Dell PowerEdge RAID Controller (PERC) Command Line Interface (CLI) Reference Guide

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Contents

1

Overview

You can set up, configure, and manage your Dell PowerEdge RAID Controller (PERC) by using the Command Line Interface (CLI).

Getting started with your PERC card

To install the PERC card, perform the following steps:

1. Unpack your PERC card.
2. Cable the PERC card inside your Dell PowerEdge system. See the PERC User's Guide for detailed cabling instructions.
3. Boot to the operating system.
4. Download and install the drivers and firmware for the PERC card. See the PERC User's Guide for driver and firmware installation details.
5. Create virtual disks and specify RAID levels for the hard drives using any of the following utilities:
   - BIOS Configuration. See the PERC User's Guide for details on how to access and use the BIOS Configuration Utility.
   - OMSS. See the PERC User's Guide for details on how to use OpenManage Storage Management software.
   - PERC CLI, covered in this reference guide.

Documentation matrix

The documentation matrix provides information on documents that you can refer to for setting up and managing your system.

Table 1. Documentation matrix

To...	Refer to...
Install your system into a rack	Rack documentation included with your rack solution
Set up your system and know the system technical specifications	*Getting Started With Your System* that shipped with your system or see **Dell.com/poweredgemanuals**
Install the operating system	Operating system documentation at **Dell.com/operatingsystemmanuals**
Get an overview of the Dell Systems Management offerings	Dell OpenManage Systems Management Overview Guide at **Dell.com/openmanagemanuals**

To...	Refer to...
Configure and log in to iDRAC, set up managed and management system, know the iDRAC features and troubleshoot using iDRAC	Integrated Dell Remote Access Controller User's Guide at **Dell.com/idracmanuals**
Know about the RACADM subcommands and supported RACADM interfaces	RACADM Command Line Reference Guide for iDRAC at **Dell.com/idracmanuals**
Launch, enable and disable Lifecycle Controller, know the features, use and troubleshoot Lifecycle Controller	Dell Lifecycle Controller User's Guide at **Dell.com/idracmanuals**
Use Lifecycle Controller Remote Services	Dell Lifecycle Controller Remote Services Quick Start Guide at **Dell.com/idracmanuals**
Set up, use, and troubleshoot OpenManage Server Administrator	Dell OpenManage Server Administrator User's Guide at **Dell.com/openmanagemanuals**
Install, use, and troubleshoot OpenManage Essentials	Dell OpenManage Essentials User's Guide at **Dell.com/openmanagemanuals**
Know the features of the storage controller cards, deploy the cards, and manage the storage subsystem	Storage controller documentation at **Dell.com/storagecontrollermanuals**
Check the event and error messages generated by the system firmware and agents that monitor system components	Dell Event and Error Messages Reference Guide at **Dell.com/openmanagemanuals** > **OpenManage software.**

2

Accessing the command prompt

Access the CLI in either Microsoft Windows or Linux operating systems.

Using CLI commands from Windows command prompts

Ensure that you copy the **perccli.exe** and **perccli64.exe** files to **C:\Windows\System32**.
To access the command prompt in systems using the Microsoft Windows operating system, perform the following procedure:

1. Click **Start** → **Run**.
   The **Run** window is displayed.
2. In the **Open** field, type `cmd`, and then click **OK**.
   The **Administrator: Command Prompt** window is displayed, where you can execute the PERC CLI commands.

Using CLI commands in Linux

Perform the following procedures to access the command prompt in systems using the Linux operating system:

1. To install the percli RPM, run **rpm -ivh <percli-x.xx-x.noarch.rpm>**, or to upgrade the percli RPM, run **rpm -Uvh <percli-x.xx-x.noarch.rpm>**.
2. Install the cd to **/opt/MegaRAID/perccli**.
3. As a root user, run **./perccli**.

3

Working with the PERC Command Line Interface tool

This chapter describes the commands supported by the PERC Command Line Tool.

NOTE: The PERC Command Line Interface (CLI) Tool is not case sensitive.

CAUTION: The order in which you specify the command options should be the same as in the User Guide; otherwise, the command will fail.

NOTE: The PERC CLI Tool does not support the Snapshot feature.

System commands

System show commands

The PERC Command Line Tool supports the following system show commands:

```
perccli show
perccli show all
perccli show ctrlcount
perccli show help
perccli -v
```

The detailed description for each command follows.

perccli show

This command shows a summary of controller and controller-associated information for the system. The summary includes the number of controllers, the host name, the operating system information, and the overview of existing configuration.

perccli show all

This command shows the list of controllers and controller-associated information, information about the drives that need attention, and advanced software options.

perccli show ctrlcount

This command shows the number of controllers detected in the server.

perccli show help

This command shows help for all commands at the server level.

perccli -v

This command shows the version of the PERC Command Line Tool.

Controller commands

Controller commands provide information and perform actions related to the specified controller, such as the `/c0` controller. The PERC Command Line Tool supports the controller commands described in this section.

Show and set controller properties commands

Table 2. Controller commands quick reference table

Commands	Value range	Description
`show <properties>`	See Table 3. Properties for show and set commands.	Shows specific controller properties.
`set <properties>`	See Table 3. Properties for show and set commands.	Sets controller properties.
`show`	`all`: Shows all properties of the virtual drive. `freespace`: Shows the freespace in the controller. See Controller show commands.	Shows physical drive information.

This section provides command information to show and set controller properties.

NOTE: You cannot set multiple properties with a single command.

The generalized syntax for show controller properties command is as follows:

perccli /cx show <property>

This command shows the current value of the specified property on the specified controller.

General example output:

```
Status Code = 0
Status = Success
Description = None
Controller: 0
Property_name = Property_value
```

You can show the following properties using the `perccli /cx show <property1>|<property2>` command.

```
perccli /cx show personality
perccli /cx show abortcconerror
perccli /cx show activityforlocate
perccli /cx show alarm
perccli /cx show backplane
perccli /cx show batterywarning
perccli /cx show bgirate
perccli /cx show bootwithpinnedcache
```

```
perccli /cx show cachebypass
perccli /cx show cacheflushint
perccli /cx show ccrate
perccli /cx show clusterenable
perccli /cx show coercion
perccli /cx show consistencycheck|cc
perccli /cx show copyback
perccli /cx show directpdmapping
perccli /cx show dimmerswitch|ds
perccli /cx show eccbucketleakrate
perccli /cx show eccbucketsize
perccli /cx show enableeghsp
perccli /cx show enableesmarter
perccli /cx show enableeug
perccli /cx show exposeencldevice
perccli /cx show jbod
perccli /cx show loadbalancemode
perccli /cx show maintainpdfailhistory
perccli /cx show migraterate
perccli /cx show ncq
perccli /cx show patrolread|pr
perccli /cx show perfmode
perccli /cx show pi
perccli /cx show preventpiimport
perccli /cx show prcorrectunconfiguredareas
perccli /cx show prrate
perccli /cx show rebuildrate
perccli /cx show rehostinfo
perccli /cx show restorehotspare
perccli /cx show safeid
perccli /cx show smartpollinterval
perccli /cx show spinupdelay
perccli /cx show spinupdrivecount
perccli /cx show time
perccli /cx show usefdeonlyencrypt
perccli /cx show memscrubpatterns
perccli /cx show badblocks
perccli /cx(x|all) show PI
perccli /cx(x|all) show preventpiimport
```

perccli /cx set <property>=<value>

General example output:

```
Status Code = 0
Status = Success
Description = None

Controller 0, new Property_name = Property_value
```

The following commands are examples of the properties that can be set using the `perccli /cx set<property>=<value>` command:

```
perccli /cx set personality=<RAID|HBA>
perccli /cx set abortcconerror=<on|off>
perccli /cx set termlog[=on|off|offthisboot]
perccli /cx set activityforlocate=<on|off>
perccli /cx set alarm=<on|off|silence>
perccli /cx set backplane=<value>
perccli /cx set batterywarning=<on|off>
perccli /cx set bgirate=<value>
perccli /cx set bootwithpinnedcache=<on|off>
perccli /cx set cachebypass=<on|off>
```

```
perccli /cx setcacheflushinterval=<value>
perccli /cx setccrate=<value>
perccli /cx setcoercion=<value>
perccli /cx set consistencycheck|cc=[off|seq|conc][delay=value]
[starttime=yyyy/mm/dd hh] [excludevd=x-y,z]
perccli /cx setclusterenable=<value>
perccli /cx setcopyback=<on|off> type=<smartssd|smarthdd|all>
perccli /cx setdirectpdmapping=<on|off>
perccli /cx seteccbucketleakrate=<value>
perccli /cx seteccbucketsize=<value>
perccli /cx setenableeghsp=<on|off>
perccli /cx setenableesmarter=<value>
perccli /cx setenableeug=<on|off>
perccli /cx setexposeencldevice=<on|off>
perccli /cx setdimmerswitch|ds=<on|off type=1|2|3|4>
perccli /cx setforeignautoimport=<on|off>
perccli /cx setjbod=<on|off>
perccli /cx setloadbalancemode=<value>
perccli /cx setmaintainpdfailhistory=<on|off> perccli /cx setmigraterate=<value>
perccli /cx setncq=<on|off>
perccli /cx setpatrolread|pr {=on mode=<auto|manual>}|{off}
perccli /cx setperfmode=<value>
perccli /cx setpi=<on|off>
perccli /cx setpreventpiimport=<on|off>
perccli /cx setprcorrectunconfiguredareas=<on|off> perccli /cx setprrate=<value>
perccli /cx setrebuildrate=<value>
perccli /cx setrestorehotspare=<on|off>
perccli /cx setsmartpollinterval=<value>
perccli /cx setspinupdelay=<value>
perccli /cx setspinupdrivecount=<value>
perccli /cx setstoponerror=<on|off>
perccli /cx setusefdeonlyencrypt=<on|off>
perccli /cx settime=yyyymmdd hh:mm:ss|systemtime
perccli /cx setusefdeonlyencrypt=<on|off>
```

The following table lists and describes the properties for the show and set commands.

