**HP Array Configuration CLI Utility: hpssacli**

* **Command Line Utility to be used from Linux OS for Hardware Raid configuration/Re-configuration on HP Proliant Servers:**

**Issue: One of the Physical Disk was failed (out of 6) under hardware RAID0**

**SERVER: testtserver**

**Solution/Workaround:**

1. **HP tech to replace faulty disk online**
2. **Rescan the disk by Unix Admin**
3. **Modify/Rebuild the RAID0 using HP Array Configuration CLI utility: hpssacli**

**RPM Required:**

[root@testserver ~]# rpm -qf /sbin/hpssacli

hpssacli-2.20-11.0.x86\_64                      >>>> for hpssacli command line to configure modify hardware raids need this package to be installed

[root@ testserver ~]# rpm -qa --last |grep hpssacli

hpssacli-2.20-11.0.x86\_64                     Mon 02 Oct 2017 03:38:36 PM MDT

* **Status of RAID before Replacing the BAD disk**

[root@testserver tmp]# hpssacli

HP Smart Storage Administrator CLI 2.20.11.0

Detecting Controllers...Done.

Type "help" for a list of supported commands.

Type "exit" to close the console.

[root@testserver ~]#

[root@ testserver tmp]# hpssacli ctrl all show config

Smart Array P440ar in Slot 0 (Embedded)   (sn: PDNLH0BRH366AO)

   Internal Drive Cage at Port 1I, Box 1, OK

   Internal Drive Cage at Port 2I, Box 1, OK

   array A (SAS, Unused Space: 0  MB)

      logicaldrive 1 (931.5 GB, RAID 1, OK)

      physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 1 TB, OK)

      physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 1 TB, OK)

   array B (SAS, Unused Space: 0  MB)

      logicaldrive 2 (5.5 TB, RAID 0, Failed)

      physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 1 TB, OK)

      physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 1 TB, OK)

      physicaldrive 2I:1:5 (port 2I:box 1:bay 5, SAS, 1 TB, OK)

      physicaldrive 2I:1:6 (port 2I:box 1:bay 6, SAS, 1 TB, OK)

      physicaldrive 2I:1:7 (port 2I:box 1:bay 7, SAS, 1 TB, OK)

**physicaldrive 2I:1:8 (port 2I:box 1:bay 8, SAS, 1 TB, Failed)**

=> ctrl all show status

Smart Array P440ar in Slot 0 (Embedded)

   Controller Status: OK

   Cache Status: OK

   Battery/Capacitor Status: OK

=> ctrl slot=0 pd all show status

   physicaldrive 1I:1:1 (port 1I:box 1:bay 1, 1 TB): OK

   physicaldrive 1I:1:2 (port 1I:box 1:bay 2, 1 TB): OK

   physicaldrive 1I:1:3 (port 1I:box 1:bay 3, 1 TB): OK

   physicaldrive 1I:1:4 (port 1I:box 1:bay 4, 1 TB): OK

   physicaldrive 2I:1:5 (port 2I:box 1:bay 5, 1 TB): OK

   physicaldrive 2I:1:6 (port 2I:box 1:bay 6, 1 TB): OK

   physicaldrive 2I:1:7 (port 2I:box 1:bay 7, 1 TB): OK

**physicaldrive 2I:1:8 (port 2I:box 1:bay 8, 1 TB): Failed**

* **Here is slot is "0" and Logical drive failed is "2"**
* **So once disk replacement is done, we need to modify RAID again with below commands**

=>rescan

=>ctlr slot=0 ld 2 modify reenable forced

* **Workaround after Replacement of Bad disk**

[root@ testserver tmp]# hpssacli

HP Smart Storage Administrator CLI 2.20.11.0

Detecting Controllers...Done.

Type "help" for a list of supported commands.

Type "exit" to close the console.

**=>rescan**

**=> ctrl slot=0 ld 2 modify reenable forced**

**=> ctrl all show config**

Smart Array P440ar in Slot 0 (Embedded)   (sn: PDNLH0BRH366AO)

