Specify the host name or IP for destination syslog server	
`--port port`	Specify the port for destination syslog server	
`-proto {udp,tcp}`	Specify the protocol for forwarding logs	
`--format {ietf,bsd}`	Specify the message format for syslog messages	
`--timezone timezone`	Specify the required timezone	6.0+
`-h |--help`	Display the help message and exit	

Usage

```
[root@cls12345n000 ~]# cscli syslog_consumer add --host 10.76.54.47 --port 12345 --proto udp --format bsd
syslog_consumer: Registering new consumer of Syslog.
syslog_consumer: consumer udp://10.76.54.47:514/bsd is now registered.
```

`syslog_consumer delete` Subcommand

Introduced in Software Release: 3.1.0

The `syslog_consumer delete` command is a subcommand of the `syslog_consumer` command. Use the subcommand to stop streaming system logs to the specified external server.

Synopsis

```
$ cscli syslog_consumer delete --name SERVER_NAME
```

Optional Arguments	Description
`--name SERVER_NAME`	Name of the external server, as displayed when running the `syslog_consumer show` command
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli syslog_consumer show
--------------------------------
 Consumer
--------------------------------
 udp://172.16.0.1:514/bsd
 udp://cslmo12-oem.com:514/bsd
 udp://10.76.54.47:12345/bsd
--------------------------------

[root@cls12345n000 ~]# cscli syslog_consumer delete --name udp://172.16.0.1:514/bsd
syslog_consumer: Removing consumer of Syslog
syslog_consumer: consumer udp://172.16.0.1:514/bsd is removed.
```

`syslog_consumer show` Subcommand

Introduced in Software Release: 3.1.0

The `syslog_consumer show` command is a subcommand of the `syslog_consumer` command. Use the subcommand to display information about the external server to which system logs are streamed.

Synopsis

```
$ cscli syslog_consumer show [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

```
[root@cls12345n000 ~]# cscli syslog_consumer show
--------------------------------
 Consumer
--------------------------------
 udp://172.16.0.1:514/bsd
 udp://cslmo12-oem.com:514/bsd
 udp://10.76.54.47:12345/bsd
--------------------------------
```

`trim` Command

Introduced in Software Release: 6.0

> **NOTE:** The `trim` command only applies to Cray ClusterStor E1000 storage systems. This command cannot be used on Cray ClusterStor L300/L300N storage systems.

Use the `trim` command to manage ClusterStor discard settings.

Synopsis

```
$ cscli trim [-h] {show,startup,periodic,sync,manual} ...
```

Positional Arguments	Description
`show`	Display trim settings
`startup`	Configure a trim upon file system mount
`periodic`	Configure a periodic trim
`sync`	Configure a synchronous file system trim
`manual`	Configure a manual trim

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`trim manual` Subcommand

Introduced in Software Release: 6.0

The `trim manual` command is a subcommand of the `trim` command. Use the subcommand to configure a manual trim.

Synopsis

```
$ cscli trim manual [-h] {start,stop} ...
```

Optional Arguments	Description
`start`	Start a manual trim on the specified nodes
`stop`	Stop an in-progress manual trim on the specified nodes
`-h |--help`	Display the help message and exit

Usage

Start `trim manual` on a given node:

```
[root@cls12345n000 ~]# cscli trim manual start -n cls12345n000
trim: Manual trim starting on cls12345n000...
```

Stop `trim manual` on a given node:

```
[root@cls12345n000 ~]# cscli trim manual stop -n cls12345n000
trim: Manual trim stopping on cls12345n000...
```

`trim periodic` Subcommand

Introduced in Software Release: 6.0

The `trim periodic` command is a subcommand of the `trim` command. Use the subcommand to configure a periodic trim. By default, a periodic trim is schedule to run every Monday at midnight.

Synopsis

```
$ cscli trim periodic [-h] [--enable] [--disable] [--set-calendar systemd-style-calendar-spec] (-n nodespec | -a)
```

Optional Arguments	Description
`--enable`	Enable trim on specified nodes upon file system mount
`--disable`	Disable trim on specified nodes upon file system mount
`--set-calendar` `systemd_style_calendar_spec`	Specify when to run a periodic trim in a `systemd` time and date format. The default is `Mon *-*-* 00:00:00` or weekly.
`-n nodespec`	Look through specific passed node names. pdsh-style nodes hostnames
`-a |--all`	Look through all passed node names. pdsh-style nodes hostnames
`-h |--help`	Display the help message and exit

Usage

Enable `trim periodic` on a given node at a specific frequency:

```
[root@cls12345n000 ~]# cscli trim periodic --enable -n cls12345n004 --set-calendar weekly
trim: Periodic trim settings is applied on cls12345n004
[root@cls12345n000 ~]# cscli trim show -n cls12345n004
-------------------------------------------------------
hostname        name                   value
-------------------------------------------------------
cls12345n004    startup_trim           0
cls12345n004    periodic_trim          1
cls12345n004    periodic_trim_frequency  weekly
cls12345n004    synchronous_trim       0
-------------------------------------------------------
```

Disable `trim periodic` on a given node:

```
[root@cls12345n000 ~]# cscli trim periodic --disable -n cls12345n004
trim: Periodic trim settings is applied on cls12345n004
[root@cls12345n000 ~]# cscli trim show -n cls12345n004
-------------------------------------------------------
hostname        name                   value
-------------------------------------------------------
cls12345n004    startup_trim           0
cls12345n004    periodic_trim          0
cls12345n004    periodic_trim_frequency  weekly
cls12345n004    synchronous_trim       0
-------------------------------------------------------
```

`trim show` Subcommand

Introduced in Software Release: 6.0

The `trim show` command is a subcommand of the `trim` command. Use the subcommand to display trim settings.

Synopsis

```
$ cscli trim show [-h] (-n nodespec | -a)
```

Positional Arguments	Description
`-n nodespec`	Look through specific passed node names. pdsh-style nodes hostnames
`-a |--all`	Look through all passed node names. pdsh-style nodes hostnames

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`trim startup` Subcommand

Introduced in Software Release: 6.0

The `trim startup` command is a subcommand of the `trim` command. Use the subcommand to configure a trim upon file system mount.

Synopsis

```
$ cscli trim startup [-h] (--enable | --disable) (-n nodespec | -a)
```

Optional Arguments	Description
`--enable`	Enable trim on specified nodes upon file system mount
`--disable`	Disable trim on specified nodes upon file system mount
`-n nodespec`	Look through specific passed node names. pdsh-style nodes hostnames
`-a |--all`	Look through all passed node names. pdsh-style nodes hostnames
`-h |--help`	Display the help message and exit

Usage

Enable `trim startup` on given nodes:

```
[root@cls12345n000 ~]# cscli trim startup --enable -n cls12345[n000-n001]
trim: Startup trim is enabled on cls12345n000,cls12345n001
```

Disable `trim startup` on given nodes:

```
[root@cls12345n000 ~]# cscli trim startup --disable -n cls12345[n000-n001]
trim: Startup trim is disabled on cls12345n000,cls12345n001
```

`trim sync` Subcommand

Introduced in Software Release: 6.0

The `trim sync` command is a subcommand of the `trim` command. Use the subcommand to configure a synchronous file system trim.

Synopsis

```
$ cscli trim sync [-h] (--enable | --disable) (-n nodespec | -a)
```

Optional Arguments	Description
`--enable`	Enable trim on specified nodes upon file system mount
`--disable`	Disable trim on specified nodes upon file system mount
`-n nodespec`	Look through specific passed node names. pdsh-style nodes hostnames
`-a |--all`	Look through all passed node names. pdsh-style nodes hostnames
`-h |--help`	Display the help message and exit

Usage

Enable `trim sync` on a given node:

```
[root@cls12345n000 ~]# cscli trim sync --enable -n cls12345n000
trim: Disclaimer: Filesystem is mounted. Changes will take effect with next filesystem mount.
trim: Synchronous trim is enabled on cls12345n000
[root@cls12345n000 ~]# cscli trim show -n cls12345n000
['cls12345n000']
-------------------------------------------------------
hostname        name                    value
-------------------------------------------------------
cls12345n000    startup_trim            0
cls12345n000    periodic_trim           1
cls12345n000    periodic_trim_frequency None
cls12345n000    synchronous_trim        1
-------------------------------------------------------
```

Disable `trim sync` on a given node:

```
[root@cls12345n000 ~]# cscli trim sync --disable -n cls12345n000
trim: Disclaimer: Filesystem is mounted. Changes will take effect with next filesystem mount.
trim: Synchronous trim is disabled on cls12345n000
[root@cls12345n000 ~]# cscli trim show -n cls12345n000
['cls12345n000']
-------------------------------------------------------
hostname        name                    value
-------------------------------------------------------
cls12345n000    startup_trim            0
cls12345n000    periodic_trim           1
cls12345n000    periodic_trim_frequency None
cls12345n000    synchronous_trim        0
-------------------------------------------------------
```

`unmount` Command

Introduced in Software Release: 1.2.x

Updated in Software Release: 6.0

The `unmount` command controls file system access to the Lustre targets (MDS, MGS, and OSSs). It disables file system access to the node.

- If one or more nodes are specified, then the unmount action is only performed on the selected nodes in the file system.

- If no server nodes are specified, then the unmount action is performed on all server nodes in the file system.

