



CHAPTER 7

Managing RAID

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Entering the RAID Management Command Environment

To add or modify RAID configuration, you must enter the RAID management command environment.



Note

The RAID management CLI is different from the Cisco IOS CLI. For a list of frequently used commands that you can use to manage RAID, see the [“Commands for Managing RAID” section on page 7-4](#).

Before You Begin

- Shutdown all virtual machines.
- Back up the datastore.
- Enable Remote Tech Support (SSH) through the VMware vSphere Hypervisor DCUI or the vSphere Client.

Procedure

- Step 1** Use the SSH Client software to log into the VMware vSphere Hypervisor. Do the following:
- a. For the hostname, enter the IP address of the VMware vSphere Hypervisor or the DNS hostname.
 - b. If prompted to accept the server's host key, click **Yes**.
 - c. Use **root** for the username.
 - d. When prompted for a password, do the following:
 - If you are a first time user, leave the password empty by pressing **Enter**.
 - If you have configured a password, enter that password, and then press **Enter**.

The following Tech Support Shell prompt appears:

```
~ #
```

- Step 2** At the Tech Support Shell prompt, use the **promise-raid-cli** command, and then press **Enter**. You enter the RAID management command environment:

```
~ # promise-raid-cli
raid-cli>
```

- Step 3** Use the appropriate RAID management command(s) as shown in the following example:

```
raid-cli> logdrv
```

For a list of frequently used commands that you can use to manage RAID, see the [“Commands for Managing RAID”](#) section on page 7-4.

- Step 4** Use the **exit** command to exit from the RAID management command environment:

```
raid-cli> exit
~ #
```

- Step 5** Use the **exit** command to exit from the Tech Support Shell:

```
~ # exit
```

Related Topics

- [Understanding RAID Options, page 4-1](#)
- [Commands for Managing RAID, page 7-4](#)
- [Determining the Location of the Physical SATA Drive, page 7-3](#)

Hot-Swapping the Faulty RAID 1 Disk Drive



Note

Hot-swapping is supported in RAID 1 mode only.

If you chose the RAID 1 option during installation, and one of the disk drives fails, you can replace that faulty disk drive with a new disk drive.

Procedure

- Step 1** Determine the location of the faulty disk drive. See the [“Determining the Location of the Physical SATA Drive”](#) section on page 7-3.

- Step 2** Remove the faulty disk drive.

- Step 3** Insert a new disk drive. The rebuild process starts automatically on the new disk drive.

The rebuild process might take approximately two hours to complete. You can continue to perform normal system operations during the rebuild process.



Caution

Make sure that you do not unplug the functional disc drive during the rebuild process. If you do, you will lose data.

If the rebuild process does not start, see the [“Rebuild Process Does Not Start”](#) section on page 7-7 to resolve the problem.

- Step 4** (Optional) To check the rebuild status, use the **rb -a list** command from the RAID management command environment, as shown in the following example:

```
raid-cli> rb -a list
Rebuild is in progress 10% in logical drive with ID 0 on controller #0!
```

You can also check the rebuild status in syslog.

Related Topics

- [Understanding RAID Options, page 4-1](#)
- [Entering the RAID Management Command Environment, page 7-1](#)
- [Rebuild Process Does Not Start, page 7-7](#)

Determining the Location of the Physical SATA Drive

Procedure

- Step 1** From the vSphere Client GUI Home page, do the following:
- Choose **Inventory > Configuration**.
 - From the Hardware pane (left pane), choose **Storage**.
 - From the right pane, click **Datastores**.
 - Right-click a datastore, and then choose **Properties**. The Properties dialog box opens.
 - From the Properties dialog box, click **Manage Paths...** From the Paths pane, look at the Runtime Name column. The Runtime Name column provides information about the location of datastore1 as shown in the following example:

```
vmhba0:C0:T1:L0
```

where T1 is the location of the datastore. T is the SCSI target and 1 is the ID number of a JBOD or RAID volume where the datastore is located. T1 maps to the JBOD volume ID 1 in [Step 2](#).

- Step 2** From the RAID management command environment, use the **logdrv** command, as shown in the following example:

```
raid-cli> logdrv
ID   RAID   Disks  Stripe  Size(MB)      DiskID Name
0    JBOD    1      N/A     476940.02     (1)   JBOD on port 01 (00)
1    JBOD    1      N/A     476940.02     (2)   JBOD on port 02 (00)
```

T1 from [Step 1](#) maps to the JBOD volume **1** (ID column). This JBOD volume **1** (ID column) is built on top of the physical SATA drive **2** (DiskID column). DiskID 2 indicates that it is the second physical SATA drive.

**Note**

The DiskID number that is displayed from the RAID management CLI output does not match with the disk number that is displayed on the front panel of the Cisco SRE Service Module:

- Disk 0 on the front panel of the Cisco SRE Service Module is represented as DiskID 1 in the RAID management CLI output.
- Disk 1 on the front panel of the Cisco SRE Service Module is represented as DiskID 2 in the RAID management CLI output.

Commands for Managing RAID

You can use the RAID management CLI to add or modify RAID configuration, to view RAID status, and to migrate between RAID levels.

**Note**

The RAID management CLI is different from the Cisco IOS CLI.

Table 7-1 provides a list of frequently used commands that you can use to manage RAID. A comprehensive list of all of the RAID Management commands is available online. You can either use the **help** command to access all of the RAID commands, or you can prepend a command with **help** to display details about that command. For example, the **help logdrv** command provides the syntax and options for the logdrv command.