Table 3. Properties for show and set commands

Property name	Set command range	Description
`abortcconerror`	`on|off`	Aborts consistency check when it detects an inconsistency.
`activityforlocate`	`on|off`	Enables/ disables drive activity, drive activity locates function for systems without SGPIO/SES capabilities.
`alarm`	`on|off|silence` `silence`: Silences the alarm.	Enables/ disables alarm

		on critical errors.
backplane	0: Use autodetect logic of backplanes, such as SGPIO and I2C SEP using GPIO pins. 1: Disable autodetect SGPIO. 2: Disable I2C SEP autodetect. 3: Disable both the autodetects.	Configures enclosure detection on a non-SES/ expander backplane.
batterywarning	on|off	Enables/ disables battery warnings.
bgirate	0 to 100	Sets background initialization rate in percentage.
cacheflushint	0 to 255, default value 4	Sets cache flush interval in seconds.
ccrate	0 to 100	Sets consistency check rate in percentage.
coercion	0: No coercion 1: 128 MB 2: 1 GB	Sets drive capacity in coercion mode.
consistencycheck	See Consistency check.	See Consistency check.
copyback	on|off type = smartssd|smarthdd|all smartssd: Copy back enabled for SSD drives. smarthdd: Copy back enabled for HDD drives. all: Copy back enabled for both SSD drives and HDD drives. Example: perccli /cx set copyback=on type=all	Enables/ disables copy back for drive types.
directpdmapping	on|off	Enables/ disables direct physical drive

		mapping. When enclosures are used, this feature is disabled; otherwise it should be enabled.
`eccbucketleakrate`	0 to 65535	Sets leak rate of the single-bit bucket in minutes (one entry removed per leak-rate).
`eccbucketsize`	0 to 255	Sets size of ECC single-bit-error bucket (logs event when full).
`enableeghsp`	`on|off`	Enables/ disables the commissioning of otherwise incompatible global hot spare drives as Emergency Hot Spare (EHSP) drives.
`enableesmarter`	`on|off`	Enables/ disables the commissioning of Emergency Hot Spare (EHSP) drives for Predictive Failure (PFA) events.
`enableeug`	`on|off`	Enables/ disables the commissioning of Unconfigured Good drives as Emergency Hot Spare (EHSP) drives.

exposeencldevice	on|off	Enables/ disables device drivers to expose enclosure devices; for example, expanders, SEPs.
dimmerswitch|ds	See Dimmer switch commands.	See Dimmer switch commands.
foreignautoimport	on|off	Imports foreign configuration automatically, at boot.
jbod	on|off	Enables/ disables JBOD mode; by default, drives become system drives. NOTE: Not supported by all controllers.
loadbalancemode	on|off	Enables/ disables automatic load balancing between SAS phys or ports in a wide port configuration.
maintainpdfailhistory	on|off	Maintains the physical drive fail history.
migraterate	0 to 100	Sets data migration rate in percentage.
patrolread|pr	See Patrol Read.	See Patrol Read.
perfmode	0: Tuned to provide best IOPS, currently applicable to non-FastPath	Performance tuning setting

	1: Tuned to provide least latency, currently applicable to non-FastPath	for the controller.
pi	on|off	Enables/ disables data protection on the controller.
preventpiimport	on|off	Enables/ disables import data protection drives on the controller.
prcorrectunconfiguredareas	on|off	Correct media errors during PR by writing 0s to unconfigured areas of the disk.
prrate	0 to 100	Sets patrol read rate of the virtual drives in percentage.
rebuildrate	0 to 100	Sets rebuild rate of the drive in percentage.
reconrate	0 to 100	Sets reconstruction rate for a drive in percentage.
restorehotspare	on|off	Becomes a hot spare on insertion of a failed drive.
smartpollinterval	0 to 65535	Set time for polling of SMART errors in seconds.
spinupdrivecount	0 to 255	Sets number of drives that are spun up at a time.
spinupdelay	0 to 255	Sets spin-up delay between a group of drives or a set

		of drives, in seconds.
`stoponerror`	`on|off`	Stops the MegaRAID BIOS during POST, if any errors are encountered.
`time`	Valid time in *yymmdd hh:mm:ss* format or `systemtime`	Sets the controller time to your input value or the system time (local time in 24-hour format).
`usefdeonlyencrypt`	`on|off`	Enables/ disables FDE drive-based encryption.

Controller show commands

The PERC Command Line Tool supports the following show commands:

```
perccli /cx show
perccli /cx show all
perccli /cx show freespace
```

The detailed description for each command follows.

perccli /cx show

This command shows the summary of the controller information. The summary includes basic controller information, foreign configurations, drive groups, virtual drives, physical drives, enclosures, and BBU information.

Input example:

```
perccli /c1 show
```

perccli /cx show all

This command shows all controller information, which includes basic controller information, bus information, controller status, advanced software options, controller policies, controller defaults, controller capabilities, scheduled tasks, miscellaneous properties, foreign configurations, drive groups, virtual drives, physical drives, enclosures, and BBU information.

Input example:

```
perccli /c0 show all
```

NOTE: The PCI information displayed as a part of `perccli /cx show` and `perccli /cx show all` commands is not applicable for the FreeBSD operating system. Hence, the PCI information fields are displayed as N/A.

perccli /cx show freespace

This command shows the usable free space in the controller.

Input example:

```
perccli /c0 show freespace
```

Controller background tasks operation commands

Rebuild Rate

```
perccli /cx set rebuildrate=<value>
perccli /cx show rebuildrate
```

The detailed description for each command follows.

perccli /cx set rebuildrate=<value>

This command sets the rebuild task rate of the specified controller. The input value is in percentage.

Input example:

```
perccli /c0 set rebuildrate=30
```

NOTE: A high rebuild rate slows down I/O processing.

perccli /cx show rebuildrate

This command shows the current rebuild task rate of the specified controller in percentage.

Input example:

```
perccli /c0 show rebuildrate
```

Patrol Read

The PERC Command Line Tool supports the following patrol read commands:

```
perccli /cx resume patrolread
perccli /cx set patrolread ={{on mode=<auto|manual>}|{off}}
perccli /cx set patrolread [starttime=<yyyy/mm/dd hh>]
[maxconcurrentpd=<value>] [includessds=<on|off>] [uncfgareas=<on|off>]
perccli /cx set patrolread delay=<value>
perccli /cx show patrolread
perccli /cx start patrolread
perccli /cx stop patrolread
perccli /cx suspend patrolread
```

NOTE: A patrol read operation is scheduled for all the physical drives of the controller.

The detailed description for each command follows.

perccli /cx resume patrolread

This command resumes a suspended patrol read operation.

Input example:

```
perccli /c0 resume patrolread
```

perccli /cx set patrolread {=on mode=<auto|manual>}|{off}

This command turns the patrol read scheduling on and sets the mode of the patrol read to automatic or manual.

Input example:

```
perccli /co set patrolread=on mode=manual
```

perccli /cx set patrolread [starttime=<yyyy/mm/dd hh>] [maxconcurrentpd=<value>] [includessds=<on|off>] [uncfgareas=on|off]

This command schedules a patrol read operation. You can use the following options for patrol read command:

Table 4. Set Patrolread input options

Option	Value range	Description
`starttime`	A valid date and hour in 24 hours format.	Sets the start time in *yyyy/mm/dd hh* format.
`maxconcurrentpd`	Valid number of physical drives present.	Sets the number of physical drives that can be patrol read at a single time.
`includessds`	—	Include SSDs in the patrol read.
`uncfgareas`	—	Include the areas not configured in the patrol read.

NOTE: Controller time is taken as a reference for scheduling a patrol read operation.

Input example:

```
perccli /c0 set patrolread=on starttime=2012/02/21 00
```

perccli /cx set patrolread [delay=<value>]

This command delays the scheduled patrol read in hours.

Input example:

```
perccli /c0 set patrolread delay=30
```

perccli /cx show patrolRead

This command shows the progress on the current patrol read in percentage.

Input example:

```
perccli /c0 show patrolread
```

perccli /cx start patrolread

This command starts the patrol read operation. This command starts a patrol read immediately.

Input example:

```
perccli /c0 start patrolread
```

perccli /cx stop patrolread

This command stops a running patrol read operation.

Input example:

```
perccli /c0 stop patrolread
```

NOTE: You cannot resume a stopped patrol read.

perccli /cx suspend patrolread

This command pauses a running patrol read operation.

Input example:

```
perccli /c0 suspend patrolread
```

NOTE: You can run this command only when a patrol read operation is running on the controller.

Consistency check

The PERC Command Line Tool supports the following commands to schedule, perform, and view the status of a consistency check (CC) operation:

```
perccli /cx set consistencycheck|cc=[off|seq|conc][delay=value]
starttime=yyyy/mm/dd hh [excludevd=x-y,z]
perccli /cx show cc
perccli /cx show ccrate
```

The detailed description for each command follows.

perccli /cx set consistencycheck|cc=[off|seq|conc][delay=value] starttime=yyyy/mm/dd hh [excludevd=x-y,z]

This command schedules a consistency check (CC) operation. You can use the following options with the consistency check command:

Table 5. Set CC input options

Option	Value range	Description
`cc`	`seq`: Sequential mode. `conc`: Concurrent mode.	Sets CC to either sequential mode, or concurrent mode, or turns off the CC.

Option	Value range	Description
	`off`: Turns off the consistency check.	NOTE: The concurrent mode slows I/O processing.
`delay`	`-1` and any integer value.	Delay a scheduled consistency check. The value is in hours. A value of 0 makes the CC runs continuously with no delay (in a loop). NOTE: Only scheduled consistency checks can be delayed.
`starttime`	A valid date and hour in 24-hours format.	Start time of a consistency check is *yyyy/mm/dd hh* format.
`excludevd`	The range should be less than the number of virtual drives.	Excludes virtual drives from the consistency checks. To exclude particular virtual drives, you can provide list of virtual drive names (Vx,Vy ... format) or the range of virtual drives that you want to exclude from a consistency check (Vx-Vy format). If this option is not specified in the command, no virtual drives are excluded.

Input example:

```
perccli /c0 set CC=on starttime=2012/02/21 00 excludevd v0-v3
```

perccli /cx show cc

This command shows the consistency check schedule properties for a controller.

Input example:

```
perccli /c0 show cc
```

perccli /cx show ccrate

This command checks the status of a consistency check operation. The CC rate appears in percentage.

Input example:

```
perccli /c0 show ccrate
```

NOTE: A high CC rate slows I/O processing.

Premium feature key commands

The PERC Command Line Tool supports the following commands for premium feature keys:

```
perccli /cx set advancedsoftwareoptions(aso) key=<value> [preview] |
[deactivatetrialkey] [rehostcomplete]
perccli /cx show safeid
```

The detailed description for the command follows.

perccli /cx set advancedsoftwareoptions(aso) key=<value> [preview] | [deactivatetrialkey] [rehostcomplete][transfertovault]

This command activates advanced software options (ASO) for a controller. You can use the following options with the advanced software options command:

Table 6. Set advanced software options input options

Option	Value range	Description
`key`	40 alpha numeric characters.	Key to activate ASO on the controller. NOTE: After they are activated, ASOs cannot be removed from the controller.
`deactivatetrialkey`	-	Deactivates the trial key applied on the specified controller.
`rehostcomplete`	-	Enables rehosting on the specified controller.
`transfertovault`	-	Transfers the ASO key to the vault and disables the ASO.