Synopsis

```
$ cscli unmount [-h] [-f fs_name] [-n node_spec] [-c cluster_name]
                [--nowait] [--verbose] [--evict] [--force]
```

> **IMPORTANT:** The `--force` parameter is the force mode to evict Lustre clients.
>
> Exercise caution before using the `--force` parameter.

Optional Arguments	Description	Release
`-f fs_name |--fs-name fs_name`	Specify the name of the file system	
`-n node_spec |--nodes node_spec`	Specify the node(s) on which the unmount action is performed. Node hostnames should be passed in pdsh style. MGMT and MGS nodes are an exception.	
`-c cluster_name |--cluster cluster_name`	This parameter is deprecated. It is supported only for backward compatibility.	1.x only?
`--nowait`	Turn off crmwait during Lustre operation	3.0.0+
`--verbose`	Display more detailed command output or failure messages	3.0.0+
`--evict`	Evict clients before they unmount	
`--force`	The force mode to evict Lustre clients	
`-h |--help`	Display the help message and exit	

`update_node` Command

Introduced in Software Release: 2.1.0

Deprecated in Software Release: 6.0

Use the `update_node` command to update software on the specified node(s).

Synopsis

```
$ cscli update_node [-h] -n node_spec
```

Optional Arguments	Description
`-n node_spec` `|--node-spec node_spec`	Specify host names of the nodes on which to update software
`-h |--help`	Display the help message and exit

`zfs` Command

Introduced in Software Release: 6.0

> **NOTE:** The `zfs` command only applies to Cray ClusterStor E1000 storage systems. This command cannot be used on Cray ClusterStor L300/L300N storage systems.

Use the `zfs` command to manage ZFS.

Synopsis

```
$ cscli zfs [-h] {compression,list,rebuild,resilver,scrub,status,trim} ...
```

Positional Arguments	Description
`compression`	Configure ZFS compression on datasets
`list`	List the available nodes, pools, and pool types
`rebuild`	Configure ZFS rebuild parameters
`resilver`	Configure ZFS resilver parameters
`scrub`	Start, abort, pause, resume, and schedule zpool scrub
`status`	Display the zpool status
`trim`	Start, suspend, and cancel zpool trim

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs compression` Subcommand

Introduced in Software Release: 6.0

The `zfs compression` command is a subcommand of the `zfs` command. Use the subcommand to display and set ZFS compression on datasets.

Synopsis

```
$ cscli zfs compression [-h] {show,set} ...
```

Positional Arguments	Description
`show`	Display the compression value
`set`	Set the compression value

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs compression set` Subcommand

Introduced in Software Release: 6.0

The `zfs compression set` command is a subcommand of the `zfs compression` command. Use the subcommand to set the value for ZFS compression.

Synopsis

```
$ cscli zfs compression set [-h] (-g gender | -n node) [-p pools [pools ...]] -v value
```

Optional Arguments	Description
`-g gender |--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node |--node node`	Specify the node name
`-p pools [pools ...]` `|--pool pools [pools ...]`	Specify the pool name. For example, `[-p pool-oss0]` or `[-p pool-oss0 pool-oss1]` (if you have multiple pools).
`-v value`	Set the value for compression to `on`, `off`, or `lz4`
`-h |--help`	Display the help message and exit

Usage

Set the ZFS compression value for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs compression set -g mds -v on
Successfully set compression value='on' on the following nodes/pools:
cls12345n002: pool-mds65
cls12345n003: pool-mds66
```

Set the ZFS compression value for the given gender and pool:

```
[admin@cls12345n000 ~]$ cscli zfs compression set -g mds -p pool-mds65 -v lz4
Successfully set compression value='lz4' on the following nodes/pools:
cls12345n002: pool-mds65
```

Set the ZFS compression value for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs compression set -n cls12345n006 -v on
Successfully set compression value='on' on the following nodes/pools:
cls12345n006: pool-oss0
```

Set the ZFS compression value for the given node and pool:

```
[admin@cls12345n000 ~]$ cscli zfs compression set -n cls12345n007 -p pool-oss1 -v lz4
Successfully set compression value='lz4' on the following nodes/pools:
cls12345n007: pool-oss1
```

`zfs compression show` Subcommand

Introduced in Software Release: 6.0

The `zfs compression show` command is a subcommand of the `zfs compression` command. Use the subcommand to display the value for ZFS compression.

Synopsis

```
$ cscli zfs compression show [-h] (-g gender | -n node) [-p pools [pools ...]]
```

Optional Arguments	Description
`-g gender` `|--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` `|--node node`	Specify the node name
`-p pools [pools ...]` `|--pool pools [pools ...]`	Specify the pool name. For example, `[-p pool-oss0]` or `[-p pool-oss0 pool-oss1]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

Display the ZFS compression value for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs compression show -g oss
------------------------------------------------------
NODE            NAME                PROPERTY        VALUE
------------------------------------------------------
cls12345n006   pool-oss0/ost0       compression     off
cls12345n007   pool-oss1/ost1       compression     off
------------------------------------------------------
```

Display the ZFS compression value for the given gender and pool:

```
[admin@cls12345n000 ~]$ cscli zfs compression show -g oss -p pool-oss0
------------------------------------------------------
NODE            NAME                PROPERTY        VALUE
------------------------------------------------------
cls12345n006   pool-oss0/ost0       compression     off
------------------------------------------------------
```

Display the ZFS compression value for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs compression show -n cls12345n002
------------------------------------------------------
NODE            NAME                PROPERTY        VALUE
------------------------------------------------------
cls12345n002   pool-mds65/mdt65     compression     off
------------------------------------------------------
```

Display the ZFS compression value for the given node and pool:

```
[admin@cls12345n000 ~]$ cscli zfs compression show -n cls12345n006 -p pool-oss0
------------------------------------------------------
NODE            NAME                PROPERTY        VALUE
------------------------------------------------------
cls12345n006   pool-oss0/ost0       compression     off
------------------------------------------------------
```

`zfs list` Subcommand

Introduced in Software Release: 6.0

The `zfs list` command is a subcommand of the `zfs` command. Use the subcommand to list the available nodes, pools, and pool types in nodes (OSS, MGS, MDS).

Synopsis

```
$ cscli zfs list [-h] [-g gender | -n node] [-p pool [pool ...]]
```

Optional Arguments	Description
`-g gender |--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node |--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

List ZFS pools across the system:

```
[admin@cls12345n000 ~]$ cscli zfs list
--------------------------------------------------------------------------------
 Node          Type     Pool Name    Dataset name      Used Capacity   Available Capacity
--------------------------------------------------------------------------------
 cls12345n002  disk     pool-mds65   pool-mds65/mdt65     64.7M            6.33T
 cls12345n003  disk     pool-mds66   pool-mds66/mdt66     59.3M            6.33T
 cls12345n004  disk     pool-oss0    pool-oss0/ost0       90.3M            113T
 cls12345n005  disk     pool-oss1    pool-oss1/ost1       1024K            113T
--------------------------------------------------------------------------------
```

List ZFS pools for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs list -g mds
--------------------------------------------------------------------------------
 Node          Type     Pool Name    Dataset name      Used Capacity   Available Capacity
--------------------------------------------------------------------------------
 cls12345n002  disk     pool-mds65   pool-mds65/mdt65     64.7M            6.33T
 cls12345n003  disk     pool-mds66   pool-mds66/mdt66     59.3M            6.33T
--------------------------------------------------------------------------------
```

List ZFS pools for the given gender and pool:

```
[admin@cls12345n000 ~]$ cscli zfs list -g oss -p pool-oss0
--------------------------------------------------------------------------------
 Node          Type     Pool Name   Dataset name    Used Capacity   Available Capacity
--------------------------------------------------------------------------------
 cls12345n000  disk     pool-oss0   pool-oss0/ost0     90.3M            113T
--------------------------------------------------------------------------------
```

List ZFS pools for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs list -n cls12345n002
--------------------------------------------------------------------------------
 Node          Type     Pool Name    Dataset name      Used Capacity   Available Capacity
--------------------------------------------------------------------------------
 cls12345n002  disk     pool-mds65   pool-mds65/mdt65     64.7M            6.33T
--------------------------------------------------------------------------------
```

List ZFS pools for the given node and pool:

```
[admin@cls12345n000 ~]$ cscli zfs list -n cls12345n003 -p pool-mds66
```

```
--------------------------------------------------------------------------------
 Node          Type      Pool Name   Dataset name      Used Capacity  Available Capacity
--------------------------------------------------------------------------------
 cls12345n003  disk      pool-mds66  pool-mds66/mdt66       59.3M            6.33T
--------------------------------------------------------------------------------
```

List ZFS pools for the given pool:

```
[admin@cls12345n000 ~]$ cscli zfs list -p pool-oss0
--------------------------------------------------------------------------------
 Node          Type      Pool Name   Dataset name     Used Capacity  Available Capacity
--------------------------------------------------------------------------------
 cls12345n006  disk      pool-oss0   pool-oss0/ost0        90.3M           113T
--------------------------------------------------------------------------------
```

`zfs rebuild` Subcommand

Introduced in Software Release: 6.0

The `zfs rebuild` command is a subcommand of the `zfs` command. Use the subcommand to display and set ZFS rebuild module parameters.

