

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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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.

Related documentation

PERC product documentation includes a PERC User's Guide that discusses the features, installation, management, and troubleshooting of your PERC card. Find PERC User's Guides and documentation of other storage controllers and PCIeSSD at dell.com/storagecontrollermanuals.

Additional documentation may relate to the integration of PERC cards into your network:

- For Dell OpenManage documents, go to dell.com/openmanagemanuals.
- For operating system documents, go to dell.com/operatingsystemmanuals.
- For PowerEdge documentation, go to dell.com/poweredgemanuals.
- For PowerVault documentation, go to dell.com/powervaultmanuals.

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**.

Using the PERC CLI

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.

PERC CLI commands overview

The following table lists PERC CLI commands. For more information about the commands, type `perccli help`.

Table 1. PERC CLI commands

Commands	Description
<code>add</code>	Adds or creates a new element to controller like VD, Spare and so on
<code>delete</code>	Deletes an element like VD and Spare
<code>show</code>	Displays information about an element
<code>set</code>	Set a particular value to a property
<code>start</code>	Start background operation
<code>stop</code>	Stop background operation
<code>pause</code>	Pause background operation
<code>resume</code>	Resume background operation
<code>download</code>	Downloads file to given device
<code>expand</code>	Expands size of given drive
<code>insert</code>	Inserts new drive for missing
<code>transform</code>	Downgrades the controller
<code>/cx</code>	Controller specific commands
<code>/ex</code>	Enclosure specific commands
<code>/sx</code>	Slot/PD specific commands
<code>/vx</code>	Virtual drive specific commands

Commands	Description
/dx	Disk group specific commands
/fall	Foreign configuration specific commands
/px	Physical specific commands
/ [bbu cv]	Battery Backup Unit, Cachevault commands

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	Frqn	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
```

Getting help

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

Contacting Dell



NOTE: If you do not have an active Internet connection, you can find the contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

Go to **dell.com/contactdell**.

Documentation feedback

If you have feedback for this document, write to **documentation_feedback@dell.com**. Alternatively, you can click on the **Feedback** link in any of the Dell documentation pages, fill out the form, and click **Submit** to send your feedback.

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.