Input example:

```
perccli /c0 set Aso key=LSI0000
```

perccli /cx show safeid

This command shows the Safe ID of the specified controller.

Input example:

```
perccli /c0 show safeid
```

Controller security commands

The PERC Command Line Tool supports the following controller security commands:

```
perccli /cx compare securitykey=ssssss
perccli /cx delete securitykey
perccli /cx set securitykey keyid=kkkk
perccli /cx set securitykey=sssss [passphrase=sssss][keyid=sssss]
perccli /cx set securitykey=sssss
oldsecuritykey=ssss [passphrase=sssss] [keyid=sssss]
```

The detailed description for each command follows.

perccli /cx compare securitykey=ssssss

This command compares and verifies the security key of the controller.

perccli /cx delete securitykey

This command deletes the security key of the controller.

Input example:

```
perccli /c0 delete securitykey
```

perccli /cx set securitykey keyId=kkkk

This command sets the key ID for the controller. The key ID is unique for every controller.

perccli /cx set securitykey=sssss [passphrase=sssss][keyid=sssss]

This command sets the security key for the controller. You can use the following options with the set security key command:

Table 7. Set security key input options

Option	Value range	Description
passphrase	Should have a combination of numbers, upper case letters, lower case letters and special characters.Minimum of 8 characters and maximum of 32 characters.	String that is linked to the controller and is used in the next bootup to encrypt the lock key. If the passphrase is not set, the controller generates it by default.
keyid	—	Unique ID set for different controllers to help you specify a passphrase to a specific controller.

Input example:

```
perccli /c0 set securitykey=Lsi@12345 passphrase=Lsi@123456 keyid=1
```

perccli /cx set securitykey=sssss oldsecuritykey=ssss [passphrase=sssss][keyid=sssss]

This command changes the security key for the controller.

Input example:

```
perccli /c0 set securitykey=Lsi@12345 oldsecuritykey=pass123
passphrase=Lsi@123456 keyid=1
```

Flashing controller firmware command

NOTE: The Flashing Controller Firmware command is not supported in Embedded MegaRAID.

The following command flashes the controller firmware:

perccli /cx download file=filepath [fwtype=<value>] [nosigchk] [noverchk] [resetnow]

This command flashes the firmware to the specified adapter from the given file location (filepath is the absolute file path). You can use the following options when you flash the firmware:

Table 8. Flashing controller firmware input options

Option	Value range	Description
nosigchk	—	The application flashes the firmware even if the check word on the file does not match the required check word for the controller.

Option	Value range	Description
		NOTE: You can damage the controller if a corrupted image is flashed using this option.
noverchk	—	The application flashes the controller firmware without checking the version of the firmware image.
fwtype	0: Application 1: TMMC	The firmware type to be downloaded. The application downloads the firmware for the controller. The TMMC downloads the firmware for the TMMC battery only. Default is 0 (application).
resetnow		Invokes online firmware update on the controller; you do not need to reboot the controller to make the update effective.

Controller cache command

The following command flushes the controller cache:

perccli /cx flush|flushcache

This command flushes the controller cache.

Input example:

```
perccli /c0 flushcache
```

Drive commands

This section describes the drive commands, which provide information and perform actions related to physical drives. The following table describes frequently used virtual drive commands:

Table 9. Physical drives commands quick reference table

Commands	Value range	Description
set	missing: Sets the drive status as missing. good: Sets the drive status to unconfigured good. offline: Sets the drive status to offline. online: Sets the drive status to online.	Sets physical drive properties.
show	all: shows all properties of the physical drive. See Drive show commands.	Shows virtual drive information.

Drive show commands

The PERC Command Line Tool supports the following drive show commands:

```
perccli /cx[/ex]/sx show
perccli /cx[/eall]/sall show
perccli /cx[/ex]/sx|sall show all
```

NOTE: If enclosures are used to connect physical drives to the controller, specify the enclosure ID in the command. If no enclosures are used, you must specify the controller ID and slot ID.

The detailed description for each command follows.

perccli /cx[/ex]/sx show

This command shows the summary of the physical drive for a specified slot in the controller.

Input example:

```
perccli /c0/e0/s4,5 show
```

perccli /cx[/eall]/sall show

This command shows the summary information for all the enclosures and physical drives connected to the controller.

Input example:

```
perccli /c0/eall/sall show
```

perccli /cx[/ex]/sx|sall show all

This command shows all information of a physical drive for the specified slot in the controller. If you use the all option, the command shows information for all slots on the controller. x stands for a number, a list of numbers, a range of numbers, or all numbers.

Input examples:

```
perccli /c0/e3/s0-3 show all
perccli /c0/e35/sall show all
```

NOTE: The `perccli /cx/sx show all` command shows tape drives information.

Missing drives commands

The PERC Command Line Tool supports the following commands to mark and replace missing physical drives:

```
perccli /cx[/ex]/sx insert array=a row=b
perccli /cx[/ex]/sx set missing
perccli /cx[/ex]/sx set offline
perccli /cx/dall
```

The detailed description for each command follows.

perccli /cx[/ex]/sx insert array=a row=b

This command replaces the configured drive that is identified as missing, and then starts an automatic rebuild.

Input example:

```
perccli /c0/e25/s3 insert array=2 row=1
```

perccli /cx[/ex]/sx set missing

This command marks a drive as missing.

Input example:

```
perccli /c0/s4 set missing
```

perccli /cx/dall

This command is used to find the missing drives.

perccli /cx[/ex]/sx set offline

This command marks the drive in an array as offline.

NOTE: To set a drive that is part of an array as missing, first set it as offline. After the drive is set to offline, you can then set the drive to missing.

Set drive state commands

The PERC Command Line Tool supports the following commands to set the status of physical drives:

```
perccli /cx[/ex]/sx set jbod
perccli /cx[/ex]/sx set good [force]
perccli /cx[/ex]/sx set offline
perccli /cx[/ex]/sx set online
```

The detailed description for each command follows.

perccli /cx[/ex]/sx set jbod

This command sets the drive state to JBOD.

Input example:

```
perccli /c1/e56/s3 set jbod
```

perccli /cx[/ex]/sx set good [force]

This drive changes the drive state to unconfigured good. If the drive has the operating system in it, use the force option.

Input example:

```
perccli /c1/e56/s3 set good
```

perccli /cx[/ex]/sx set offline

This command changes the drive state to offline.

Input example:

```
perccli /c1/e56/s3 set offline
```

perccli /cx[/ex]/sx set online

This command changes the drive state to online.

Input example:

```
perccli /c1/e56/s3 set online
```

Drive initialization commands

When you initialize drives, all the data from the drives is cleared. The PERC Command Line Tool supports the following commands to initialize drives:

```
perccli /cx[/ex]/sx show initialization
perccli /cx[/ex]/sx start initialization
perccli /cx[/ex]/sx stopinitialization
```

The detailed description for each command follows.

perccli /cx[/ex]/sx show initialization

This command shows the current progress of the initialization progress in percentage.

Input example:

```
perccli /c0/e31/s4 show initialization
```

perccli /cx[/ex]/sx start initialization

This command starts the initialization process on a drive.

Input example:

```
perccli /c0/e31/s4 start initialization
```

perccli /cx[/ex]/sx stop initialization

This command stops an initialization process running on the specified drive. A stopped initialization process cannot be resumed.

Input example:

```
perccli /c0/e56/s1 stop initialization
```

Drive firmware download commands

The PERC Command Line Tool supports the following command to download drive firmware:

perccli /cx[/ex]/sx download src=filepath [satabridge]

This command flashes the firmware with the specified file. The satabridge option lets you download the SATA bridge firmware in online mode.

Input example:

```
perccli /c0/e56/s1 download src=c:\file1.bin
```

Locate drives commands

The PERC Command Line Tool supports the following commands to locate a drive and activate the physical disk activity LED:

```
perccli /cx[/ex]/sx start locate
perccli /cx[/ex]/sx stop locate
```

The detailed description for each command follows.

perccli /cx[/ex]/sx start locate

This command locates a drive and activates the drive's LED.

Input example:

```
perccli /c0/e56/s1 start locate
```

perccli /cx[/ex]/sx stop locate

This command stops a locate operation and deactivates the drive's LED.

Input example:

```
perccli /c0/e56/s1 stop locate
```

Prepare to remove drives commands

The PERC CLI supports the following commands to prepare the physical drive for removal:

```
perccli /cx[/ex]/sx spindown
perccli /cx[/ex]/sx spinup
```

The detailed description for each command follows.

perccli /cx[/ex]/sx spindown

This command spins down an unconfigured drive and prepares it for removal. The drive state is unaffiliated and it is marked offline.

Input example:

```
perccli /cx/e34/s4 spindown
```

perccli /cx[/ex]/sx spinup

This command spins up a spun-down drive and the drive state is unconfigured good.

Input example:

```
perccli /cx/e34/s4 spinup
```

Drive security commands

The PERC Command Line supports the following drive security command:

perccli /cx[/ex]/sx show securitykey keyid

This command shows the security key and key ID of the controller.

Input example:

```
perccli /c0/s4 show securityKey keyid
```

Drive secure erase commands

The PERC Command Line supports the following drive erase commands:

```
perccli /cx[/ex]/sx secureerase [force]
perccli /cx[/ex]/sx start erase [simple|normal|thorough]
[erasepatternA=<value1>] [erasepatternB=<value2>]
perccli /cx[/ex]/sx stop erase
```

The detailed description for each command follows.

perccli /cx[/ex]/sx secureerase [force]

This command erases the drive's security configuration and securely erases data on a drive. You can use the force option as a confirmation to erase the data on the drive and the security information.

Input example:

```
perccli /c0/e25/s1 secureerase
```

NOTE: This command deletes data on the drive and the security configuration and this data is no longer accessible. This command is used for SED drives only.

perccli /cx[/ex]/sx start erase [simple|normal|thorough] [erasepatternA=<val1>] [erasepatternB=<val2>]

This command securely erases non-SED drives. The drive is written with erase patterns to ensure that the data is securely erased. You can use the following options with the start erase command:

Table 10. Drive erase command options

Options	Value range	Description
`erase`	simple: Single pass, single pattern write. normal: Three pass, three pattern write thorough: Nine pass, repeats the normal write 3 times.	Secure erase type.
`erasepatternA`	8-bit value	Erase pattern A to overwrite the data.

erasepatternB	8-bit value	Erase pattern B to overwrite the data.