Synopsis

```
$ cscli zfs rebuild [-h] {zfs_vdev_rebuild_min_active,zfs_vdev_rebuild_max_active}
```

Positional Arguments	Description
`zfs_vdev_rebuild_min_active`	Display and set the value for `zfs_vdev_rebuild_min_active`
`zfs_vdev_rebuild_max_active`	Display and set the value for `zfs_vdev_rebuild_max_active`

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs rebuild zfs_vdev_rebuild_max_active` Subcommand

Introduced in Software Release: 6.0

The `zfs rebuild zfs_vdev_rebuild_max_active` command is a subcommand of the `zfs rebuild` command. Use the subcommand to display and set the value for the `zfs_vdev_rebuild_max_active` module parameter.

Synopsis

```
$ cscli zfs rebuild zfs_vdev_rebuild_max_active [-h] {get,set} ...
```

Positional Arguments	Description
`get`	Display the value for `zfs_vdev_rebuild_max_active`
`set`	Set the value for `zfs_vdev_rebuild_max_active`

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs rebuild zfs_vdev_rebuild_max_active get` Subcommand

Introduced in Software Release: 6.0

The `zfs rebuild zfs_vdev_rebuild_max_active get` command is a subcommand of the `zfs rebuild zfs_vdev_rebuild_max_active` command. Use the subcommand to display the value for the `zfs_vdev_rebuild_max_active` module parameter.

Synopsis

```
$ cscli zfs rebuild zfs_vdev_rebuild_max_active get [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

Display the `zfs rebuild zfs_vdev_rebuild_max_active` parameter value across the system:

```
[admin@cls12345n000 ~]$ cscli zfs rebuild zfs_vdev_rebuild_max_active get
zfs_vdev_rebuild_max_active 3
```

`zfs rebuild zfs_vdev_rebuild_max_active set` Subcommand

Introduced in Software Release: 6.0

The `zfs rebuild zfs_vdev_rebuild_max_active set` command is a subcommand of the `zfs rebuild zfs_vdev_rebuild_max_active` command. Use the subcommand to set the value for the `zfs_vdev_rebuild_max_active` module parameter.

Synopsis

```
$ cscli zfs rebuild zfs_vdev_rebuild_max_active set [-h] [-v value]
```

Optional Arguments	Description
`-v value |--value value`	Specify the positive integer value to be set. The default ZFS setting is 3.
`-h |--help`	Display the help message and exit

Usage

Set the `zfs rebuild zfs_vdev_rebuild_max_active` parameter value across the system:

```
[admin@cls12345n000 ~]$ cscli zfs rebuild zfs_vdev_rebuild_max_active set -v 5
are you sure you want to set on all the nodes?: [y/n]y
zfs: Applying changes to the system. This may take some time.
zfs: zfs_vdev_rebuild_max_active is set to 5 successfully.
```

`zfs rebuild zfs_vdev_rebuild_min_active` Subcommand

Introduced in Software Release: 6.0

The `zfs rebuild zfs_vdev_rebuild_min_active` command is a subcommand of the `zfs rebuild` command. Use the subcommand to display and set the value for the `zfs_vdev_rebuild_min_active` module parameter.

Synopsis

```
$ cscli zfs rebuild zfs_vdev_rebuild_min_active [-h] {get,set} ...
```

Positional Arguments	Description
`get`	Display the value for `zfs_vdev_rebuild_min_active`
`set`	Set the value for `zfs_vdev_rebuild_min_active`

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs rebuild zfs_vdev_rebuild_min_active get` Subcommand

Introduced in Software Release: 6.0

The `zfs rebuild zfs_vdev_rebuild_min_active get` command is a subcommand of the `zfs rebuild zfs_vdev_rebuild_min_active` command. Use the subcommand to display the value for the `zfs_vdev_rebuild_min_active` module parameter.

Synopsis

```
$ cscli zfs rebuild zfs_vdev_rebuild_min_active get [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

Display the `zfs rebuild zfs_vdev_rebuild_min_active` parameter value across the system:

```
[admin@cls12345n000 ~]$ cscli zfs rebuild zfs_vdev_rebuild_min_active get
zfs_vdev_rebuild_min_active 14
```

`zfs rebuild zfs_vdev_rebuild_min_active set` Subcommand

Introduced in Software Release: 6.0

The `zfs rebuild zfs_vdev_rebuild_min_active set` command is a subcommand of the `zfs rebuild zfs_vdev_rebuild_min_active` command. Use the subcommand to set the value for the `zfs_vdev_rebuild_min_active` module parameter.

Synopsis

```
$ cscli zfs rebuild zfs_vdev_rebuild_min_active set [-h] [-v value]
```

Optional Arguments	Description
`-v value |--value value`	Specify the positive integer value to be set. The default ZFS setting is 1.
`-h |--help`	Display the help message and exit

Usage

Set the `zfs rebuild zfs_vdev_rebuild_min_active` parameter value across the system:

```
[admin@cls12345n000 ~]$ cscli zfs rebuild zfs_vdev_rebuild_min_active set -v 16
are you sure you want to set on all the nodes?: [y/n]y
zfs: Applying changes to the system. This may take some time.
zfs: zfs_vdev_rebuild_min_active is set to 16 successfully.
```

`zfs resilver` Subcommand

Introduced in Software Release: 6.0

The `zfs resilver` command is a subcommand of the `zfs` command. Use the subcommand to display and set ZFS resilver module parameters.

Synopsis

```
$ cscli zfs resilver [-h] {zfs_resilver_min_time_ms} ...
```

Positional Arguments	Description
`zfs_resilver_min_time_ms`	Display and set the value for `zfs_resilver_min_time_ms`

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs resilver` Subcommand

`zfs resilver zfs_resilver_min_time_ms` Subcommand

Introduced in Software Release: 6.0

The `zfs resilver zfs_resilver_min_time_ms` command is a subcommand of the `zfs resilver` command. Use the subcommand to display and set the value for the `zfs_resilver_min_time_ms` module parameter.

Synopsis

```
$ cscli zfs resilver zfs_resilver_min_time_ms [-h] {get,set} ...
```

Positional Arguments	Description
`get`	Display the value for `zfs_resilver_min_time_ms`
`set`	Set the value for `zfs_resilver_min_time_ms`

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs resilver zfs_resilver_min_time_ms get` Subcommand

Introduced in Software Release: 6.0

The `zfs resilver zfs_resilver_min_time_ms get` command is a subcommand of the `zfs resilver zfs_resilver_min_time_ms` command. Use the subcommand to display the value for the `zfs_resilver_min_time_ms` module parameter.

Synopsis

```
$ cscli zfs resilver zfs_resilver_min_time_ms get [-h]
```

Optional Arguments	Description
`-h |--help`	Display the help message and exit

Usage

Display the `zfs resilver zfs_resilver_min_time_ms` parameter value across the system:

```
[admin@cls12345n000 ~]$ cscli zfs resilver zfs_resilver_min_time_ms get
zfs_resilver_min_time_ms 3000
```

`zfs resilver zfs_resilver_min_time_ms set` Subcommand

Introduced in Software Release: 6.0

The `zfs resilver zfs_resilver_min_time_ms set` command is a subcommand of the `zfs resilver zfs_resilver_min_time_ms` command. Use the subcommand to set the value for the `zfs_resilver_min_time_ms` module parameter.

Synopsis

```
$ cscli zfs resilver zfs_resilver_min_time_ms set [-h] [-v value]
```

Optional Arguments	Description
`-v value |--value value`	Specify the positive integer value to be set. Values are in ms. The default ZFS setting is 3000.
`-h |--help`	Display the help message and exit

Usage

Set the `zfs resilver zfs_resilver_min_time_ms` parameter value across the system:

```
[admin@cls12345n000 ~]$ cscli zfs resilver zfs_resilver_min_time_ms set -v 4000
are you sure you want to set on all the nodes?: [y/n]y
zfs: Applying changes to the system. This may take some time.
zfs: zfs_resilver_min_time_ms is set to 4000 successfully.
```

`zfs scrub` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub` command is a subcommand of the `zfs` command. Use the subcommand to start, abort, pause, resume, and schedule zpool scrub in nodes (OSS, MGS, MDS).

Synopsis

```
$ cscli zfs scrub [-h] {now,abort,pause,resume,schedule} ...
```

Positional Arguments	Description
`now`	Start zpool scrub
`abort`	Cancel zpool scrub
`pause`	Pause zpool scrub
`resume`	Resume zpool scrub
`schedule`	Enable, disable, or change the schedule of zpool scrub

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs scrub abort` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub abort` command is a subcommand of the `zfs scrub` command. Use the subcommand to cancel a running zpool scrub.

Synopsis

```
$ cscli zfs scrub abort [-h] -n node -p pools [pools ...]
```

Optional Arguments	Description
`-n node |--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

Cancel a running zpool scrub:

```
[admin@cls12345n000 ~]$ cscli zfs scrub abort -n cls12345n006 -p pool-oss0
zpool scrub aborting for pool: pool-oss0
Try 'cscli zfs status -d' to view detailed status'
```

Cancel zpool scrub that is not running:

```
[admin@cls12345n000 ~]$ cscli zfs scrub abort -n cls12345n006 -p pool-oss0
zfs: beZFS: exitcode=1
zfs: Error: cls12345n006: cannot cancel scrubbing pool-oss0: there is no active scrub
pdsh@cls12345n000: cls12345n006: ssh exited with exit code 1
```

`zfs scrub now` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub now` command is a subcommand of the `zfs scrub` command. Use the subcommand to start zpool scrub now.

