How do you use LSI commands?

KB0011217 (Review)

☆ ☆ ☆ ☆ ☆ 2 views

Answer

IBM Cloud provides the Bare Metal server and this server normally has a local LSI storage controller. This document will show how to manage a LSI raid controller on IBM Cloud servers using using StorCLI.

There are two ways to configure and check raid status:

- RAID BIOS: It requires a reboot of the server. When the server is powered on, you need to type Crtl + R.
- Using StorCLI: Without shutting down the server, you can configure and check it.

This document will focus on using StorCLI from command-line interface.

StorCLI Installation

If your servers do not have the StorCLI software installed especially for ESXi hosts, download the software (http://www.avagotech.com/support/download-search) and install it. For example, you can use the following installation syntax:

```
# esxcli software vib install -v <installation_path> --no-sig-check
```

To verify that installation is success, run the following command from the storcli directory:

```
# ./storcli show
```

Generally, here are the installation paths StorCLI:

- Linux: /opt/MegaRAID/storcli/
- Windows: C:\Program Files (x86)\MegaRAID Storage Manager\

How do you check the current configuration and drive status?

- To show the virtual disk status, run the following command:
  ```
  # storcli64 /c0 /vall show
  ```
  The following screen shot shows the results of the command:

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /vall show
Controller = 0
Status = Success
Description = None


Virtual Drives :
==============

--------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
--------------------------------------------------------------
0/0   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-A
--------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency


[root@acs-raid-lshin storcli]#
```

- To show the physical disk status, run the following command:
  `# storcli /c0 /eall /sall show`
  The following screen shot shows the results of the command:

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /eall /sall show
Controller = 0
Status = Success
Description = Show Drive Information Succeeded.


Drive Information :
=================

-----------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model                Sp
-----------------------------------------------------------------------------
8:0      19 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:1      17 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:2      18 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:3      15 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:4      20 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:5      16 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:6      14 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:7      10 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:8      11 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:9      13 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:10      9 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:11     12 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
-----------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded


[root@acs-raid-lshin storcli]#
```

- To show more detail about the disk status, such as any errors, serial, temperature, and firmware version, run the following command:
  `# storcli /c0 /eall /sall show all`
  The following screen shot shows the results of the command:

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /eall /sall show all | more
Controller = 0
Status = Success
Description = Show Drive Information Succeeded.


Drive /c0/e8/s0 :
===============

-------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model               Sp
-------------------------------------------------------------------------
8:0      19 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
-------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded


Drive /c0/e8/s0 - Detailed Information :
=====================================

Drive /c0/e8/s0 State :
=====================
Shield Counter = 0
Media Error Count = 0
Other Error Count = 0
Drive Temperature =  26C (78.80 F)
Predictive Failure Count = 0
S.M.A.R.T alert flagged by drive = No


Drive /c0/e8/s0 Device attributes :
=================================
SN = Z1W4X34W
Manufacturer Id = ATA
```

- When there is a faulty disk, IBM Support requires the serial number for replacement. Thus, it is good idea to backup serial number information. To obtain the information, run the following command:
  `# storcli /c0 /eall /sall show all | grep -P '(Det|Cou|S\.M|^SN) (?!.*\s(No|0)$)'`
  The following screen shot shows the results:

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /eall /sall show all | grep -P '(Det|Cou|S\.M|^SN)(?!.*\s(No|0)$)'
Drive /c0/e8/s0 - Detailed Information :
SN = Z1W4X34W
Drive /c0/e8/s1 - Detailed Information :
SN = Z1W26066
Drive /c0/e8/s2 - Detailed Information :
SN = Z1W21VWX
Drive /c0/e8/s3 - Detailed Information :
SN = Z1W261BP
Drive /c0/e8/s4 - Detailed Information :
SN = Z1W260EF
Drive /c0/e8/s5 - Detailed Information :
SN = Z1W251WC
Drive /c0/e8/s6 - Detailed Information :
SN = Z1W4XMPM
Drive /c0/e8/s7 - Detailed Information :
SN = Z1W25D07
Drive /c0/e8/s8 - Detailed Information :
SN = Z1W24RLG
Drive /c0/e8/s9 - Detailed Information :
SN = Z1W377N5
Drive /c0/e8/s10 - Detailed Information :
SN = Z1W35DPC
Drive /c0/e8/s11 - Detailed Information :
SN = Z1W4T5P7
[root@acs-raid-lshin storcli]#
```

- To show the raid controller logs, run the following command:
  `# storcli /c0 show termlog`
  The following screen shot shows the results:

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 show TermLog | more
Firmware Term Log Information on controller 0:
T0: C0:TtyInit: FlashLog @ 0xfc480000 Size = 0x200000
T0: C0:TtyInit: FlashTty @ 0xfc680000 Size = 0x80000

T0: C0:AVAGO ROC firmware
T0: C0:Copyright(C) AVAGO Technologies, 2014
T0: C0:Firmware version 4.650.00-6383 built on May 10 2016 at 03:54:14

T0: C0:supported dgbflags:
T0: C0:    biosDisable: 0
T0: C0:    ddrDisable: 0
T0: C0: *** HW Encryption Disabled : dcrReg=ad294319
T0: C0:Reading Detroit Cache enable at DCR cache config register: 0x0
T0: C0:Reading Detroit Cache init at DCR cache control/status register: 0x0
T0: C0:TreeVelleInit Complete (Velle Config register 103ff)
T0: C0:RegionLockMaroInit Complete (Maro config register c00103ff
T0: C0:DRAM_LOCAL_BASE: 40000000
T0: C0:MEM_FIXED_SIZE: 1900000
T0: C0:MEM_FIXED_END: 41900000
T0: C0:FW_DRAM_REGION_START: 41900000
T0: C0:FW_DRAM_REGION_SIZE: 2b00000
T0: C0:MEM_POOL_BASE: 43c35aa0
T0: C0:Initializing memory pool size=007CA560 bytes
T0: C0:I2C 0 reset!
T0: C0:I2Chandle obtained for MUX [0]0x0
T0: C0:I2C 1 reset!
T0: C0:I2Chandle obtained for MUX [1]0x10
T0: C0:I2C 5 reset!
T0: C0:I2Chandle obtained for MUX [5]0x50
T0: C0:I2C 2 reset!
T0: C0:I2Chandle obtained for MUX [2]0x20
T0: C0:I2C 3 reset!
T0: C0:I2Chandle obtained for MUX [3]0x30
T0: C0:I2C 4 reset!
T0: C0:I2Chandle obtained for MUX [4]0x40
```

Creating the virtual disk: Raid group

Here as an example we have 1 virtual disk already configured for OS disk and 10 un-used disks

```
Virtual Drives :
==============

-------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
-------------------------------------------------------------
0/0   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-A
-------------------------------------------------------------
```

```
Drive Information :
=================

-----------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model                Sp
-----------------------------------------------------------------------------
8:0      19 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:1      17 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:2      18 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:3      15 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:4      20 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:5      16 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:6      14 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:7      10 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:8      11 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:9      13 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:10      9 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:11     12 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
-----------------------------------------------------------------------------
```

1. Create a JBOD Virtual disk: RAID 0 disk

storcli /c0 add vd type=raid0 name=JBOD-A drives=8:2

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 add vd type=raid0 name=JBOD-A drives=8:2
Controller = 0
Status = Success
Description = Add VD Succeeded

[root@acs-raid-lshin storcli]# ./storcli64 /c0 /vall show
Controller = 0
Status = Success
Description = None


Virtual Drives :
==============

-------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
-------------------------------------------------------------
0/0   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-A
1/1   RAID0 Optl  RW     Yes     RWBD  -   ON  931.0 GB JBOD-A
-------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency
```

1. Create a Raid1 virtual disk

storcli /c0 add vd type=raid1 name=RAID1-B drives=8:3-4

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 add vd type=raid1 name=RAID1-B drives=8:3-4
Controller = 0
Status = Success
Description = Add VD Succeeded

[root@acs-raid-lshin storcli]# ./storcli64 /c0 /vall show
Controller = 0
Status = Success
Description = None


Virtual Drives :
==============

--------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
--------------------------------------------------------------
0/0   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-A
1/1   RAID0 Optl  RW     Yes     RWBD  -   ON  931.0 GB JBOD-A
2/2   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-B
--------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency


[root@acs-raid-lshin storcli]#
```

1. Create a RAID5 virtual disk

storcli /c0 add vd type=raid5 name=RAID5-A drives=8:5-9

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 add vd type=raid5 name=RAID5-A drives=8:5-9
Controller = 0
Status = Success
Description = Add VD Succeeded

[root@acs-raid-lshin storcli]# ./storcli64 /c0 /vall show
Controller = 0
Status = Success
Description = None


Virtual Drives :
==============

--------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
--------------------------------------------------------------
0/0   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-A
1/1   RAID0 Optl  RW     Yes     RWBD  -   ON  931.0 GB JBOD-A
2/2   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-B
3/3   RAID5 Optl  RW     No      RWBD  -   ON  3.637 TB RAID5-A
--------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency


[root@acs-raid-lshin storcli]#
```

1. Create a spare disk

We still have two un-used disks and we are creating two global spares as all disk are 1TB.

```
PD LIST :
=======

-------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model                Sp
-------------------------------------------------------------------------
8:0      19 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:1      17 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:2      18 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 Onln   2 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 Onln   2 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:7      10 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:8      11 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:9      13 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:10      9 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
8:11     12 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 D
-------------------------------------------------------------------------
```

Note. This space disk will work for raid1 volume not for raid0 volume as raid0 doesn't have parity disk for redundancy.