Input example:

```
perccli /c0/e25/s1 start erase thorough erasepatternA=10010011
erasepatternB=11110000
```

Rebuild drives commands

The following commands rebuild drives in the PERC Command Line Tool:

```
perccli /cx[/ex]/sx pause rebuild
perccli /cx[/ex]/sx resume rebuild
perccli /cx[/ex]/sx show rebuild
perccli /cx[/ex]/sx start rebuild
perccli /cx[/ex]/sx stop rebuild
```

NOTE: If enclosures are used to connect physical drives to the controller, specify the enclosure ID in the command.

The detailed description for each command follows.

perccli /cx[/ex]/sx pause rebuild

This command pauses an ongoing rebuild process. You can run this command only for a drive that is currently rebuilt.

Input example:

```
perccli /c0/s4 pause rebuild
```

perccli /cx[/ex]/sx resume rebuild

This command resumes a paused rebuild process. You can run this command only when a paused rebuild process for the drive exists.

Input example:

```
perccli /c0/s4 resume rebuild
```

perccli /cx[/ex]/sx show rebuild

This command shows the progress of the rebuild process in percentage.

Input example:

```
perccli /c0/s5 show rebuild
```

perccli /cx[/ex]/sx start rebuild

This command starts a rebuild operation for a drive.

Input example:

```
perccli /c0/s4 start rebuild
```

perccli /cx[/ex]/sx stop rebuild

This command stops a rebuild operation. You can run this command only for a drive that is currently rebuilt.

Input example:

```
perccli /c0/s4 stop rebuild
```

Drive copyback commands

The PERC Command Line Tool supports the following commands for drive copyback:

```
perccli /cx[/ex]/sx pause copyback
perccli /cx[/ex]/sx resume copyback
perccli /cx[/ex]/sx show copyback
perccli /cx[/ex]/sx start copyback target=eid:sid
perccli /cx[/ex]/sx stop copyback
```

NOTE: In the copyback commands,`cx[/ex]/sx` indicates the source drive and `eid:sid` indicates the target drive.

perccli /cx[/ex]/sx pause copyback

This command pauses a copyback operation. You can run this command only when there is a copyback operation running.

Input example:

```
perccli /c0/e25/s4 pause copyback
```

perccli /cx[/ex]/sx resume copyback

This command resumes a paused copyback operation. You can run this command only when there is a paused copyback process for the drive.

Input example:

```
perccli /c0/e25/s4 resume copyback
```

perccli /cx[/ex]/sx show copyback

This command shows the progress of the copyback operation in percentage.

Input example:

```
perccli /c0/e25/s4 show copyback
```

perccli /cx[/ex]/sx start copyback target=eid:sid

This command starts a copyback operation for a drive.

Input example:

```
perccli /c0/e25/s4 start copyback target=25:8
```

perccli /cx[/ex]/sx stop copyback

This command stops a copyback operation. You can run this command only on drives that have the copyback operation running.

Input example:

```
perccli /c0/e25/s4 stop copyback
```

NOTE: A stopped rebuild process cannot be resumed.

Hot spare drive commands

The following commands create and delete hot spare drives:

```
perccli /cx[/ex]/sx add hotsparedrive
{dgs=<n|0,1,2...>}[enclaffinity][nonrevertible]
perccli /cx/[ex]/sx delete hotsparedrive
```

NOTE: If enclosures are used to connect the physical drives to the controller, specify the enclosure ID in the command.

The detailed description for each command follows.

perccli /cx[/ex]/sx add hotsparedrive [{dgs=<n|0,1,2...>}] [enclaffinity][nonrevertible]

This command creates a hot spare drive. You can use the following options to create a hot spare drive:

Table 11. Add hotsparedrive input options

Option	Value range	Description
`dgs`	Valid drive group number	Specifies the drive group to which the hot spare drive is dedicated.
`enclaffinity`	Valid enclosure number	Specifies the enclosure with which the hot spare is associated. If this option is specified, affinity is set; if it is not specified, there is no affinity. NOTE: Affinity cannot be removed after it is set for a hot spare drive.
`nonrevertible`	—	Sets the drive as a non-revertible hot spare.

Input example:

```
perccli /c0/e3/s4,5 add hotsparedrive
```

This command sets the drives /c0/e3/s4,5 as Global Hot spare.

Input example:

```
perccli /c0/e3/s6,8 add hotsparedrive dgs=0,1
```

This command sets /c0/e3/s6,8 as Dedicated Hot spare for disk groups 0,1.

perccli /cx/[ex]/sx delete hotsparedrive

This command deletes a hot spare drive.

Input example:

```
perccli /c0/e3/s4,5 delete hotsparedrive
```

Drive security commands

The PERC Command Line supports the following drive security command:

perccli /cx[/ex]/sx show securitykey keyid

This command shows the security key and key ID of the controller.

Input example:

```
perccli /c0/s4 show securityKey keyid
```

Virtual drives commands

The PERC Command Line Tool supports the following virtual drive commands. The following table describes frequently used virtual drive commands.

Table 12. Virtual drives commands quick reference table

Commands	Value range	Description
`add`	See Table 13. Add RAID configuration input options.	Creates virtual drives.
`delete`	`force`: Deletes the virtual drive where operating system is present.	Deletes a virtual drive.
`set`	See Table 13. Add RAID configuration input options, and Change virtual drive properties commands.	Sets virtual drive properties.
`show`	`all`: Shows all properties of the virtual drive.	Shows virtual drive information.

Add virtual drives commands

The PERC Command Line Tool supports the following commands to add virtual drives:

```
perccli /cx add vd type=raid[0|1|5|6|10|50|60][Size=<VD1_Sz>,<VD2_Sz>,..|*all]
[name=<VDNAME1>,..] drives=e:s|e:s-x|e:s-x,y;e:s-x,y,z [PDperArray=x][SED]
[pdcache=on|off|*default][pi] [DimmerSwitch(ds)=default|automatic(auto)|*none|
maximum(max)|MaximumWithoutCaching(maxnocache)][cachevd] [wt|*wb] [nora|*ra]
[*direct|cached] [CachedBadBBU|*NoCachedBadBBU][Strip=<8|16|32|64|128|256|1024>]
[AfterVd=X] [Spares = [e:]s|[e:]s-x|[e:]s-x,y] [force]perccli /cx add vd each
type=raid0 [name=<VDNAME1>,..] [drives=e:s|e:s-x|e:s-x,y] [SED] [pdcache=on|off|
*default][pi] [DimmerSwitch(ds)=default|automatic(auto)|*none|maximum(max)|
MaximumWithoutCaching(maxnocache)] [wt|*wb] [nora|*ra] [*direct|cached]
[CachedBadBBU|*NoCachedBadBBU][Strip=<8|16|32|64|128|256|1024]
```

This command creates a RAID configuration. You can use the following options to create the RAID volume:

NOTE: * indicates default values.

The detailed description for each command follows.

perccli /cx add vd type=raid[0|1|5|6|10|50|60][Size=<VD1_Sz>,<VD2_Sz>,..|*all] [name=<VDNAME1>,..] drives=e:s|e:s-x|e:s-x,y;e:s-x,y,z [PDperArray=x][SED] [pdcache=on|off|*default][pi] [DimmerSwitch(ds)=default|automatic(auto)| *none|maximum(max)| MaximumWithoutCaching(maxnocache)][cachevd] [wt|*wb] [nora|*ra] [*direct|cached] [CachedBadBBU|*NoCachedBadBBU] [Strip=<8|16|32|64|128|256|1024>] [AfterVd=X] [Spares = [e:]s|[e:]s-x|[e:]s-x,y] [force]

Table 13. Add RAID configuration input options

Option	Value range	Description
type	RAID [0|1|5|6|10|50|60].	Sets the RAID type of the configuration.
size	Maximum size based on the physical drives and RAID level.	Sets the size of each virtual drive. The default value is for the capacity of all referenced disks.
name	15 characters of length.	Specifies the drive name for each virtual drive.
drives	Valid enclosure number and valid slot numbers for the enclosure.	In e:s|e:s-x|e:s-x,y: • e specifies the enclosure ID. • s represents the slot in the enclosure. • e:s-x is the range convention used to represent slots s to x in the enclosure e.
pdperarray	0 to 15.	Specifies the number of physical drives per array. The default value is automatically chosen.
sed	—	Creates security-enabled drives.
pdcache	on|off|default.	Enables or disables PD cache.
pi	—	Enables protection information.
dimmerswitch	default: Logical device uses controller default power-saving policy. automatic (auto): Logical device power savings are managed by firmware. none: No power-saving policy. maximum (max): Logical device uses maximum power savings.	Specifies the power-saving policy. Sets to default automatically.

	MaximumWithoutCaching (maxnocache): Logical device does not cache write to maximize power savings.	
wt|wb	wt: Write through. wb: Write back.	Enables write through. Write back is the default.
nora|ra	ra: Read ahead. nora: No read ahead.	Disables read ahead. Enabled is the default.
cachedbadbbu| nocachedbadbbu	cachedbadbbu: Enable bad BBU caching. nocachedbadbbu: Disable bad BBU caching.	Enables caching when BBU is not functioning. Disabled is the default.
cachevd	—	Enables SSD caching on the created virtual drive.
strip	8, 16, 32, 64, 128, 256, 512, 1024.	Sets the strip size for the RAID configuration.
aftervd	Valid virtual drive number.	Creates the VD in the adjacent free slot next to the specified VD.
spares	Number of spare physical drives present.	Specifies the physical drives that are to be assigned to a disk group for spares.
force	—	Forces a security-capable physical drive to be added to a drive group without security.

```
perccli /cx add vd each r0 [name=<VDNAME1>,..] [drives=e:s|e:s-x|e:s-x,y] [SED]
[pdcache=on|off|default][pi][DimmerSwitch(ds)=default| automatic(auto)|none|
maximum(max)|MaximumWithoutCaching(maxnocache)] [wt|wb] [nora|ra][direct|cached]
[CachedBadBBU|NoCachedBadBBU] [Strip=<64|128|256|512|1024>] [EmulationType=0|1|
2] [ExclusiveAccess] [Cbsize=0|1|2 Cbmode=0|1|2|3|4|7]
```

This command creates a RAID 0 configuration for each disk specified in the drives option. You can use the following options to create the RAID volume:

Table 14. Add RAID 0 configuration input options

Option	Value range	Description
type	RAID [0|1|5|6|10|50|60].	Sets the RAID type of the configuration.
size	Maximum size based on the physical drives and RAID level.	Sets the size of each virtual drive. The default value is for the capacity of all referenced disks.
name	15 characters of length.	Specifies the drive name for each virtual drive.
drives	Valid enclosure number and valid slot numbers for the enclosure.	In e:s|e:s-x|e:s-x,y: • e specifies the enclosure target.