Synopsis

```
$ cscli zfs scrub now [-h] -n node -p pools [pools ...]
```

Optional Arguments	Description
`-n node `|`--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h `|`--help`	Display the help message and exit

Usage

Start zpool scrub:

```
[admin@cls12345n000 ~]$ cscli zfs scrub now -n cls12345n006 -p pool-oss0
zpool scrub starting for pool: pool-oss0
Try 'cscli zfs status -d' to view detailed status'
```

Start zpool scrub that is already running:

```
[admin@cls12345n000 ~]$ cscli zfs scrub now -n cls12345n004 -p pool-oss0
zfs: beZFS: exitcode=1
zfs: Error: cls12345n004: cannot scrub pool-oss0: currently scrubbing; use 'zpool scrub -s' to cancel current scrub
pdsh@cls12345n000: cls12345n004: ssh exited with exit code 1
```

Start zpool scrub where pool is not present:

```
[admin@cls12345n000 ~]$ cscli zfs scrub now -n cls12345n004 -p pool-oss2
zfs: beZFS: exitcode=1
pool do not exists: pool-oss2
Try 'cscli zfs list' to see available pool/s
```

Start zpool scrub where one pool is present and the other one is not present:

```
[admin@cls12345n000 ~]$ cscli zfs scrub now -n cls12345n006 -p pool-oss0 pool-oss2
zfs: beZFS: exitcode=1
pool do not exists: pool-oss2
Try 'cscli zfs list' to see available pool/s
zpool scrub starting for pool: pool-oss0
Try 'cscli zfs status -d' to view detailed status'
```

`zfs scrub pause` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub pause` command is a subcommand of the `zfs scrub` command. Use the subcommand to pause a running zpool scrub.

Synopsis

```
$ cscli zfs scrub pause [-h] -n node -p pools [pools ...]
```

Optional Arguments	Description
`-n node |--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

Pause a running zpool scrub:

```
[admin@cls12345n000 ~]$ cscli zfs scrub pause -n cls12345n006 -p pool-oss0
zpool scrub pausing for pool: pool-oss0
Try 'cscli zfs status -d' to view detailed status'
```

Pause zpool scrub that is not running:

```
[admin@cls12345n000 ~]$ cscli zfs scrub pause -n cls12345n006 -p pool-oss0
zfs: beZFS: exitcode=1
zfs: Error: cls12345n006: cannot pause scrubbing pool-oss0: there is no active scrub
pdsh@cls12345n000: cls12345n006: ssh exited with exit code 1
```

`zfs scrub resume` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub resume` command is a subcommand of the `zfs scrub` command. Use the subcommand to resume a paused zpool scrub.

Synopsis

```
$ cscli zfs scrub resume [-h] -n node -p pool [pool ...]
```

Optional Arguments	Description
`-n node |--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

Resume a paused zpool scrub:

```
[admin@cls12345n000 ~]$ cscli zfs scrub resume -n cls12345n006 -p pool-oss0
zpool scrub resuming for pool: pool-oss0
Try 'cscli zfs status -d' to view detailed status'
```

Resume a running zpool scrub:

```
[admin@cls12345n000 ~]$ cscli zfs scrub resume -n cls12345n004 -p pool-oss0
zfs: beZFS: exitcode=1
zfs: Error: cls12345n004: cannot scrub pool-oss0: currently scrubbing; use 'zpool scrub -s' to cancel current scrub
pdsh@cls12345n000: cls12345n004: ssh exited with exit code 1
```

`zfs scrub schedule` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub schedule` command is a subcommand of the `zfs scrub` command. Use the subcommand to enable, disable, or change the schedule of zpool scrub.

Synopsis

```
$ cscli zfs scrub schedule [-h] {enable,disable,show} ...
```

Positional Arguments	Description
`enable`	Enable a scheduled zpool scrub
`disable`	Disable a scheduled zpool scrub
`show`	Display details of the zpool scrub schedule

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs scrub schedule disable` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub schedule disable` command is a subcommand of the `zfs scrub schedule` command. Use the subcommand to disable a scheduled zpool scrub.

Synopsis

```
$ cscli zfs scrub schedule disable [-h] [-g gender | -n node]
```

Optional Arguments	Description
`-g gender` `|--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` `|--node node`	Specify the node name
`-h` `|--help`	Display the help message and exit

Usage

Disable a scheduled zpool scrub on all available nodes:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule disable
zfs: Applying changes to the system. This may take some time.
ZFS scrub schedule disabled on following node/s: cls12345n002, cls12345n003, cls12345n004, cls12345n005, cls12345n006, cls12345n007
```

Disable a scheduled zpool scrub for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule disable -g mds
zfs: Applying changes to the system. This may take some time.
ZFS scrub schedule disabled on following node/s: cls12345n002, cls12345n003
```

Disable a scheduled zpool scrub for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule disable -n cls12345n004
zfs: Applying changes to the system. This may take some time.
ZFS scrub schedule disabled on following node/s: cls12345n004
```

`zfs scrub schedule enable` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub schedule enable` command is a subcommand of the `zfs scrub schedule` command. Use the subcommand to enable a scheduled zpool scrub. By default, a scheduled zpool scrub is enabled on the first day of every month at midnight.

Synopsis

```
$ cscli zfs scrub schedule enable [-h] [-g gender | -n node]
                                  [--set-calendar systemd-style-calendar-spec]
```

Optional Arguments	Description
`-g gender` |`--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` |`--node node`	Specify the node name
`--set-calendar systemd_style_calendar_spec`	Specify when to run zpool scrub in a `systemd` time and date format. The default is `*-*-01 00:00:00` or monthly.
`-h` |`--help`	Display the help message and exit

Usage

Enable a scheduled zpool scrub on all available nodes:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule enable
zfs: Applying changes to the system. This may take some time.
ZFS scrub schedule enabled on following node/s: cls12345n002, cls12345n003, cls12345n004, cls12345n005, cls12345n006, cls12345n007
```

Enable a scheduled zpool scrub on Wednesday at noon for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule enable -g mds --set-calendar 'Wed *-*-* 12:00:00'
zfs: Applying changes to the system. This may take some time.
ZFS scrub schedule enabled on following node/s: cls12345n002, cls12345n003
```

Enable a scheduled zpool scrub on Thursday at 8:00 a.m. for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule enable -n cls12345n005 --set-calendar 'Thu *-*-* 8:00:00'
ZFS scrub is already enabled on following node/s with frequency:
cls12345n005 - Monthly (Default)
zfs: Applying changes to the system. This may take some time.
ZFS scrub schedule enabled on following node/s: cls12345n005
```

`zfs scrub schedule show` Subcommand

Introduced in Software Release: 6.0

The `zfs scrub schedule show` command is a subcommand of the `zfs scrub schedule` command. Use the subcommand to display details of the zpool scrub schedule.

Synopsis

```
$ cscli zfs scrub schedule show [-h] [-g gender | -n node]
```

Optional Arguments	Description
`-g gender |--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node |--node node`	Specify the node name
`-h |--help`	Display the help message and exit

Usage

Display details of a scheduled zpool scrub across the system:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule show
-----------------------------------------------------------
 Node          Pool          Scrub schedule  Schedule frequency
-----------------------------------------------------------
 cls12345n002  pool-mds65    Enabled         Wed *-*-* 12:00:00
 cls12345n003  pool-mds66    Enabled         Wed *-*-* 12:00:00
 cls12345n004  pool-oss0     Enabled         Monthly (Default)
 cls12345n005  pool-oss1     Enabled         Thu *-*-* 8:00:00
 cls12345n006  pool-oss0     Enabled         Monthly (Default)
 cls12345n007  pool-oss1     Enabled         Monthly (Default)
-----------------------------------------------------------
```

Display details of a scheduled zpool scrub for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule show -g oss
-----------------------------------------------------------
 Node          Pool         Scrub schedule  Schedule frequency
-----------------------------------------------------------
 cls12345n004  pool-oss0    Enabled         Monthly (Default)
 cls12345n005  pool-oss1    Enabled         Thu *-*-* 8:00:00
 cls12345n006  pool-oss0    Enabled         Monthly (Default)
 cls12345n007  pool-oss1    Enabled         Monthly (Default)
-----------------------------------------------------------
```

Display details of a scheduled zpool scrub for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs scrub schedule show -n cls12345n005
-----------------------------------------------------------
 Node          Pool         Scrub schedule  Schedule frequency
-----------------------------------------------------------
 cls12345n005  pool-oss1    Enabled         Thu *-*-* 8:00:00
-----------------------------------------------------------
```

`zfs status` Subcommand

Introduced in Software Release: 6.0

The `zfs status` command is a subcommand of the `zfs` command. Use the subcommand to display the zpool status in nodes (OSS, MGS, MDS).

Synopsis

```
$ cscli zfs status [-h] [-g gender | -n node] [-p pool [pool ...]] [-d]
```

Optional Arguments	Description
`-g gender` |`--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` |`--node node`	Specify the node name
`-p pool [pool ...]` |`--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-d` |`--detail`	Display detailed zpool status
`-h` |`--help`	Display the help message and exit

Usage

Display the consolidated status of zpool across the system:

```
[admin@cls12345n000 ~]$ cscli zfs status
-------------------------------------------------------------------------------------------
Node          Type    Pool Name    Configuration      Status    Spare/s INUSE  Drive/s not ONLINE
-------------------------------------------------------------------------------------------
cls12345n002  disk    pool-mds65   draid2:9d:12c:1s   ONLINE          0              0
cls12345n003  disk    pool-mds66   draid2:9d:12c:1s   ONLINE          0              0
cls12345n004  disk    pool-oss0    draid2:11d:40c:2s  ONLINE          0              0
cls12345n005  disk    pool-oss1    draid2:11d:40c:2s  ONLINE          0              0