To add Global Hot spare: This will work for all raid1 and raid5 virtual disks

storcli /c0 /e8/s10,11 add hotsparedrive

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0/e8/s10,11 add hotsparedrive
Controller = 0
Status = Success
Description = Add Hot Spare Succeeded.

[root@acs-raid-lshin storcli]# ./storcli64 /c0 /eall /sall show
Controller = 0
Status = Success
Description = Show Drive Information Succeeded.


Drive Information :
=================

-------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model                Sp
-------------------------------------------------------------------------
8:0      19 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:1      17 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:2      18 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 Onln   2 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 Onln   2 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:7      10 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:8      11 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:9      13 Onln   3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:10      9 GHS    - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:11     12 GHS    - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
-------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded
```

To add dedicate hot spare: This will work for 2(raid1), 3(raid5) virtual disks

storcli /c0/e8/s10,11 add hotsparedrive dgs=2,3

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0/e8/s10,11 add hotsparedrive dgs=2,3
Controller = 0
Status = Success
Description = Add Hot Spare Succeeded.

[root@acs-raid-lshin storcli]# ./storcli64 /c0 /eall /sall show
Controller = 0
Status = Success
Description = Show Drive Information Succeeded.


Drive Information :
=================

---------------------------------------------------------------------------
EID:Slt DID State  DG     Size Intf Med SED PI SeSz Model               Sp
---------------------------------------------------------------------------
8:0      19 Onln    0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:1      17 Onln    0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:2      18 Onln    1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 Onln    2 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 Onln    2 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 Onln    3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 Onln    3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:7      10 Onln    3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:8      11 Onln    3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:9      13 Onln    3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:10      9 DHS   2,3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:11     12 DHS   2,3 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
---------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded
```

1. Delete virtual disk

To delete hot spare disks:

storcli /c0/e8/s10 delete hotsparedrive

storcli /c0/e8/s11 delete hotsparedrive

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0/e8/s10 delete hotsparedrive
Controller = 0
Status = Success
Description = Delete Hot Spare Succeeded.

[root@acs-raid-lshin storcli]# ./storcli64 /c0/e8/s11 delete hotsparedrive
Controller = 0
Status = Success
Description = Delete Hot Spare Succeeded.

[root@acs-raid-lshin storcli]#
```

To delete virtual disks: repeat for 3 virtual disk

storcli /c0/v3 delete forse

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0/v3 delete force
Controller = 0
Status = Success
Description = Delete VD succeeded

[root@acs-raid-lshin storcli]# ./storcli64 /c0/v2 delete force
Controller = 0
Status = Success
Description = Delete VD succeeded

[root@acs-raid-lshin storcli]# ./storcli64 /c0/v1 delete force
Controller = 0
Status = Success
Description = Delete VD succeeded
```

Now we have only OS virtual disk

```
Virtual Drives :
==============

---------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
---------------------------------------------------------------
0/0   RAID1 Optl  RW     No      RWBD  -   ON  931.0 GB RAID1-A
---------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency
```

```
Drive Information :
=================

-----------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model                Sp
-----------------------------------------------------------------------------
8:0      19 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:1      17 Onln   0 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:2      18 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:7      10 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:8      11 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:9      13 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:10      9 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:11     12 UGood  - 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
-----------------------------------------------------------------------------
```

Modifying cache options and strip size

This options is for specific virtual disk and should be changed depends on specific requirement.