		• s represents the disk slot number. • e:s-x is the range of disk slot numbers. • e:s-x,y is the range of disk slot numbers plus the disk with a slot number out of the specified range. If you replace s-x with 0-9, it will provide 10 RAID 0 virtual disks with each using one disk.
pdperarray	0 to 15.	Specifies the number of physical drives per array. The default value is automatically chosen.
sed	—	Creates security-enabled drives.
pdcache	on|off|default.	Enables or disables PD cache.
pi	—	Enables protection information.
dimmerswitch	default: Logical device uses controller default power-saving policy. automatic (auto): Logical device power savings are managed by firmware. none: No power-saving policy. maximum (max): Logical device uses maximum power savings. MaximumWithoutCaching (maxnocache): Logical device does not cache write to maximize power savings.	Specifies the power-saving policy. Sets to default automatically.
wt|wb	wt: Write through. wb: Write back.	Enables write through. Write back is the default.
nora|ra	ra: Read ahead. nora: No read ahead.	Disables read ahead. Enabled is the default.
cachedbadbbu| nocachedbadbbu	cachedbadbbu: Enable bad BBU caching. nocachedbadbbu: Disable bad BBU caching.	Enables caching when BBU is not functioning. Disabled is the default.
cachevd	—	Enables SSD caching on the created virtual drive.
strip	8, 16, 32, 64, 128, 256, 512, 1024.	Sets the strip size for the RAID configuration.
aftervd	Valid virtual drive number.	Creates the VD in the adjacent free slot next to the specified VD.

spares	Number of spare physical drives present.	Specifies the physical drives that are to be assigned to a disk group for spares.
force	—	Forces a security-capable physical drive to be added to a drive group without security.

Input example:

```
perccli /c0 add vd type=raid10 size=2gb,3gb,4gb names=tmp1,tmp2,tmp3
drives=252:2-3,5,7 pdperarray=2
```

Delete virtual drives commands

The PERC Command Line Tool supports the following virtual drive delete commands:

```
perccli /cx/vx|vall del
perccli /cx/vx|vall del force
```

NOTE: If the virtual drive has user data, you must use the force option to delete the virtual drive.

A virtual drive with a valid master boot record (MBR) and a partition table is considered to contain user data.

If you delete a virtual drive with a valid MBR without erasing the data and then create a new virtual drive using the same set of physical drives and the same RAID level as the deleted virtual drive, the old unerased MBR still exists at block0 of the new virtual drive, which makes it a virtual drive with valid user data. Therefore, you must provide the force option to delete this newly created virtual drive.

The detailed description for each command follows.

perccli /cx/vx|vall del

This command deletes a particular virtual drive or, when the vall option is used, all the virtual drives on the controller are deleted.

Input example:

```
perccli /c0/v2 del
```

NOTE: This command deletes virtual drives. Data located on these drives will no longer be accessible.

NOTE: This command deletes virtual drives. Data located on these drives will no longer be accessible.

perccli /cx/vx|vall del force

This command deletes a virtual drive only after the cache flush is completed. With the force option, the command deletes a virtual drive without waiting for the cache flush to complete.

Input example:

```
perccli /c0/v2 del force
```

NOTE: This command deletes the virtual drive where the operating system is present. Data located on these drives and the operating system of the drive will no longer be accessible

Virtual drive show commands

The PERC Command Line Tool supports the following virtual drive show commands:

```
perccli /cx/vx show
perccli /cx/vx show all
```

The detailed description for each command follows.

perccli /cx/vx show

This command shows the summary of the virtual drive information.

Input example:

```
perccli /c0/v0 show
```

perccli /cx/vx show all

This command shows all virtual drive information, which includes virtual drive information, physical drives used for the virtual drives, and virtual drive properties.

Input example:

```
perccli /c0/v0 show all
```

Preserved cache commands

If a virtual drive becomes offline or is deleted because of missing physical disks, the controller preserves the dirty cache from the virtual disk. The PERC Command Line Tool supports the following commands for preserved cache:

```
perccli /cx/vx delete preservedCache [force]
perccli /cx show preservedCache
```

The detailed description for each command follows.

perccli /cx/vx delete preservedcache

This command deletes the preserved cache for a particular virtual drive on the controller in missing state. Use the `force` option to delete the preserved cache of a virtual drive in offline state.

Input example:

```
perccli /c0/v1 delete preservedcache
```

perccli /cx show preservedCache

This command shows the virtual drive that has preserved cache and whether the virtual drive is offline or missing.

Input example:

```
perccli /c0 show preservedCache
```

Change virtual drive properties commands

The PERC Command Line Tool supports the following commands to change virtual drive properties:

```
perccli /cx/vx set accesspolicy=<rw|ro|blocked|rmvblkd>
perccli /cx/vx set cachedbadbbu=<on|off>
perccli /cx/vx set iopolicy=<cached|direct>
perccli /cx/vx set name=<namestring>
perccli /cx/vx set pdcache=<on|off|default>
perccli /cx/vx set rdcache=<ra|nora>
perccli /cx/vx set security
perccli /cx/vx|vall set ssdcaching=<on|off>
perccli /cx/vx set wrcache=<wt|wb|awb>
```

The detailed description for each command follows.

perccli /cx/vx set accesspolicy=<rw|ro|blocked|rmvblkd>

This command sets the access policy on a virtual drive to read write, read only, or blocked or rmvblkd (remove blocked).

Input example:

```
perccli /c0/v0 set accesspolicy=rw
```

perccli /cx/vx set cachedbadbbu=<on|off>

This command enables the use write cache for the virtual drive when the BBU is bad.

Input example:

```
perccli /c0/v0 set cachedbadbbu=on
```

perccli /cx/vx set iopolicy=<cached|direct>

This command sets the I/O policy on a virtual drive to cached I/O or direct I/O.

Input example:

```
perccli /c0/v0 set iopolicy=cached
```

perccli /cx/vx set name=<namestring>

This command names a virtual drive. The name is restricted to 15 characters.

Input example:

```
perccli /c1/v0 set name=testdrive123
```

perccli /cx/vx set pdcache=<on|off|default>

This command sets the current disk cache policy on a virtual drive to on, off, or default setting.

Input example:

```
perccli /c0/v0 set pdcache=on
```

perccli /cx/vx set rdcache=<ra|nora>

This command sets the read cache policy on a virtual drive to read ahead, no read ahead, or adaptive read ahead.

Input example:

```
perccli /c0/v0 set rdcache=nora
```

perccli /cx/vx set security

This command secures the virtual drive.

Input example:

```
perccli /c0/v0 set security
```

NOTE: The `off` option is not supported in the current release. If you run the command, a message saying that the command is not supported appears.

perccli /cx/vx set wrcache=<wt|wb|awb>

This command sets the write cache policy on a virtual drive to write back, write through, or always write back.

Input example:

```
perccli /c0/v0 set wrcache=wt
```

Virtual drive initialization commands

The PERC Command Line Tool supports the following commands to initialize virtual drives:

```
perccli /cx/vx show init
perccli /cx/vx start init [full][Force]
perccli /cx/vx stop init
```

NOTE: If the virtual drive has user data, you must use the `force` option to initialize the virtual drive. A virtual drive with a valid MBR and partition table is considered to contain user data.

The detailed description for each command follows.

perccli /cx/vx show init

This command shows the initialization progress of a virtual drive in percentage.

Input example:

```
perccli /c0/v2 show init
```

perccli /cx/vx start init [full]

This command starts the initialization of a virtual drive. The default initialization type is fast initialization. If the `full` option is specified, full initialization of the virtual drive starts.

Input example:

```
perccli /cx/vx start init [full]
```

perccli /cx/vx stop init

This command stops the initialization of a virtual drive. A stopped initialization cannot be resumed.

Input example:

```
perccli /c0/v0 stop init
```

Virtual drive erase commands

The PERC Command Line Tool supports the following command to erase virtual drives:

perccli /cx/vx erase [force]

This command erases the data on the virtual drive. You can use the `force` option as a confirmation to erase the data on the drive and the security information.

Input example:

```
perccli /c0/v0 erase[force]
```

NOTE: If the virtual drive has user data, you must use the `force` option to erase the virtual drive. A virtual drive with a valid MBR and partition table is considered to contain user data.

Virtual drive migration commands

NOTE: The virtual drive migration commands are not supported in Embedded MegaRAID.

The PERC Command Line Tool supports the following commands for virtual drive migration (reconstruction):

```
perccli /cx/vx show migrate
perccli /cx/vx start migrate <type=raidlevel>
[option=<add|remove> disk=<e1/s1,e2/s2 ...> ]
```

The detailed description for each command follows.

perccli /cx/vx show migrate

This command shows the progress of the virtual drive migrate operation in percentage.

Input example:

```
perccli /c0/v0 show migrate
```

perccli /cx/vx start migrate <type=raidlevel> [option=<add | remove> disk=<e1:s1,e2:s2 ...>]

This command starts the reconstruction on a virtual drive to the specified RAID level by adding or removing disks from the existing virtual drive. You can use the following options with the start migrate command:

Table 15. Virtual drive migration command options

Options	Value range	Description
`type = RAID level`	`RAID [0|1|5|6]`	The RAID level to which the virtual drive must be migrated.
`[option=<add | remove> disk=<e1:s1,e2:s2, …>]`	`add`: Adds disks to the virtual drive and starts reconstruction. `remove`: Removes disks from the virtual drive and starts reconstruction. `disk`: The enclosure number and the slot number of the disks to be added to the virtual drive.	Adds or removes disks from the virtual drive.

Virtual drive migration can be done between the following RAID levels:

Table 16. Virtual drive migration table

Initial RAID level	Migrated RAID level
RAID 0	RAID 1
RAID 0	RAID 5
RAID 0	RAID 6
RAID 1	RAID 0
RAID 1	RAID 5
RAID 1	RAID 6
RAID 5	RAID 0
RAID 5	RAID 6
RAID 6	RAID 0
RAID 6	RAID 5

Input example:

```
perccli /c0/v3 start migrate type=r5 option=add disk=e5:s2,e5:s3
```

Virtual drive consistency check commands

The PERC Command Line Tool supports the following commands for virtual drive consistency checks:

```
perccli /cx/vx pause cc perccli /cx/vx resume cc
perccli /cx/vx show cc
perccli /cx/vx start cc [force]
perccli /cx/vx stop cc
```

NOTE: If enclosures are used to connect the physical drives to the controller, specify the IDs in the command.

The detailed description for each command follows.

perccli /cx/vx pause cc

This command pauses an ongoing consistency check process. You can resume the consistency check at a later time. You can run this command only on a virtual drive that has a consistency check operation running.