-------------------------------------------------------------------------------------------
```

Display the consolidated status of zpool for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs status -g mds
-------------------------------------------------------------------------------------------
Node          Type    Pool Name    Configuration      Status   Spare/s INUSE  Drive/s not ONLINE
-------------------------------------------------------------------------------------------
cls12345n002  disk    pool-mds65   draid2:9d:12c:1s   ONLINE         0              0
cls12345n003  disk    pool-mds66   draid2:9d:12c:1s   ONLINE         0              0
-------------------------------------------------------------------------------------------
```

Display the consolidated status of zpool for the given gender and pool:

```
[admin@cls12345n000 ~]$ cscli zfs status -g oss -p pool-oss0
-------------------------------------------------------------------------------------------
Node          Type    Pool Name   Configuration      Status   Spare/s INUSE  Drive/s not ONLINE
-------------------------------------------------------------------------------------------
cls12345n006  disk    pool-oss0   draid2:11d:40c:2s  ONLINE         0              0
-------------------------------------------------------------------------------------------
```

Display the consolidated status of zpool for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs status -n cls12345n003
-------------------------------------------------------------------------------------------
Node          Type    Pool Name   Configuration      Status   Spare/s INUSE  Drive/s not ONLINE
-------------------------------------------------------------------------------------------
cls12345n003  disk    pool-mds66  draid2:9d:12c:1s   ONLINE         0              0
-------------------------------------------------------------------------------------------
```

Display the consolidated status of zpool for the given node and pool:

```
[admin@cls12345n000 ~]$ cscli zfs status -n cls12345n006 -p pool-oss0
---------------------------------------------------------------------------------------------
 Node          Type     Pool Name  Configuration     Status  Spare/s INUSE  Drive/s not ONLINE
---------------------------------------------------------------------------------------------
 cls12345n006  disk     pool-oss0  draid2:11d:40c:2s ONLINE       0               0
---------------------------------------------------------------------------------------------
```

Display the consolidated status of zpool for the given pool:

```
[admin@cls12345n000 ~]$ cscli zfs status -p pool-oss0
---------------------------------------------------------------------------------------------
 Node          Type     Pool Name  Configuration     Status  Spare/s INUSE  Drive/s not ONLINE
---------------------------------------------------------------------------------------------
 cls12345n006  disk     pool-oss0  draid2:11d:40c:2s ONLINE       0               0
---------------------------------------------------------------------------------------------
```

Display the detailed status of zpool:

```
[admin@cls12345n000 ~]$ cscli zfs status -n cls12345n007 -d
---------------------------------
Node: cls12345n007 Pool: pool-oss1
---------------------------------
  pool: pool-oss1
 state: ONLINE
  scan: resilvered 84.2M in 00:00:01 with 0 errors on Wed Oct 13 10:15:19 2021
config:

        NAME                    STATE     READ WRITE CKSUM
        pool-oss1               ONLINE       0     0     0
          draid2:11d:40c:2s-0   ONLINE       0     0     0
            sdg1                ONLINE       0     0     0
            sdfb1               ONLINE       0     0     0
            sden1               ONLINE       0     0     0
            sdak1               ONLINE       0     0     0
            sdab1               ONLINE       0     0     0
            sdfa1               ONLINE       0     0     0
            sdem1               ONLINE       0     0     0
            sds1                ONLINE       0     0     0
            sdf1                ONLINE       0     0     0
            sddt1               ONLINE       0     0     0
            sdeb1               ONLINE       0     0     0
            sdr1                ONLINE       0     0     0
            sde1                ONLINE       0     0     0
            sdez1               ONLINE       0     0     0
            sdel1               ONLINE       0     0     0
            sdaj1               ONLINE       0     0     0
            sdai1               ONLINE       0     0     0
            sdey1               ONLINE       0     0     0
            sdek1               ONLINE       0     0     0
            sdq1                ONLINE       0     0     0
            sdd1                ONLINE       0     0     0
            sdea1               ONLINE       0     0     0
            sdef1               ONLINE       0     0     0
            sdp1                ONLINE       0     0     0
            sdc1                ONLINE       0     0     0
            sdex1               ONLINE       0     0     0
            sdej1               ONLINE       0     0     0
            sdan1               ONLINE       0     0     0
            sdal1               ONLINE       0     0     0
            sdew1               ONLINE       0     0     0
            sdei1               ONLINE       0     0     0
            sdo1                ONLINE       0     0     0
```

```
          sdb1              ONLINE      0      0      0
          sded1             ONLINE      0      0      0
          sdeg1             ONLINE      0      0      0
          sdn1              ONLINE      0      0      0
          sda1              ONLINE      0      0      0
          sdev1             ONLINE      0      0      0
          sdeh1             ONLINE      0      0      0
          sdao1             ONLINE      0      0      0
        spares
          draid2-0-0        AVAIL
          draid2-0-1        AVAIL

errors: No known data errors
```

`zfs trim` Subcommand

Introduced in Software Release: 6.0

The `zfs trim` command is a subcommand of the `zfs` command. Use the subcommand to start, suspend, cancel, and schedule zpool trim in nodes (OSS, MGS, MDS).

Synopsis

```
$ cscli zfs trim [-h] {list,start,progress,suspend,cancel,schedule} ...
```

Positional Arguments	Description
`list`	List nodes and pools where zpool trim can be run
`start`	Start zpool trim
`progress`	Display zpool trim progress
`suspend`	Suspend zpool trim
`cancel`	Cancel zpool trim
`schedule`	Schedule zpool trim

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs trim cancel` Subcommand

Introduced in Software Release: 6.0

The `zfs trim cancel` command is a subcommand of the `zfs trim` command. Use the subcommand to cancel a running or suspended zpool trim.

Synopsis

```
$ cscli zfs trim cancel [-h] [-g gender | -n node] [-p pool [pool ...]]
```

Optional Arguments	Description
`-g gender` `|--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` `|--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

Cancel a running zpool trim:

```
[admin@cls12345n000 ~]$ cscli zfs trim cancel -g oss
Trim cancelled on the following nodes:
cls12345n004: pool-oss0
cls12345n005: pool-oss1
cls12345n006: pool-oss0
cls12345n007: pool-oss1
```

Cancel zpool trim that is not running:

```
[admin@cls12345n000 ~]$ cscli zfs trim cancel -g oss
Trim not in progress on the following nodes:
cls12345n004: pool-oss0
cls12345n005: pool-oss1
cls12345n006: pool-oss0
cls12345n007: pool-oss1
```

`zfs trim list` Subcommand

Introduced in Software Release: 6.0

The `zfs trim list` command is a subcommand of the `zfs trim` command. Use the subcommand to list the nodes and pools where zpool trim can be run.

Synopsis

```
$ cscli zfs trim list [-h] [-g gender | -n node] [-p pool [pool ...]]
```

Optional Arguments	Description
`-g gender |--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node |--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

List zpool where zpool trim can be run across the system:

```
[admin@cls12345n000 ~]$ cscli zfs trim list
----------------------
 Node          Pool
----------------------
 cls12345n002  pool-mds65
 cls12345n003  pool-mds66
 cls12345n004  pool-oss0
 cls12345n005  pool-oss1
 cls12345n006  pool-oss0
 cls12345n007  pool-oss1
----------------------
```

List zpool where zpool trim can be run for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs trim list -g oss
----------------------
 Node          Pool
----------------------
 cls12345n004  pool-oss0
 cls12345n005  pool-oss1
 cls12345n006  pool-oss0
 cls12345n007  pool-oss1
----------------------
```

List zpool where zpool trim can be run for the given gender and pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim list -g oss -p pool-oss1
----------------------
 Node          Pool
----------------------
 cls12345n005  pool-oss1
 cls12345n007  pool-oss1
----------------------
```

List zpool where zpool trim can be run for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs trim list -n cls12345n006
----------------------
 Node          Pool
----------------------
```

```
 cls12345n006  pool-oss0
----------------------
```

List zpool where zpool trim can be run for the given node and pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim list -n cls12345n007 -p pool-oss1
----------------------
 Node          Pool
----------------------
 cls12345n007  pool-oss1
----------------------
```

List zpool where zpool trim can be run for the given pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim list -p pool-oss1
----------------------
 Node          Pool
----------------------
 cls12345n005  pool-oss1
 cls12345n007  pool-oss1
```

`zfs trim progress` Subcommand

Introduced in Software Release: 6.0

The `zfs trim progress` command is a subcommand of the `zfs trim` command. Use the subcommand to display the progress of zpool trim.