   Internal Drive Cage at Port 1I, Box 1, OK

   Internal Drive Cage at Port 2I, Box 1, OK

   array A (SAS, Unused Space: 0  MB)

      logicaldrive 1 (931.5 GB, RAID 1, OK)

      physicaldrive 1I:1:1 (port 1I:box 1:bay 1, SAS, 1 TB, OK)

      physicaldrive 1I:1:2 (port 1I:box 1:bay 2, SAS, 1 TB, OK)

   array B (SAS, Unused Space: 0  MB)

      logicaldrive 2 (5.5 TB, RAID 0, OK)

      physicaldrive 1I:1:3 (port 1I:box 1:bay 3, SAS, 1 TB, OK)

      physicaldrive 1I:1:4 (port 1I:box 1:bay 4, SAS, 1 TB, OK)

      physicaldrive 2I:1:5 (port 2I:box 1:bay 5, SAS, 1 TB, OK)

      physicaldrive 2I:1:6 (port 2I:box 1:bay 6, SAS, 1 TB, OK)

      physicaldrive 2I:1:7 (port 2I:box 1:bay 7, SAS, 1 TB, OK)

      physicaldrive 2I:1:8 (port 2I:box 1:bay 8, SAS, 1 TB, OK)

=> ctrl slot=0 ld 2 show status

   logicaldrive 2 (5.5 TB, 0): OK

=> exit

[root@ testserver ~]#

* **Since this was RAID0 volume so data was lost upon disk got faulty. Here we had to create LVM metadata again**

[root@ testserver ~]# pvs

  PV         VG   Fmt  Attr PSize   PFree

  /dev/sda4  vg00 lvm2 a--  479.59g 291.59g

[root@ testserver ~]# fdisk -l /dev/sdb

Disk /dev/sdb: 6001.0 GB, 6001024262144 bytes, 11720750512 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 262144 bytes / 1572864 bytes

# HP Array Configuration Utility Commands

|  |  |
| --- | --- |
| Linux - hpssacli | |
| List of hpssacli utility commands to add, delete, identify and repair logical and physical disks on the Smart array controller | |
| **Utility Keyword abbreviations** | |
| **Abbreviations** | chassisname = ch |
| controller = ctrl |
| logicaldrive = ld |
| physicaldrive = pd |
| drivewritecache = dwc |
| **hpssacli utility** | |
| hpssacli | # hpssacli |
|  |
| # hpssacli help |
|  |
| Note: you can use the hpssacli command in a script |
| **Controller Commands** | |
| Display (detailed) | hpssacli> ctrl all show config |
| hpssacli> ctrl all show config detail |
| Status | hpssacli> ctrl all show status |
| Cache | hpssacli> ctrl slot=0 modify dwc=disable |
| hpssacli> ctrl slot=0 modify dwc=enable |
| Rescan | hpssacli> rescan |
|  |
| Note: detects newly added devices since the last rescan |
| **Physical Drive Commands** | |
| Display (detailed) | hpssacli> ctrl slot=0 pd all show |
| hpssacli> ctrl slot=0 pd 2:3 show detail |
|  |
| Note: you can obtain the slot number by displaying the controller configuration (see above) |
| Status | hpssacli> ctrl slot=0 pd all show status |
| hpssacli> ctrl slot=0 pd 2:3 show status |
| Erase | hpssacli> ctrl slot=0 pd 2:3 modify erase |
| Blink disk LED | hpssacli> ctrl slot=0 pd 2:3 modify led=on |
| hpssacli> ctrl slot=0 pd 2:3 modify led=off |
| **Logical Drive Commands** | |
| Display (detailed) | hpssacli> ctrl slot=0 ld all show [detail] |
| hpssacli> ctrl slot=0 ld 4 show [detail] |
| Status | hpssacli> ctrl slot=0 ld all show status |
| hpssacli> ctrl slot=0 ld 4 show status |
| Blink disk LED | hpssacli> ctrl slot=0 ld 4 modify led=on |
| hpssacli> ctrl slot=0 ld 4 modify led=off |
| re-enabling failed drive | hpssacli> ctrl slot=0 ld 4 modify reenable forced |
| Create | # logical drive - one disk |
| hpssacli> ctrl slot=0 create type=ld drives=1:12 raid=0 |
|  |
| # logical drive - mirrored |
| hpssacli> ctrl slot=0 create type=ld drives=1:13,1:14 size=300 raid=1 |
|  |
| # logical drive - raid 5 |
| hpssacli> ctrl slot=0 create type=ld drives=1:13,1:14,1:15,1:16,1:17 raid=5 |
|  |
| Note: |
| drives - specific drives, all drives or unassigned drives |
| size - size of the logical drive in MB |
| raid - type of raid 0, 1 , 1+0 and 5 |
| Remove | hpssacli> ctrl slot=0 ld 4 delete |
| Expanding | hpssacli> ctrl slot=0 ld 4 add drives=2:3 |
| Extending | hpssacli> ctrl slot=0 ld 4 modify size=500 forced |
| Spare | hpssacli> ctrl slot=0 array all add spares=1:5,1:7 |

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