Input example:

```
perccli /c0/v4 pause cc
```

perccli /cx/vx resume cc

This command resumes a suspended consistency check operation. You can run this command on a virtual drive that has a paused consistency check operation.

Input example:

```
perccli /c0/v4 resume cc
```

perccli /cx/vx show cc

This command shows the progress of the consistency check operation in percentage.

Input example:

```
perccli /c0/v5 show cc
```

perccli /cx/vx start cc force

This command starts a consistency check operation for a virtual drive. Typically, a consistency check operation is run on an initialized virtual drive. Use the `force` option to run a consistency check on an uninitialized drive.

Input example:

```
perccli /c0/v4 start cc
```

perccli /cx/vx stop cc

This command stops a consistency check operation. You can run this command only for a virtual drive that has a consistency check operation running.

Input example:

```
perccli /c0/v4 stop cc
```

NOTE: You cannot resume a stopped consistency check process.

Background initialization commands

The PERC Command Line Tool supports the following commands for background initialization:

```
perccli /cx/vx resume bgi
perccli /cx/vx set autobgi=<on|off>
perccli /cx/vx show autobgi
```

```
perccli /cx/vx show bgi
perccli /cx/vx stop bgi
perccli /cx/vx suspend bgi
```

The detailed description for each command follows.

perccli /cx/vx resume bgi

This command resumes a suspended background initialization operation.

Input example:

```
perccli /c0/v0 resume bgi
```

perccli /cx/vx set autobgi=<on|off>

This command sets the auto background initialization setting for a virtual drive to on or off.

Input example:

```
perccli /c0/v0 set autobgi=on
```

perccli /cx/vx show autobgi

This command shows the background initialization setting for a virtual drive.

Input example:

```
perccli /c0/v0 show autobgi
```

perccli /cx/vx show bgi

This command shows the background initialization progress on the specified virtual drive in percentage.

Input example:

```
perccli /c0/v0 show bgi
```

perccli /cx/vx stop bgi

This command stops a background initialization operation. You can run this command only for a virtual drive that is currently initialized.

Input example:

```
perccli /c0/v4 stop bgi
```

perccli /cx/vx pause bgi

This command suspends a background initialization operation. You can run this command only for a virtual drive that is currently initialized.

Input example:

```
perccli /c0/v4 pause bgi
```

Virtual drive expansion commands

The PERC Command Line Tool supports the following commands for virtual drive expansion:

```
perccli /cx/vx expand size=<value> [expandarray]
perccli /cx/vx|vall show expansion
```

The detailed description for each command follows.

perccli /cx/vx expand size=<value> [expandarray]

This command expands the virtual drive within the existing array or if you replace the drives with drives larger than the size of the existing array. The value of the expand size is in GB. If the `expandarray` option is specified, the existing array is expanded. If this option is not specified, the virtual drive is expanded.

perccli /cx/vx show expansion

This command shows the expansion information on the virtual drive with and without array expansion.

Input example:

```
perccli /c0/v0 show expansion
```

Foreign configurations commands

The PERC Command Line Tool supports the following commands to view, import, and delete foreign configurations:

```
perccli /cx/fx|fall del|delete [ securitykey=sssssssssss ]
perccli /cx/fx|fall import [preview][ securitykey=sssssssssss ]
perccli /cx/fx|fall show [all] [ securitykey=sssssssssss ]
```

NOTE: Provide the security key when importing a locked foreign configuration created in a different machine that is encrypted with a security key.

The detailed description for each command follows.

perccli /cx/fx|fall del| delete [securitykey=sssssssssss]

This command deletes the foreign configuration of a controller. Input the security key if the controller is secured.

Input example:

```
perccli /c0/fall delete
```

perccli /cx/fx|fall import [preview] [securitykey=sssssssssss]

This command imports the foreign configurations of a controller. The `preview` option shows a summary of the foreign configuration before importing it.

Input example:

```
perccli /c0/fall import
```

perccli /cx/fx|fall show [all][securitykey=sssssssssss]

This command shows the summary of the entire foreign configuration for a particular controller. The `all` option shows all the information of the entire foreign configuration.

NOTE: The EID:Slot column is populated for the foreign PDs that are locked.

Input example:

```
perccli /c0/fall show preview foreign
perccli /c0/fall import preview
perccli /c0/fall show all
```

BIOS-related commands

The PERC Command Line Tool supports the following BIOS commands:

```
perccli /cx autobootselect(abs)=<on|off>
perccli /cx set bios=<on|off>
perccli /cx set headlessafemode|hsm=<on/off>
perccli /cx set headlesscontinueonerror|hcoe=<on/off>
perccli /cx set stoponerror|soe=<on|off>
perccli /cx show bios
```

The detailed description for each command follows.

perccli /cx set autobootselect|abs=<on|off>

This command enables the BIOS to select the best logical drive as the boot drive.

Input example:

```
perccli /cx set autobootselect=on
```

perccli /cx set bios=<on|off>

This commands enables or disables the MegaRAID controller's BIOS.

NOTE: The legacy BIOS can load a limited number of the PCI device's BIOS. Disable the MegaRAID BIOS to avoid issues during POST.

Input example:

```
perccli /c0 set bios=enable
```

perccli /cx set headlessafemode|hsm=<on|off>

This command drives the MegaRAID BIOS to headless safe mode if any errors are encountered during POST. In headless safe mode, limited support exists for the PERCCLI commands.

Input example:

```
perccli /c0/ set headlessafemode=on
```

perccli /cx set headlesscontinueonerror|hcoe=<on|off>

This command does not drive the MegaRAID BIOS to headless safe mode if any errors are encountered during POST, and it continues normal operation.

Input example:

```
perccli /c0/ set headlesscontinueonerror=on
```

perccli /cx set stoponerror|soe=<on|off>

This command stops the MegaRAID BIOS during POST if any errors are encountered.

Input example:

```
perccli /c0/ set StopOnError=on
```

perccli /cx show bios

This command shows if the BIOS is on or off.

Input example:

```
perccli /c0 show bios
```

OPROM BIOS commands

The PERC Command Line Tool supports the following OPROM BIOS commands:

```
perccli /cx/ex/sx set bootdrive=on|off
perccli /cx/vx set bootdrive=on|off
perccli /cx show bootdrive
```

The detailed description for each command follows.

perccli /cx/ex/sx set bootdrive=on|off

This command sets the specified physical drive as the boot drive. During the next reboot, the BIOS looks for a boot sector in the specified physical drive.

Input example:

```
perccli /c0/e32/s4 set bootdrive=on
```

perccli /cx/vx set bootdrive=on|off

This command sets the specified virtual drive as the boot drive. During the next reboot, the BIOS looks for a boot sector in the specified virtual drive.

Input example:

```
perccli /c0/v0 set bootdrive=on
```

perccli/cx/vx show bootdrive

This command shows the boot drive for the controller. The boot drive can be a physical drive or a virtual drive.

Input example:

```
perccli /c0/v0 show bootdrive
```

Drive group commands

This section describes the drive group commands.

Drive group show

The PERC Command Line Tool supports the following drive group commands:

```
perccli /cx/dall show
perccli /cx/dall show all
```

perccli /cx/dall show

This command shows the topology information of the drive group.

Input example:

```
perccli /c0/dall show
```

perccli /cx/dall show all

This command shows all available configurations in the controller which includes topology information, virtual drive information, physical drive information, free space, and free slot information.

Input example:

```
perccli /c0/dall show all
```

Dimmer switch commands

Change virtual drive power settings commands

The PERC Command Line Tool supports the following command to change the Dimmer Switch setting. The Dimmer Switch is the power-saving policy for the virtual drive.

perccli /cx/vx set ds=<default | auto | none | max | maxnocache>

This command changes the power-saving properties on a virtual drive. See `dimmerswitch` in the following table for values.

Input example:

```
perccli /cx/vx set ds=default
```

NOTE: Only the ds3 dimmer switch option cannot be selected in the PERC Command Line Tool.

You can use the following combinations for the dimmer switch commands:

```
perccli /cx set ds=off type=1|2|3|4
perccli /cx set ds=on type=1|2 [properties]
perccli /cx set ds=on type=3|4 defaultldtype=<value> [properties]
perccli /cx set ds=on [properties]
```

The following table describes the power-saving options.

Table 17. Dimmer switch input options

Option	Value range	Description
`dimmerswitch or ds`	`on|off`	Turns the dimmer switch option on.
`type`	`1`: Unconfigured `2`: Hot spare `3`: Virtual drive `4`: All	Specifies the type of drives that the dimmer switch feature is applicable. By default, it is activated for unconfigured drives, hot spare drives and virtual drives.
`defaultldtype`	`auto`: Logical device power savings are managed by the firmware. `none`: No power saving policy. `max`: Logical device uses maximum power savings. `maxnocache`: Logical device does not cache write to maximise power savings.	Specifies the default logical drive type that is created by the dimmer switch option; set to none automatically.
`properties`	`disableldps`: Interval in hours or time in. hh:mmformatspinupdrivecount: Valid enclosure number (0 to 255). `SpinUpEncDelay`: Valid time in seconds.	Sets the interval or time in which the power-saving policy for the logical drive is turned off. Specifies the number of drives in the enclosure that are spun up. Specifies the delay of spin-up groups within an enclosure in seconds.

perccli/cx show DimmerSwitch(ds)

This command shows the current dimmer switch setting for the controller.

Input example:

```
perccli/c0 show ds
```

BBU commands

The PERC Command Line Tool supports the following battery backup unit (BBU) commands:

```
perccli /cx/bbu show
perccli /cx/bbu show all
perccli /cx/bbu set bbuMode=<value>
perccli /cx/bbu set learndelayinterval=<value>
perccli /cx/bbu set powermode=sleep
perccli /cx/bbu set writeaceess=sealed
perccli /cx/bbu show modes
perccli /cx/bbu show properties
perccli /cx/bbu show status perccli /cx/bbu start learn
```

The detailed description for each command follows:

perccli /cx/bbu show

This command shows the summary information for the BBU of a controller.

Input example:

```
perccli /c0/bbu show
```

perccli /cx/bbu show all

This command shows all the information of the BBU.

Input example:

```
perccli /c0/bbu show all
```

perccli /cx/bbu set bbuMode=<value>

This command sets the BBU mode for the BBU. The following table shows the various BBU modes:

Table 18. BBU mode

Mode	Description
0	48 hours of retention at 60 °C, 1-year Service Life.
1	12 hours of retention at 45 °C, 5-year Service Life, transparent learn.
2	12 hours of retention at 55 °C, 3-year Service Life, transparent learn.
3	24 hours of retention at 45 °C, 3-year Service Life, transparent learn.
4	48 hours of retention at 45 °C, 3-year Service Life.
5	48 hours of retention at 55 °C, 1-year Service Life.
6	Same as the description for BBU mode 5. The BBU mode 6 enables you to receive events when the battery capacity reaches suboptimal and critical thresholds.