Synopsis

```
$ cscli zfs trim progress [-h] [-g gender | -n node] [-p pool [pool ...]] [-d]
```

Optional Arguments	Description
`-g gender |--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node |--node node`	Specify the node name
`-p pool [pool ...] |--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-d |--detail`	Display the detailed progress output
`-h |--help`	Display the help message and exit

Usage

Display the consolidated progress of zpool trim across the system:

```
[admin@cls12345n000 ~]$ cscli zfs trim progress
-------------------------------------------------------------------------------
Node           pool         Pool State  Trim State  Min %  Max %  Trim rate  Date/Time
-------------------------------------------------------------------------------
cls12345n002   pool-mds65   ONLINE      untrimmed    -      -      -          -
cls12345n003   pool-mds66   ONLINE      untrimmed    -      -      -          -
cls12345n004   pool-oss0    ONLINE      untrimmed    -      -      -          -
cls12345n005   pool-oss1    ONLINE      untrimmed    -      -      -          -
cls12345n006   pool-oss0    ONLINE      untrimmed    -      -      -          -
cls12345n007   pool-oss1    ONLINE      untrimmed    -      -      -          -
-------------------------------------------------------------------------------
```

Display the consolidated progress of zpool trim for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs trim progress -g oss
-------------------------------------------------------------------------------
Node           pool        Pool State  Trim State  Min %  Max %  Trim rate  Date/Time
-------------------------------------------------------------------------------
cls12345n004   pool-oss0   ONLINE      untrimmed    -      -      -          -
cls12345n005   pool-oss1   ONLINE      untrimmed    -      -      -          -
cls12345n006   pool-oss0   ONLINE      untrimmed    -      -      -          -
cls12345n007   pool-oss1   ONLINE      untrimmed    -      -      -          -
-------------------------------------------------------------------------------
```

Display the consolidated progress of zpool trim for the given gender and pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim progress -g oss -p pool-oss1
-------------------------------------------------------------------------------
Node           pool        Pool State  Trim State  Min %  Max %  Trim rate  Date/Time
-------------------------------------------------------------------------------
cls12345n005   pool-oss1   ONLINE      untrimmed    -      -      -          -
cls12345n007   pool-oss1   ONLINE      untrimmed    -      -      -          -
-------------------------------------------------------------------------------
```

Display the consolidated progress of zpool trim for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs trim progress -n cls12345n005
-------------------------------------------------------------------------------
Node           pool        Pool State  Trim State  Min %  Max %  Trim rate  Date/Time
-------------------------------------------------------------------------------
```

```
   cls12345n005  pool-oss1  ONLINE     untrimmed    -     -     -        -
 ----------------------------------------------------------------------------
```

Display the consolidated progress of zpool trim for the given node and pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim progress -n cls12345n004 -p pool-oss0
 ----------------------------------------------------------------------------
  Node         pool       Pool State  Trim State  Min %  Max %  Trim rate  Date/Time
 ----------------------------------------------------------------------------
  cls12345n004  pool-oss0  ONLINE     untrimmed    -     -     -        -
 ----------------------------------------------------------------------------
```

Display the consolidated progress of zpool trim for the given pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim progress -p pool-oss0 pool-oss1
 ----------------------------------------------------------------------------
  Node         pool       Pool State  Trim State  Min %  Max %  Trim rate  Date/Time
 ----------------------------------------------------------------------------
  cls12345n004  pool-oss0  ONLINE     untrimmed    -     -     -        -
  cls12345n005  pool-oss1  ONLINE     untrimmed    -     -     -        -
  cls12345n006  pool-oss0  ONLINE     untrimmed    -     -     -        -
  cls12345n007  pool-oss1  ONLINE     untrimmed    -     -     -        -
 ----------------------------------------------------------------------------
```

`zfs trim schedule` Subcommand

Introduced in Software Release: 6.0

The `zfs trim schedule` command is a subcommand of the `zfs trim` command. Use the subcommand to schedule zpool trim.

Synopsis

```
$ cscli zfs trim schedule [-h] {enable,disable,show} ...
```

Positional Arguments	Description
`enable`	Enable a scheduled zpool trim
`disable`	Disable a scheduled zpool trim
`show`	Display details of a scheduled zpool trim

Optional Arguments	Description
`-h |--help`	Display the help message and exit

`zfs trim schedule disable` Subcommand

Introduced in Software Release: 6.0

The `zfs trim schedule disable` command is a subcommand of the `zfs trim schedule` command. Use the subcommand to disable a scheduled zpool trim.

Synopsis

```
$ cscli zfs trim schedule disable [-h] [-g gender | -n node]
```

Optional Arguments	Description
`-g gender` |`--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` |`--node node`	Specify the node name
`-h` |`--help`	Display the help message and exit

Usage

Disable a scheduled zpool trim on all available nodes:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule disable
ZFS trim schedule is already disabled on following nodes: cls12345n004, cls12345n005, cls12345n006, cls12345n007
Disabling ZFS trim on: cls12345n002, cls12345n003
zfs: Applying changes to the system. This may take some time.
ZFS trim schedule disabled on following node/s: cls12345n002, cls12345n003
```

Disable a scheduled zpool trim for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule disable -g oss
ZFS trim schedule is already disabled on following nodes: cls12345n005
Disabling ZFS trim on: cls12345n004, cls12345n006, cls12345n007
zfs: Applying changes to the system. This may take some time.
ZFS trim schedule disabled on following node/s: cls12345n004, cls12345n006, cls12345n007
```

Disable a scheduled zpool trim for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule disable -n cls12345n005
zfs: Applying changes to the system. This may take some time.
ZFS trim schedule disabled on following node/s: cls12345n005
```

`zfs trim schedule enable` Subcommand

Introduced in Software Release: 6.0

The `zfs trim schedule enable` command is a subcommand of the `zfs trim schedule` command. Use the subcommand to enable a scheduled zpool trim. By default, a zpool trim is scheduled every Monday at midnight.

Synopsis

```
$ cscli zfs trim schedule enable [-h] [-g gender | -n node]
                                 [--set-calendar systemd_style_calendar_spec]
```

Optional Arguments	Description
`-g gender` |`--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` |`--node node`	Specify the node name
`--set-calendar systemd_style_calendar_spec`	Specify when to run zpool trim in a `systemd` time and date format. The default is `Mon *-*-* 00:00:00` or weekly.
`-h` |`--help`	Display the help message and exit

Usage

Enable a scheduled zpool trim on all available nodes:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule enable
zfs: Applying changes to the system. This may take some time.
ZFS trim schedule enabled on following node/s: cls12345n002, cls12345n003, cls12345n004, cls12345n005, cls12345n006, cls12345n007
```

Enable a scheduled zpool trim on Wednesday at noon for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule enable -g mds --set-calendar 'Wed *-*-* 12:00:00'
ZFS trim is already enabled on following node/s with frequency:
cls12345n002 - Mon 12:00am (Default)
cls12345n003 - Mon 12:00am (Default)
zfs: Applying changes to the system. This may take some time.
ZFS trim schedule enabled on following node/s: cls12345n002, cls12345n003
```

Enable a scheduled zpool trim on Friday at 8:00 a.m. for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule enable -n cls12345n007 --set-calendar 'Fri *-*-* 08:00:00'
ZFS trim is already enabled on following node/s with frequency:
cls12345n007 - Mon 12:00am (Default)
zfs: Applying changes to the system. This may take some time.
ZFS trim schedule enabled on following node/s: cls12345n007
```

`zfs trim schedule show` Subcommand

Introduced in Software Release: 6.0

The `zfs trim schedule show` command is a subcommand of the `zfs trim schedule` command. Use the subcommand to display details of a scheduled zpool trim.

Synopsis

```
$ cscli zfs trim schedule show [-h] [-g gender | -n node]
```

Optional Arguments	Description
`-g gender |--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node |--node node`	Specify the node name
`-h |--help`	Display the help message and exit

Usage

Display details of a scheduled zpool trim across the system:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule show
-----------------------------------------------------------
 Node          Pool         Trim schedule  Schedule frequency
-----------------------------------------------------------
 cls12345n002  pool-mds65   Enabled        Wed *-*-* 12:00:00
 cls12345n003  pool-mds66   Enabled        Wed *-*-* 12:00:00
 cls12345n004  pool-oss0    Enabled        Mon 12:00am (Default)
 cls12345n005  pool-oss1    Enabled        Mon 12:00am (Default)
 cls12345n006  pool-oss0    Enabled        Mon 12:00am (Default)
 cls12345n007  pool-oss1    Enabled        Fri *-*-* 08:00:00
-----------------------------------------------------------
```

Display details of a scheduled zpool trim for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule show -g oss
-----------------------------------------------------------
 Node          Pool        Trim schedule  Schedule frequency
-----------------------------------------------------------
 cls12345n004  pool-oss0   Enabled        Mon 12:00am (Default)
 cls12345n005  pool-oss1   Enabled        Mon 12:00am (Default)
 cls12345n006  pool-oss0   Enabled        Mon 12:00am (Default)
 cls12345n007  pool-oss1   Enabled        Fri *-*-* 08:00:00
-----------------------------------------------------------
```

Display details of a scheduled zpool trim for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs trim schedule show -n cls12345n004
-----------------------------------------------------------
 Node          Pool        Trim schedule  Schedule frequency
-----------------------------------------------------------
 cls12345n004  pool-oss0   Enabled        Mon 12:00am (Default)
-----------------------------------------------------------
```

`zfs trim start` Subcommand

Introduced in Software Release: 6.0

The `zfs trim start` command is a subcommand of the `zfs trim` command. Use the subcommand to start zpool trim.