1. Strip Size : 64KB, 128KB, 256KB, 512KB, 1MB

storcli /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 strip=1024

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 strip=1024
Controller = 0
Status = Success
Description = Add VD Succeeded

[root@acs-raid-lshin storcli]#
```

storcli /c0 /v1 show all

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /v1 show all
Controller = 0
Status = Success
Description = None


/c0/v1 :
======

---------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
---------------------------------------------------------------
1/1   RAID5 Optl  RW     No      RWBD  -   ON  3.637 TB RAID5-A
---------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency


PDs for VD 1 :
============

-------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model               Sp
-------------------------------------------------------------------------
8:2      18 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
-------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded


VD1 Properties :
==============
Strip Size = 1.0 MB
Number of Blocks = 7809794048
VD has Emulated PD = No
Span Depth = 1
Number of Drives Per Span = 5
Write Cache(initial setting) = WriteBack
Disk Cache Policy = Disk's Default
Encryption = None
Data Protection = Disabled
Active Operations = Background Initialization (53%)
Exposed to OS = Yes
Creation Date = 25-06-2018
Creation Time = 01:24:57 AM
Emulation type = None
```

1. I/O policy : determine whether use cache or not

- Cached I/O: All reads are buffered in cache memory, Cached I/O provide faster processing
- Direct I/O: Reads are not buffered in cache memory. Data is transferred to the cache and the host concurrently.

storcli /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 CACHED

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 CACHED
Controller = 0
Status = Success
Description = Add VD Succeeded

[root@acs-raid-lshin storcli]#
```

storcli /c0 /v1 show all

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /v1 show all
Controller = 0
Status = Success
Description = None


/c0/v1 :
======

---------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
---------------------------------------------------------------
1/1   RAID5 Optl  RW     No      RWBC  -   ON  3.637 TB RAID5-A
---------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency


PDs for VD 1 :
============

------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model               Sp
------------------------------------------------------------------------
8:2      18 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded


VD1 Properties :
==============
Strip Size = 256 KB
Number of Blocks = 7809794048
VD has Emulated PD = No
Span Depth = 1
Number of Drives Per Span = 5
Write Cache(initial setting) = WriteBack
Disk Cache Policy = Disk's Default
Encryption = None
Data Protection = Disabled
Active Operations = None
Exposed to OS = Yes
Creation Date = 25-06-2018
Creation Time = 04:04:05 AM
Emulation type = None
```

1. Read Policy

- Normal: The controller read sequentially ahead of requested data
- Ahead: Disable read ahead capability

storcli /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 nora

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 nora
Controller = 0
Status = Success
Description = Add VD Succeeded

[root@acs-raid-lshin storcli]#
```

storcli /c0 /v1 show all

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /v1 show all
Controller = 0
Status = Success
Description = None


/c0/v1 :
======

---------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
---------------------------------------------------------------
1/1   RAID5 Optl  RW     No      NRWBD -   ON  3.637 TB RAID5-A
---------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency


PDs for VD 1 :
============

-------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model               Sp
-------------------------------------------------------------------------
8:2      18 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
-------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded


VD1 Properties :
==============
Strip Size = 256 KB
Number of Blocks = 7809794048
VD has Emulated PD = No
Span Depth = 1
Number of Drives Per Span = 5
Write Cache(initial setting) = WriteBack
Disk Cache Policy = Disk's Default
Encryption = None
Data Protection = Disabled
Active Operations = None
Exposed to OS = Yes
Creation Date = 25-06-2018
Creation Time = 04:09:14 AM
Emulation type = None
```

1. Write Policy

- Write thru: The controller sends a data transfer completion signal to the host when the drive subsystem has received all the data in a transaction.
- Write Back: The controller sends a data transfer completion signal to the host when the controller cache has received all the data in a transaction.

storcli /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 wt

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 add vd type=raid5 name=RAID5-A drives=8:2-6 wt
Controller = 0
Status = Success
Description = Add VD Succeeded