Indicates how long the battery can hold data in the controller's memory if there is accidental system shutdown.

The controller's performance is not affected during the battery's learn cycle.

Input example:

```
perccli /c0/bbu set bbuMode=2
```

NOTE: BBU modes are supported on any iBBU08/09 bbu/controller combo and later-generation controllers.

perccli /cx/bbu set learndelayinterval=<value>

This command sets the learn delay interval for the BBU in hours. The value must be between 0 to 168 hours (7 days).

Input example:

```
perccli /c0/bbu set learnDelayInterval=30
```

perccli /cx/bbu set powermode=sleep

This command places the battery in low-power storage mode. The battery automatically exits this state after 5 seconds.

Input example:

```
perccli /c0/bbu set powermode=sleep
```

perccli /cx/bbu set writeaccess=sealed

This command seals the gas gauge EEPROM write access.

NOTE: Use the `set writeaccess=sealed` command at manufacturing time.

Input example:

```
perccli /c0/bbu set writeaccess=sealed
```

perccli /cx/bbu show modes

This command shows the bbu mode information that includes the bbu mode number, retention time, service life, maximum temperature, and battery learn information.

Input example:

```
perccli /c0/bbu show modes
```

perccli /cx/bbu show properties

This command shows the BBU Learn properties for a controller.

Input example:

```
perccli /c0/bbu show properties
```

perccli /cx/bbu show status

This command shows the battery information, firmware status, and the gas gauge status.

Input example:

```
perccli /c0/bbu show status
```

perccli /cx/bbu start learn

This command starts the BBU learning cycle. The battery learn cycle is immediately started and no other parameters are required for this command.

Input example:

```
perccli /c0/bbu start learn
```

Enclosure commands

The PERC Command Line Tool supports the following enclosure commands:

```
perccli /cx/ex download src=filepath[forceActivate]
perccli /cx/ex show all
perccli /cx/ex show status
```

The detailed description for each command follows.

perccli /cx/ex download src=filepath [forceactivate]

This command flashes the firmware with the file specified at the command line. The enclosure performs an error check after the operation. The following option can be used with the enclosure firmware download command.

Table 19. Enclosure firmware download command options

Option	Value Range	Description
forceactivate	—	Issues a command descriptor block (CDB) with write command with no data with command mode 0x0F (flash download already in progress). NOTE: This option is used primarily to activate Scotch Valley Enclosures.

NOTE: The firmware file that is used to flash the enclosure can be of any format. The PERCCLI utility assumes that you provide a valid firmware image.

Input example:

```
perccli /c0/e0 download src=c:\file2.bin
```

perccli /cx/ex show all

This command shows all enclosure information, which includes general enclosure information, enclosure inquiry data, a count of enclosure elements, and information about the enclosure elements.

Input example:

```
perccli /c0/e0 show all
```

perccli /cx/ex show status

This command shows the enclosure status and the status of all the enclosure elements.

Input example:

```
perccli /c0/e0 show status
```

PHY commands

The PERC Command Line Tool supports the following PHY commands:

```
perccli /cx/px|pall set linkspeed=0(auto)|1.5|3|6|12
perccli /cx/px|pall show
perccli /cx/px|pall show all
```

The detailed description for each command follows.

perccli /cx/px|pall set linkspeed=0(auto)|1.5|3|6|12

This command sets the PHY link speed. You can set the speed to 1.5 Gb/s, 3 Gb/s, 6 Gb/s, or 12 Gb/s. The linkspeed is set to `auto` when you specify `linkspeed = 0`.

Input example:

```
perccli /c0/p0 set linkspeed=1.5
```

perccli /cx/px|pall show

This command shows the basic PHY layer information.

Input example:

```
perccli /c1/p0 show
```

perccli /cx/px|pall show all

This command shows all the PHY layer information.

Input example:

```
perccli /c1/p0 show all
```

Logging commands

The PERC Command Line Tool supports the following commands to generate and maintain log files:

```
perccli /cx clear events
perccli /cx delete termlog
perccli /cx show events file=<absolute path>
perccli /cx show eventloginfo
perccli /cx show termlog type=config|contents
```

The detailed description for each command follows.

perccli /cx delete events

This command deletes all records in the event log.

Input example:

```
perccli /c0 delete events
```

perccli /cx delete termlog

This command clears the TTY (firmware log for issue troubleshooting) logs.

Input example:

```
perccli /c0 delete termlog
```

perccli /cx show events file=<absolute path>

This command prints the system log to a text file and saves the file in the specified location.

Input example:

```
perccli /c0 show events file=C:\Users\brohan\test\eventreports
```

perccli /cx show eventloginfo

This command shows the history of log files generated.

Input example:

```
perccli /c0 show eventloginfo type=config
```

perccli /cx show termlog type=config|contents

This command shows the firmware logs. The `config` option shows the term log configuration (settings of TTY BBU buffering), the `contents` option shows the term log. The `contents` option is the default.

Input example:

```
perccli /c0 show termlog type=contents
```

PERC CLI command examples

You can use the Dell PowerEdge RAID Controller (PERC) Command Line Interface (CLI) to manage RAID controllers, configure PERC cards, and perform a variety of controller and enclosure specific operations.

Getting a complete list of CLI commands

To view a full list of available CLI commands, use one of the following CLI commands:

```
perccli64.exe –help > [filename]
perccli64.exe –? > [filename]
```

Checking controller availability

Syntax

```
perccli show
```

Description

Displays information about the adapter and the operating system.

Result

```
Status Code = 0
Status = Success
Description = none

Number of Controllers = 1
Host name = WIN-RFV0S1VAILB
Operating System = Windows Server 2012

System Overview :
===============
-----------------------------------------------------------------------------
Ctl Model    Ports  PDs  DGs  DNOpt  VDs  VNOpt  BBU  sPR  DS  EHS  ASOs
-----------------------------------------------------------------------------
 0  Adapter    8     9    2     0     2     0    Fld   On  3    N    0
-----------------------------------------------------------------------------
```

Viewing controllers

Syntax

```
perccli  show ctrlcount
```

Description

Displays the number of controllers detected in the server.

Result

```
Status Code = 0
Status = Success
Description = None

Controller Count = 1
```

Viewing free space information

Syntax

```
perccli /c0  show freespace
```

Description

Displays the free space details of the controller.

Result

```
Status Code = 0
Status = Success
Description = None

FREE SPACE DETAILS :
===================
Total Slot Count = 0
ID-Index|DG-Drive Group|AftrVD-Identify Freespace After VD
```

Viewing disk1 information

Syntax

```
perccli /c0/d1 show
```

Description

Displays information about disk1.

Result

```
Controller = 0
Status = Success
Description = Show Diskgroup Succeeded

TOPOLOGY :
========
-----------------------------------------------------------------------------
DG Arr Row EID:Slot DID  Type  State  BT        Size  PDC  PI SED DS3  FSpace
-----------------------------------------------------------------------------
1  -   -   -        -    RAID0 Opt1   N   558.375 GB  dflt N   Y   dflt  N
1  0   -   -        -    RAID0 Opt1   N   558.375 GB  dflt N   Y   dflt  N
1  0   0   32:2     2    DRIVE Onln   N   558.375 GB  dflt N   Y   dflt  -
-----------------------------------------------------------------------------
```

Viewing controller, virtual disk, and drivers information

Syntax

```
perccli /c0 show
```

Description

Displays information about the adapter, virtual disks, and drivers.

Result

```
Status Code = 0
Status = Success
Description = none

Product Name = PERC H730P Adapter
Serial Number = 38E005K
SAS Address = 5b8ca3a0f78d9000
Mfg. Date = 08/28/13
System Time = 11/30/2013 05:12:51
Controller Time = 11/30/2013 05:13:29
FW Package Build = 25.2.0.0014
BIOS Version = 6.12.00_4.12.05.00_0x06020101
FW Version = 4.220.00-2918
Driver Name = PercSas3.sys
Driver Version = 6.600.52.00
Controller Bus Type = N/A
PCI Slot = N/A
PCI Bus Number = 4
PCI Device Number = 0
PCI Function Number = 0
Drive Group = 2

TOPOLOGY :
========
-----------------------------------------------------------------------------
DG Arr Row EID:Slot DID Type  State  BT        Size  PDC  PI SED DS3  FSpace
-----------------------------------------------------------------------------
0  -   -   -        -   RAIDS Opt1   N     1.635 TB  dflt  N  V  dflt  N
0  0   -   -        -   RAIDS Opt1   N     1.635 TB  dflt  N  V  dflt  N
0  0   0   32:0     0   DRIVE Onln   N   558.375 GB  dflt  N  V  dflt  -
0  0   1   32:1     1   DRIVE Onln   N   558.375 GB  dflt  N  V  dflt  -
0  0   2   32:3     3   DRIVE Onln   N   558.375 GB  dflt  N  V  dflt  -
0  0   3   32:4     4   DRIVE Onln   N   558.375 GB  dflt  N  V  dflt  -
1  -   -   -        -   RAID0 Opt1   N   558.375 GB  dflt  N  V  dflt  N
1  0   -   -        -   RAID0 Opt1   N   558.375 GB  dflt  N  V  dflt  N
1  0   0   32:2     2   DRIVE Onln   N   558.375 GB  dflt  N  V  dflt  -
-----------------------------------------------------------------------------

Virtual Drives = 2

VD LIST :
=======
-----------------------------------------------------------------
DG/VD  Type  State  Access  Consist  Cache  sCC       Size  Name
-----------------------------------------------------------------
0/0    RAID5 Opt1   RW      Yes      RWTD   -     1.635 TB
1/1    RAID0 Opt1   RW      Yes      RWTD   -   558.375 GB  Test
-----------------------------------------------------------------

Physical Drives = 9

PD LIST :
=======
-------------------------------------------------------------------------
EID:Slt DID State  DG        Size  Intf Med SED PI SeSz  Model        Sp
-------------------------------------------------------------------------
32:0    0   Onln   0   558.375 GB  SAS  HDD Y   Y  4 KB  ST600MP0084   U
32:1    1   Onln   0   558.375 GB  SAS  HDD Y   Y  4 KB  ST600MP0084   U
32:2    2   Onln   1   558.375 GB  SAS  HDD Y   N  512B  ST600MP0054   U
32:3    3   Onln   0   558.375 GB  SAS  HDD Y   Y  4 KB  ST600MP0084   U
32:4    4   Onln   0   558.375 GB  SAS  HDD Y   Y  4 KB  ST600MP0084   U
```

```
32:5    5   UGood  -   558.375 GB  SAS  HDD N   N  512B  ST600MP0034   U
32:6    6   UGood  -   558.375 GB  SAS  HDD Y   N  512B  ST600MP0054   U
32:7    7   UGood  -   558.375 GB  SAS  HDD N   N  512B  ST600MP0034   U
32:18   18  UGood  -   558.375 GB  SAS  HDD Y   N  512B  ST600MP0054   U
------------------------------------------------------------------------

Cachevault_info :
===============
-------------------------------------
Model  State  Temp  Mode  MfgDate
-------------------------------------
BBU    Failed 76C   -     2011/07/18
-------------------------------------
```

Checking for preserved cache

Syntax

```
perccli /c0  show preservedcache
```

Description

Displays available preserved cache.