Synopsis

```
$ cscli zfs trim start [-h] [-g gender | -n node] [-p pool [pool ...]] [-r rate]
```

Optional Arguments	Description
`-g gender` `|--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` `|--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-r rate` `|--rate rate`	Set trim rate for zpool trim
`-h` `|--help`	Display the help message and exit

Usage

Start zpool trim across the system:

```
[admin@cls12345n000 ~]$ cscli zfs trim start
Trim started on the following nodes:
cls12345n002: pool-mds65
cls12345n003: pool-mds66
cls12345n004: pool-oss0
cls12345n005: pool-oss1
cls12345n006: pool-oss0
cls12345n007: pool-oss1
Try 'cscli zfs trim progress' to check the trim progress
```

Start zpool trim for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs trim start -g mds
Trim started on the following nodes:
cls12345n002: pool-mds65
cls12345n003: pool-mds66
Try 'cscli zfs trim progress' to check the trim progress
```

Start zpool trim for the given gender and pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim start -g oss -p pool-oss0
Trim started on the following nodes:
cls12345n004: pool-oss0
cls12345n006: pool-oss0
Try 'cscli zfs trim progress' to check the trim progress
```

Start zpool trim for the given node:

```
[admin@cls12345n000 ~]$ cscli zfs trim start -n cls12345n005
Trim started on the following nodes:
cls12345n005: pool-oss1
Try 'cscli zfs trim progress' to check the trim progress
```

Start zpool trim for the given node and pool:

```
[admin@cls12345n000 ~]$ cscli zfs trim start -n cls12345n007 -p pool-oss1
Trim started on the following nodes:
cls12345n007: pool-oss1
Try 'cscli zfs trim progress' to check the trim progress
```

Start zpool trim for the given pool:

```
[admin@cls12345n000 ~]# cscli zfs trim start -p pool-oss0
Trim started on the following nodes:
cls12345n004: pool-oss0
cls12345n006: pool-oss0
Try 'cscli zfs trim progress' to check the trim progress
```

Start zpool trim with rate for the given gender:

```
[admin@cls12345n000 ~]$ cscli zfs trim start -g mds -r 1k
Trim started on the following nodes:
cls12345n002: pool-mds65
cls12345n003: pool-mds66
Try 'cscli zfs trim progress' to check the trim progress
```

`zfs trim suspend` Subcommand

Introduced in Software Release: 6.0

The `zfs trim suspend` command is a subcommand of the `zfs trim` command. Use the subcommand to suspend a running zpool trim.

Synopsis

```
$ cscli zfs trim suspend [-h] [-g gender | -n node] [-p pool [pool ...]]
```

Optional Arguments	Description
`-g gender` `|--gender gender`	Specify the gender. For example, `[-g oss]` or `[-g mds]`.
`-n node` `|--node node`	Specify the node name
`-p pool [pool ...]` `|--pool pool [pool ...]`	Specify the pool name. For example, `[-p pool1]` or `[-p pool1 pool2]` (if you have multiple pools).
`-h |--help`	Display the help message and exit

Usage

Suspend a running zpool trim:

```
[admin@cls12345n000 ~]$ cscli zfs trim suspend -g mds
Trim suspended on the following nodes:
cls12345n002: pool-mds65
cls12345n003: pool-mds66
```

Suspend zpool trim that is not running:

```
[admin@cls12345n000 ~]$ cscli zfs trim suspend -g mds
Trim not in progress on the following nodes:
cls12345n002: pool-mds65
cls12345n003: pool-mds66
```

CSCLI Command Revision History

This section provides a list of new, modified, and deprecated CSCLI commands that were introduced in each release.

CSCLI Reference (Release 6.0)

CSCLI Command Changes in Release 6.0

Command details introduced in this release only apply to Cray ClusterStor E1000 storage systems. The following commands were added, changed, or removed in software release 6.0:

Addition/Change	CSCLI Command	Description	Component
Changed	`admins add`	Added the `--username`, `--role`, `--firstname`, `--lastname`, `--enable-ssh`, `--disable-ssh`, `--enable-web`, `--disable-web`, `--password`, `--stream-api`, and `--password-policy` options	Accounts
Removed	`admins lockout`	Deprecated in 6.0	Accounts
Changed	`admins modify`	Added the `--username`, `--new-firstname`, `--new-lastname`, `--new-role`, and `--new-shell` options	Accounts
Changed	`admins policy`	Added the `set`, `add`, `remove`, `list`, and `show` options	Accounts
Changed	`admins reset_password`	Added the `--old-password` and `--new-password` options	Accounts
Changed	`alerts_config email_add`	Added the `--email`, `--name`, `--period`, and `--level` options	Alerts
Changed	`alerts_config email_update`	Updated the `--period` and `--level` option descriptions	Alerts
Changed	`alerts elements`	Added `pending` status to the `--elementstatus` option	Alerts
Changed	`alerts thresholds`	Updated values for the `gender` option	Alerts
Changed	`configure_hosts`	Added the `--dwdp` option	System Configuration
Changed	`ean apply`	Added the `--force` option	Network
Added	`ean mmu clear`	Reset the EAN interface on all nodes	Network
Removed	`ean primary add`	Deprecated in 6.0	Network
Added	`ean primary clear`	Reset the EAN interface on all nodes	Network
Removed	`ean primary delete`	Deprecated in 6.0	Network
Added	`ean primary set`	Update the primary EAN interface	Network
Added	`ean secondary clear`	Reset the EAN interface on all nodes	Network
Changed	`fru`	Added element types to the `--type` option	System Performance
Changed	`logrotate`	Added the `show` option	System Performance
Added	`lustre changelog threshold`	Show the threshold for the number of Lustre changelog records	Lustre
Changed	`lustre config dump`	Updated YAML file path	Lustre
Changed	`lustre config restore`	Updated YAML file path	Lustre
Changed	`lustre lnet interfaces`	Deprecated the `--show` option	Lustre
Changed	`lustre_network defaults`	Added the `show` option	Lustre
Added	`lustre_network defaults set`	Set the netmask and MTU for Data Network IP configuration	Lustre

Addition/Change	CSCLI Command	Description	Component
Added	`lustre pool client_mount`	Mount Lustre on MGS for ClusterStor CS9K systems in order to use `lustre pool` commands	Lustre
Added	`lustre pool client_unmount`	Unmount Lustre on MGS for ClusterStor CS9K systems	Lustre
Changed	`lustre pool target show`	Added the `--pool` and `--type` options	Lustre
Removed	`lustre quota get`	Deprecated in 6.0	Lustre
Removed	`lustre quota set`	Deprecated in 6.0	Lustre
Changed	`lustre users ldap set`	Added the `--usersearch` option	Lustre
Changed	`lustre users local`	Added the `refresh` option	Lustre
Added	`monitor await`	Display current active RAID array information	System Performance
Changed	`monitor health`	Added the `--yaml` option	System Performance
Added	`monitor nvme`	Display current NVMe information	System Performance
Changed	`mount`	Added exception for the `--nodes` option	Lustre Targets
Changed	`service_console configure smtp`	Added the `from` option, and deprecated the `--host` option	System Management
Removed	`show_update_versions`	Deprecated in 6.0	Node Control
Removed	`show_version_nodes`	Deprecated in 6.0	Node Control
Changed	`support_bundle collect`	Added the `--start-date` and `--start-time` options	Support
Changed	`syslog_consumer add`	Added the `--timezone` option	System Management
Added	`trim`	Commands to manage ClusterStor discard settings	Node control
Changed	`unmount`	Added exceptions for the `--nodes` option	Lustre Targets
Removed	`update_node`	Deprecated in 6.0	Node control
Added	`zfs`	Commands to manage ZFS	ZFS

CSCLI Reference (Release 5.0)

CSCLI Command Changes in Release 5.0

Command details introduced in this release only apply to Cray ClusterStor E1000 storage systems. The following commands were added, changed, or removed in software release 5.0:

Addition/Change	CSCLI Command	Description	Component
Changed	`configure_hosts`	Added the `--hybrid` option	System Configuration
Changed	`configure_oss`	Added the `--hybrid` option	Node control

CSCLI Reference (Release 4.4)

CSCLI Command Changes in Release 4.4

Command details introduced in this release only apply to Cray ClusterStor E1000 storage systems. The following commands were added, changed, or removed in software release 4.4:

Addition/Change	CSCLI Command	Description	Component
Changed	`lustre users order set`	Additional information for the `order` and `db` arguments	Lustre Users
Added	`rack update`	Update the enclosure chassis serial number	Rack Management

CSCLI Reference (Release 4.3)

CSCLI Command Changes in Release 4.3

Command details introduced in this release only apply to Cray ClusterStor E1000 storage systems. The following commands were added, changed, or removed in software release 4.3:

Addition/Change	CSCLI Command	Description	Component
Changed	`configure_oss`	Additional information for the `-bfs`, `-pc`, `--raid-mode-flash`, `--raid-strategy`, and `-s` arguments	Node Control

CSCLI Reference (Release 4.2)

CSCLI Command Changes in Release 4.2

Command details introduced in this release only apply to Cray ClusterStor E1000 storage systems. The following commands were added, changed, or removed in software release 4.2:

Addition/Change	CSCLI Command	Description	Component
N/A			

CSCLI Reference (Release 4.1)

CSCLI Command Changes in Release 4.1

Command details introduced in this release only apply to Cray ClusterStor E1000 storage systems. The following commands were added, changed, or removed in software release 4.1:

Addition/Change	CSCLI Command	Description	Component
Changed	`configure_hosts`	Added new flags: `--role` and `--partition-count` (with examples)	System Configuration
Changed	`configure_mds`	Added new flag: `--benchmark-filesystem`	Node Control
Changed	`configure_oss`	Added new flags: `--benchmark-filesystem` and `--partition-count` (with examples) Edited `--raid-strategy`	Node Control
Added	`lustre lnet interfaces`	View current connectivity information along with PCIe card to network device mapping	Lustre
Changed	`lustre_network`	Added `sm` subcommand	Lustre
Added	`lustre quota`	Manage Lustre quota configuration	Lustre
Removed	`nxd`	Deprecated in 4.1	System Performance
Changed	`remove_unit`	Added new flag: `--partially-added`	Node Control