[root@acs-raid-lshin storcli]#
```

storcli /c0 /v1 show all

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 /v1 show all
Controller = 0
Status = Success
Description = None


/c0/v1 :
======

-------------------------------------------------------------
DG/VD TYPE  State Access Consist Cache Cac sCC     Size Name
-------------------------------------------------------------
1/1   RAID5 Optl  RW     No      RWTD  -   ON  3.637 TB RAID5-A
-------------------------------------------------------------

Cac=CacheCade|Rec=Recovery|OfLn=OffLine|Pdgd=Partially Degraded|dgrd=Degraded
Optl=Optimal|RO=Read Only|RW=Read Write|B=Blocked|Consist=Consistent|
R=Read Ahead Always|NR=No Read Ahead|WB=WriteBack|
AWB=Always WriteBack|WT=WriteThrough|C=Cached IO|D=Direct IO|sCC=Scheduled
Check Consistency


PDs for VD 1 :
============

------------------------------------------------------------------------
EID:Slt DID State DG     Size Intf Med SED PI SeSz Model               Sp
------------------------------------------------------------------------
8:2      18 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:3      15 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:4      20 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:5      16 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
8:6      14 Onln   1 931.0 GB SATA HDD N   N  512B ST1000NM0033-9ZM173 U
------------------------------------------------------------------------

EID-Enclosure Device ID|Slt-Slot No.|DID-Device ID|DG-DriveGroup
DHS-Dedicated Hot Spare|UGood-Unconfigured Good|GHS-Global Hotspare
UBad-Unconfigured Bad|Onln-Online|Offln-Offline|Intf-Interface
Med-Media Type|SED-Self Encryptive Drive|PI-Protection Info
SeSz-Sector Size|Sp-Spun|U-Up|D-Down|T-Transition|F-Foreign
UGUnsp-Unsupported|UGShld-UnConfigured shielded|HSPShld-Hotspare shielded
CFShld-Configured shielded


VD1 Properties :
==============
Strip Size = 256 KB
Number of Blocks = 7809794048
VD has Emulated PD = No
Span Depth = 1
Number of Drives Per Span = 5
Write Cache(initial setting) = WriteThrough
Disk Cache Policy = Disk's Default
Encryption = None
Data Protection = Disabled
Active Operations = None
Exposed to OS = Yes
Creation Date = 25-06-2018
Creation Time = 04:11:42 AM
Emulation type = None
```

Modify existing Virtual disk's options

If you want to change options on existing virtual disk, follow the instructions.

storcli64 /c0/v1 set iopolicy=cached

storcli64 /c0/v1 set rdcache=ra

storcli64 /c0/v1 set wrcache=wt

Consistency check and Patrol Read

This **consistency checks** are automatically scheduled every seven days. The first check will run one week after provision.

To find out current scheduled date and time:

storcli /c0 show all | grep -E "Next Consistency check launch"

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 show all | grep -E "Next Consistency check launch"
Next Consistency check launch = 06/29/2018, 19:00:00
[root@acs-raid-lshin storcli]#
```

To change schedule:

storcli /c0 set cc=conc delay=168 starttime=2018/06/30 03

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 set cc=conc delay=168 starttime=2018/06/30 03
Controller = 0
Status = Success
Description = None


Controller Properties :
=====================

---------------------------------
Ctrl_Prop    Value
---------------------------------
CC Mode      CONC
CC delay     168
CC Starttime 2018/06/30 03:00:00
---------------------------------


[root@acs-raid-lshin storcli]#
[root@acs-raid-lshin storcli]# ./storcli64 /c0 show all | grep -E "Next Consistency check launch"
Next Consistency check launch = 06/30/2018, 03:00:00
[root@acs-raid-lshin storcli]#
```

Patrol read is a feature which tries to discover disk error, by default this is done automatically with delay of 168 hours between different patrol reads and will take some of IO resources.

To find out current scheduled patrol read:

storcli /c0 show all | grep -E "Next Patrol Read launch"

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 show all | grep -E "Next Patrol Read launch"
Next Patrol Read launch = 06/29/2018, 19:00:00
[root@acs-raid-lshin storcli]#
```

To change schedule:

storcli /c0 set patrolread starttime=2018/07/01 01

```
[root@acs-raid-lshin storcli]# ./storcli64 /c0 set  patrolread starttime=2018/07/01 01
Controller = 0
Status = Success
Description = None


Controller Properties :
=====================

---------------------------------
Ctrl_Prop    Value
---------------------------------
PR Starttime 2018/07/01/ 01:00:00
---------------------------------


[root@acs-raid-lshin storcli]# ./storcli64 /c0 show all | grep -E "Next Patrol Read launch"
Next Patrol Read launch = 07/01/2018, 01:00:00
[root@acs-raid-lshin storcli]#
```

Note. These two check should be scheduled in different time as it will generate alert when run at the same time.

Manual

The manual for the raid controller can be found here: http://www.avagotech.com/docs-and-downloads/raid-controllers/raid-controllers-common-files/54385-00_RevF_12Gbs_MegaRAID_SAS_SW_UserGd.pdf (http://www.avagotech.com/docs-and-downloads/raid-controllers/raid-controllers-common-files/54385-00_RevF_12Gbs_MegaRAID_SAS_SW_UserGd.pdf)

The manual for StorCLI can be found here: http://docs.avagotech.com/docs-and-downloads/raid-controllers/raid-controllers-common-files/StorCLI_RefMan_revf.pdf (http://docs.avagotech.com/docs-and-downloads/raid-controllers/raid-controllers-common-files/StorCLI_RefMan_revf.pdf)

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Last modified 1 months ago