Result

```
Controller = 0
Status = Success
Description = None

------------
VD  State
------------
0   Missing
------------
```

Deleting preserved cache

Syntax

```
perccli /c0/v1  delete preservedcache
```

Description

Deletes the available preserved cache.

Result

```
Controller = 0
Status = Success
Description = Virtual Drive preserved Cache Data Cleared
```

Viewing expansion information

Syntax

```
perccli /c0/v0  show expansion
```

Description

Displays virtual drive's expansion information with and without array expansion.

Result

```
Controller = 0
Status = Success
Description = None

EXPANSION INFORMATION :
=======================
-----------------------------------------------
VD      Size  OCE  NoArrExp  WithArrExp  Status
-----------------------------------------------
0   1.635 TB  N    -         -           -
-----------------------------------------------
OCE - Online Capacity Expansion | WithArrExp - With Array Expansion
NoArrExp - Without Array Expansion
```

Viewing the foreign configuration

Syntax

```
perccli /c0/fall show
```

Description

Displays the foreign configuration of the selected controller.

Result

```
Controller = 0
Status = Success
Description = Operation on foreign configuration Succeeded

FOREIGN CONFIGURATION :
======================
---------------------------------------
DG EID:Slot Type  State     Size NoVDs
---------------------------------------
 0 -        RAID0 Frgn  372.0 GB     1
---------------------------------------

NoVDs - Number of VDs in disk group|DG - Diskgroup
Total foreign drive groups = 1
```

Importing the foreign configuration

Syntax

```
perccli /c0/fall import
```

Description

Imports the foreign configurations of the selected controller.

Result

```
Controller = 0
Status = Success
Description = Successfully imported foreign configuration
```

Viewing BBU information

Syntax

```
perccli /c0/bbu show all
```

Description

Displays information related to the Battery Backup Unit (BBU) of a controller.

Result

```
Controller = 0
Status = Success
Description = None

BBU_Info :
========
-----------------------
Property      Value
-----------------------
Type           BBU
Voltage        3 mV
Current        0 mA
Temperature    32 C
Battery State  Optimal
-----------------------

BBU_Firmware_Status :
====================
-------------------------------------------------
Property                                  Value
-------------------------------------------------
Charging Status                           None
Voltage                                   OK
Temperature                               OK
Learn Cycle Requested                     No
Learn Cycle Active                        No
Learn Cycle Status                        OK
Learn Cycle Timeout                       No
I2C Errors Detected                       No
Battery Pack Missing                      No
Replacement required                      No
Remaining Capacity Low                    No
Periodic Learn Required                   No
Transparent Learn                         No
No space to cache offload                 No
Pack is about to fail & should be replaced No
Cache Offload premium feature required    No
Module microcode update required          No
-------------------------------------------------

GasGaugeStatus :
==============
-------------------------------------
Property                  Value
```

```
-------------------------------------
Fully Discharged           Yes
Fully Charged              Yes
Discharging                No
Initialized                No
Remaining Time Alarm       No
Remaining Capacity Alarm   Yes
Terminate Discharge Alarm  No
Over Temperature           No
Charging Terminated        No
Over Charged               No
Relative State of Charge   100%
Charger System State       Complete
Remaining Capacity         407
Full Charge Capacity       407
Is SOH Good                Yes
Battery backup charge time 0 hour(s)
-------------------------------------

BBU_Capacity_Info :
==================
-----------------------------------------------------
Property                Value
-----------------------------------------------------
Relative State of Charge 100%
Absolute State of charge 0%
Remaining Capacity       407 mAh
Full Charge Capacity     407 mAh
Run time to empty        Battery is not being charged
Average time to empty    33 min
Average Time to full     Battery is not being charged
Cycle Count              3
Max Error                0%
Remaining Capacity Alarm 0 mAh
Remaining Time Alarm      0 minutes(s)
-----------------------------------------------------

BBU_Design_Info :
================
-----------------------------------
Property               Value
-----------------------------------
Date of Manufacture    18/07/2011
Design Capacity        90 mAh
Design Voltage         0 mV
Specification Info     0
Serial Number          0
Pack Stat Configuration 0
Manufacturer's Name
Device Name
Device Chemistry
Battery FRU            N/A
Transparent Learn      1
App Data               0
Module Version         0.3
-----------------------------------

BBU_Properties :
===============
-------------------------------------------------------------
Property            Value
-------------------------------------------------------------
Auto Learn Period    90d (7776000 seconds)
Next Learn time      2014/02/19  12:44:32 (446129072 seconds)
```

```
Learn Delay Interval 0 hour(s)
Auto-Learn Mode      Transparent
------------------------------------------------------------
```

Viewing physical drive details for the specified slot in the controller

Syntax

```
perccli /c0/e32/s4 show all
```

Description

Displays information about the physical drive, including device attribute, settings, and port information for a particular slot in the controller.

Result

```
Controller = 0
Status = Success
Description = Show Drive Information Succeeded.

Drive /c0/e32/s4:
=================
-------------------------------------------------------------------------------
EID:Slt  DID  State  DG        Size  Intf  Med  SED  PI  SeSz  Model         Sp
-------------------------------------------------------------------------------
32:4     4    Onln   0   558.375 GB  SAS   HDD  Y    Y   4 KB  ST600MP0084   U
-------------------------------------------------------------------------------
EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-Drive Group
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryption Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foriegn
UGUnsp-Unsupported

Drive /c0/e32/s4 - Detailed Information :
========================================
Drive /c0/e32/s4 State :
======================
Shield Counter = 0
Media Error Count = 0
Other Error Count = 0
Drive Temperature = 43c <109.40F>
Predictive Failure Count = 0
S.M.A.R.T alert flagged by drive = No

Drive /c0/e32/s4 Device attribute :
=================================
SN = S2G01H5T
WWN = 5000C5006B1A4FB8
Firmware Revision = VB44
Raw size = 558.911 GB [0x8bba5f6 Sectors]
Coerced size = 558.375 GB [0x8b98000 Sectors]
Non Coerced size = 558.411 GB [0x8b9a5f6 Sectors]
Device Speed = 6.0Gb/s
Link Speed = 6.0Gb/s
Logical Sector Size = 4 KB
Physical Sector Size = 4 KB

Drive /c0/e32/s4 Policies/Settings :
==================================
Drive position = DriveGroup:0, Span:0, Row:3
```

```
Enclosure Position = 0
Connected Port Number = 0<path0>
Sequence Number = 2
Commissioned Spare = No
Emergency Spare = No
Last Predictive Failure Event Sequence Number = 0
Successful diagnostics completion on = N/A
SED Capable = Yes
SED Enabled = Yes
Secured = Yes
Locked = No
Needs EKM Attention = No
PI Eligible = Yes
Drive is formatted for PI = Yes
PI type = 2
Number of bytes of user data in LBA = 4 KB
Certified = Yes
Wide Port Capable = No

Port Information :
================
-----------------------------------------
Port  Status  Linkspeed  SAS address
-----------------------------------------
  0   Active  6.0Gb/s    0x5000c5006b1a4fba
  1   Active  6.0Gb/s    0x0
-----------------------------------------

Inquiry Data =
00 00 06 12 8b 01 30 02 53 45 41 47 41 54 45 20
53 54 36 30 30 4d 50 30 30 38 34 20 20 20 20 20
56 42 34 34 53 32 47 30 31 48 35 54 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 43 6f 70 79 72 69 67 68 74 20 28 63 29 20 32
30 31 33 20 53 65 61 67 61 74 65 20 41 6c 6c 20
```

Viewing the boot drive for the controller

Syntax

```
perccli /c0 show bootdrive
```

Description

Displays the boot drive for the controller. The boot drive can be a physical drive or a virtual drive.

Result

```
Controller = 0
Status = Success
Description = None

Controller Properties :
=====================
-----------------
Ctrl_Prop  Value
-----------------
BootDrive  VD:13
-----------------
```

Setting virtual drive as boot drive

Syntax

```
perccli /c0/v13 set bootdrive = on
```

Description

Sets the specified virtual drive as the boot drive. During the next reboot, the BIOS looks for a boot sector in the specified virtual drive.

Result

```
Controller = 0
Status = Success
Description = None


Detailed Status :
===============
-----------------------------------------------
VD  Property   Value  Status   ErrCd  ErrMsg
-----------------------------------------------
13  Boot Drive  On    Success     0    -
-----------------------------------------------
```

Locating a drive

Syntax

```
perccli /c0/e32/s0  start locate
```

Description

Locates a drive and activates the physical disk activity LED.

Result

```
Controller = 0
Status = Success
Description = Start Drive Locate Succeeded
```

Stopping a locate operation

Syntax

```
perccli /c0/e32/s0  stop locate
```

Description

Stops a drive locate operation and deactivates the physical disk activity LED.

Result

```
Controller = 0
Status = Success
Description = Stop Drive Locate Succeeded
```

4

Getting help

You can get help with your Dell product by contacting Dell, or send feedback on product documentation.

Contacting Dell

Dell provides several online and telephone-based support and service options. If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical assistance, or customer-service issues:

1. Go to **Dell.com/support**.
2. Select your country from the drop-down menu on the bottom right corner of the page.
3. For customized support:
   a. Enter your system Service Tag in the **Enter your Service Tag** field.
   b. Click **Submit**.
      The support page that lists the various support categories is displayed.
4. For general support:
   a. Select your product category.
   b. Select your product segment.
   c. Select your product.
      The support page that lists the various support categories is displayed.

Locating your system service tag

Your system is identified by a unique Express Service Code and Service Tag number. The Express Service Code and Service Tag are found on the front of a physical DR Series system by pulling out the information tag. This can also be found on the support tab in the GUI. This information is used by Dell to route support calls to the appropriate personnel.