CSCLI Reference (Release 3.5)

CSCLI Command Changes in Release 3.5

The following commands were added, changed, or removed in software release 3.5:

Addition/Change	CSCLI Command	Description	Component
Changed	`configure_oss`	Additional information for the `-bfs`, `-pc`, `--raid-mode-flash`, `--raid-strategy`, and `-s` arguments	Node Control

CSCLI Reference (Release 3.4)

CSCLI Command Changes in Release 3.4

The following commands were added, changed, or removed in software release 3.4:

Addition/Change	CSCLI Command	Description	Component
Added	`configure_mds`	Added the `--triple-mirror` option	Node control
Added	`configure-oss`	Added the `--triple-mirror` option	Node control
Changed	`license`	Improved instructions to set, accept, and reset licenses	License
Added	`node_type`	Display the type of node	Node control

CSCLI Reference (Release 3.3)

CSCLI Command Changes in Release 3.3

The following commands were added, changed, or removed in software release 3.3:

Addition/Change	CSCLI Command	Description	Component

Added	`cds`
	`cds ca_cert`
	`cds ip_address`
	`cds secret`
	`cds show`
		Command and subcommandst to configure the ClusterStor Data Services (CDS) emitter	CDS

Added	`configure_hosts`	Command to configure the MAC address and host names for a discovered node. Nodes in the ADU (MDS nodes) can be configured with this command.	System Configuration
Changed	`configure_mds`	Add and configure new MDS nodes (optional additional MMUs) in the storage system. This command is used in two modes. New and deprecated options for 3.3.	Node control
Changed	`configure_oss`	Configure new OSS nodes. New and deprecated options for 3.3.	Node control
Added	`license`	Command and subcommands to show, check status, accept, or reset the EULA	License Management
Changed	`lustre_network bonding mode set`	New step added to reload Lustre modules when changing the bonding configuration on the system	Lustre
Removed	`lustre users ad`	Deprecated in 3.3. Configure users and groups via an external AD service.	Lustre Users
Changed	`lustre users upcall set`	Removed/deprecated the `ad_only` option	Lustre
Added	`raid check`	Subcommands to show settings related to RAID and disk checks and whether the checks are running	RAID Commands

CSCLI Reference (Release 3.2)

DailyMode – CSCLI Command Changes in Release 3.2

The following commands were added, changed, or removed in software release 3.2:

Addition/Change	CSCLI Command	Description	Component

Added	`ean ipaddr`
	`ean mmu`
	`ean primary`
	`ean route add`
	`ean secondary`
		Additional EAN network and static IP set commands (supporting up to three EAN networks: EAN, secondary EAN, and MMU EAN)	Network

Added	`logrotate`	`logrotate` command and `logrotate schedule` subcommand to schedule log rotation	System Performance
Added	`lustre config`	Command and subcommands to dump and restore lustre configuration	Lustre
Added	`lustre pool`	Command and subcommands to manage lustre pools	Lustre
Added	`security drive`	Command and subcommands to manage the key management server and drive security	System Security

CSCLI Reference (Release 3.1)

DailyMode – CSCLI Command Changes in Release 3.1

The following commands were added, changed, or removed in software release 3.1:

Addition/Change	CSCLI Command	Description	Component
Changed	`configure_mds`	Added the `--tag` argument to support the E1000F Addition procedure	Node Control
Changed	`configure_oss`	Added the `--tag` argument to support the E1000F Addition procedure	Node Control
Changed	`lustre_network`	Added the `bonding` subcommands, used to manage Ethernet bonding for the high speed data network	Lustre Network
Changed	`nxd list`	Added the `--perfmon` argument to display performance monitor details	System Performance
		Added the `--statistics` argument to display stale statistical data of NXD	
		Added the `--read-persistence` argument to turn read persistence on or off	
Changed	`nxd modify`	Added the `--perfmon` and `--reset` arguments to modify performance monitoring for cache groups and to reset performance monitor counters	System Performance
Added	`security`	Commands to configure Meltdown and Spectre security vulnerabilities on the cluster	System Security
Removed	`set_network`	Deprecated the command in favor of `lustre_network` subcommands	Lustre and Network
Added	`syslog_consumer`	Commands to manage streaming of system logs to an external server	System Management

CSCLI Reference (Release 3.0.0)

Summary of Changes for Release 3.0.0

Release 3.0.0 introduced the following features:

- Local administrator accounts and the three available roles that may be assigned to these accounts

- A default secure shell that must be used by local administrator accounts whose roles are Limited Admin and Read Only Admin

DailyMode – CSCLI Command Changes in Release 3.0.0

The following commands were added, changed, or removed in software release 3.0.0:

Addition/Change	CSCLI Command	Description	Component
Removed	`apply_network_setup`	Deprecated in 3.0.0. See `lustre_network apply` subcommand.	Lustre Network
Added	`csinfo`	Generate a YAML file containing system and cluster information that is needed when logging a support ticket	Support
Added	`lustre jobstats`	Lustre job statistics	Lustre Management
Added	`lustre_network apply`	Apply a network configuration to a cluster	Lustre Network
Added	`lustre_network list_hosts`	Show the unused IPs in ranges of the HSN	Lustre Network
Added	`lustre_network sm`	Manage the InfiniBand Subnet Manager (SM) integrated with the storage system and modify subnet manager priorities	Lustre Network
Removed	`lustre_perf`	Deprecated in 3.0.0. Export Lustre performance data collected by the ClusterStor system.	Lustre Performance
Added	`lustre top`	View real-time Lustre performance data	Lustre Performance
Changed	`lustre users`	Added note that the Lustre file system must be unmounted before changing the upcall type	Lustre Users
Removed	`lustre_users`	Deprecated in 3.0.0. See the `lustre users` subcommand.	Lustre Users
Changed	`mount`	Added the `--nowait` option Added the `--verbose` option	Lustre Targets
Removed	`network`	Deprecated in 3.0.0. See the `ean` command.	External Administration Network Configuration
Added	`NXD commands`	Manage the NXD feature, which improves performance for small block I/Os by caching them on SSD drives	System Performance
Changed	`power_manage`	Added the `--fast_reboot` option	Power Management
Added	`rack apply`	Apply all changes from move/create/delete/rename to the system configuration	Rack Management
Added	`rack set_default`	Set the new default name of the rack	Rack Management
Added	`raid disk_fail smart_interval`	Set the interval (in seconds) for checking SMART data for prediction of disk failure	RAID Management
Added	`security drive`	Manage the key management server and drive security	Security (Key Management)
Added	`service_console configure rest_api user_add`	Add a user to the list of REST API authorized users	Service Console
Added	`service_console configure rest_api user_delete`	Remove a user from the list of REST API authorized users	Service Console

Addition/Change	CSCLI Command	Description	Component
Added	`service_console configure smtp from`	Configure SMTP from email address for sending notifications	Service Console
Changed	`set_date`	Added the `--override-ntp` option Removed the `--force-ntp` option	System Management
Removed	`set_rack_position`	Deprecated in 3.0.0. See `rack move` subcommand.	Rack Management
Changed	`set_timezone`	Added the `--show` option	System Management
Removed	`sm`	Deprecated this command in favor of `lustre_network sm` subcommand	System Admin
Changed	`sm`	Added the `--max_op_vls` option	InfiniBand Subnet Manager
Added	`support_bundle delete`	Delete a specified support bundle	Support
Changed	`unmount`	Added the `--verbose` option	Lustre Targets

Websites

General websites

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

https://www.hpe.com/storage/spock

Storage white papers and analyst reports

https://www.hpe.com/storage/whitepapers

For additional websites, see Support and other resources.

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

  https://www.hpe.com/info/assistance

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

  https://www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)

- Product name, model or version, and serial number

- Operating system name and version

- Firmware version

- Error messages

- Product-specific reports and logs

- Add-on products or components

- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.

- To download product updates:

  Hewlett Packard Enterprise Support Center

  > **https://www.hpe.com/support/hpesc**

  Hewlett Packard Enterprise Support Center: Software downloads

  > **https://www.hpe.com/support/downloads**

  My HPE Software Center

  > **https://www.hpe.com/software/hpesoftwarecenter**

- To subscribe to eNewsletters and alerts:

  https://www.hpe.com/support/e-updates

- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:

  https://www.hpe.com/support/AccessToSupportMaterials

> **IMPORTANT:**
>
> Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which initiates a fast and accurate resolution based on the service level of your product. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

HPE Get Connected

https://www.hpe.com/services/getconnected

HPE Pointnext Tech Care

https://www.hpe.com/services/techcare

HPE Complete Care

https://www.hpe.com/services/completecare

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider.

Warranty information

To view the warranty information for your product, see the links provided below:

HPE ProLiant and IA-32 Servers and Options

https://www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise and Cloudline Servers

https://www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

https://www.hpe.com/support/Storage-Warranties

HPE Networking Products

https://www.hpe.com/support/Networking-Warranties

Regulatory information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

https://www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

https://www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

https://www.hpe.com/info/environment

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, use the Feedback button and icons (located at the bottom of an opened document) on the Hewlett Packard Enterprise Support Center portal (https://www.hpe.com/support/hpesc) to send any errors, suggestions, or comments. All document information is captured by the process.