Table 7-1 RAID Management Commands

Command or Action	Purpose
phydrv -a list or phydrv Example: <pre>raid-cli> phydrv -a list ID CH Size Model Serial F/W 1 0 476940.02MB Hitachi HTE545050B9A30100726PBN40317EASNPE 100726PBN40317EASNPE PB4OC64G 2 1 476940.02MB Hitachi HTE545050B9A30100726PBN40317EA189E 100726PBN40317EA189E PB4OC64G</pre>	Displays information about physical drives. Note The DiskID number that is displayed from the RAID management CLI output does not match with the disk number that is displayed on the front panel of the Cisco SRE Service Module: <ul style="list-style-type: none"> – Disk 0 on the front panel of the Cisco SRE Service Module is represented as DiskID 1 in the RAID management CLI output. – Disk 1 on the front panel of the Cisco SRE Service Module is represented as DiskID 2 in the RAID management CLI output.

Table 7-1 RAID Management Commands (continued)

Command or Action	Purpose
logdrv -a list or logdrv Example: raid-cli> logdrv -a list ID RAID Disks Sectors Size(MB) DiskID Name 0 JBOD 1 64 476940.02 (1) JBOD on port 01 (00) 1 JBOD 1 64 476940.02 (2) JBOD on port 02 (00)	Displays information about logical RAID volumes. Note The DiskID number that is displayed from the RAID management CLI output does not match with the disk number that is displayed on the front panel of the Cisco SRE Service Module: <ul style="list-style-type: none"> – Disk 0 on the front panel of the Cisco SRE Service Module is represented as DiskID 1 in the RAID management CLI output. – Disk 1 on the front panel of the Cisco SRE Service Module is represented as DiskID 2 in the RAID management CLI output.
logdrv -a clear -i 0 or logdrv -a clear Example: raid-cli> logdrv -a clear -i 0	Removes all of the logical volumes from the system.
logdrv -a del -i 0 -l 1 or logdrv -a del -l 1 Example: raid-cli> logdrv -a del -i 0 -l 1	Removes the second logical volume. Note The logical volume ID can start with 0.
logdrv -a add -p 1,2 -e 0,0 -z "raid=raid0,name=RAID0,init=quick" Example: raid-cli> logdrv -a add -p 1,2 -e 0,0 -z "raid=raid0,name=RAID0,init=quick" ID RAID Disks Sectors Size(MB) DiskID Name 0 RAID0 2 64 953752.00 (1,2) RAID0	Creates a simple block level striping RAID 0 volume using the full capacity (single full extent on each of the drives) across both first and second SATA drives. -z can be used to change stripe block size. Note Cisco SRE-V supports a maximum of two logical volumes.
logdrv -a add -p 1,2 -e 0,0, -z "raid=raid1,name=RAID1,init=quick" Example: raid-cli> logdrv -a add -i 0 -p 1,2 -e 0,0 -z "name=RAID1,raid=raid1" ID RAID Disks Sectors Size(MB) DiskID Name 0 RAID1 2 64 476876.00 (1,2) RAID1	Creates a simple 1:1 mirrored RAID 1 volume using the full capacity on both SATA drives. Note You can create a maximum of two logical volumes.

Table 7-1 RAID Management Commands (continued)

Command or Action	Purpose																																			
<pre>logdrv -a add -i 0 -p 1,2 -z "raid=JBOD,init=quick"</pre> <p>Example:</p> <pre>raid-cli> logdrv -a add -i 0 -p 1,2 -z "raid=JBOD,init=quick"</pre> <table><tr><th>ID</th><th>RAID</th><th>Disks</th><th>Sectors</th><th>Size(MB)</th><th>DiskID</th><th>Name</th></tr><tr><td>0</td><td>JBOD</td><td>1</td><td>64</td><td>476940.02</td><td>(1)</td><td>JBOD on port 01</td></tr><tr><td>(00)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>JBOD</td><td>1</td><td>64</td><td>476940.02</td><td>(2)</td><td>JBOD on port 02</td></tr><tr><td>(00)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	ID	RAID	Disks	Sectors	Size(MB)	DiskID	Name	0	JBOD	1	64	476940.02	(1)	JBOD on port 01	(00)							1	JBOD	1	64	476940.02	(2)	JBOD on port 02	(00)							<p>Removes the RAID metadata on both SATA drives and makes them non-RAID drives.</p> <p>If a datastore is not created on top of the JBOD volume, that JBOD volume might disappear after reboot.</p>
ID	RAID	Disks	Sectors	Size(MB)	DiskID	Name																														
0	JBOD	1	64	476940.02	(1)	JBOD on port 01																														
(00)																																				
1	JBOD	1	64	476940.02	(2)	JBOD on port 02																														
(00)																																				
<pre>logdrv -a list -v</pre> <p>or</p> <pre>logdrv -v</pre> <p>Example:</p> <pre>***** raid-cli> logdrv -a list -v Array ID : 0 Array name : RAID0 Array size : 953752.00 MB Array stripe size in number of blocks : 64 Array sector size : 512 Array raid mode : RAID0 Array write cache mode : Write Through Number of disks in array : 2 Disk members with ID in array : (1,2) Array activity status : Idle Array functional status : Online Driver Cache Mode: Write Thru Driver Lookahead threshold: 0 Driver Consolidation: enabled</pre>	<p>Displays details about the RAID configuration.</p>																																			
<pre>event -a list -v -c 10</pre> <p>Example:</p> <pre>raid-cli> event -a list -v -c 10 Time: Jan 29, 2011 06:19:00 EventID: 0x90001 Event Description: Logical drive "RAID0" deleted Time: Jan 29, 2011 06:18:40 EventID: 0x90000 Event Description: Logical drive "RAID0" created Time: Jan 29, 2011 06:18:30 EventID: 0x90001 Event Description: Logical drive "RAID0" deleted</pre>	<p>Displays the oldest ten events (if available) from the event queue.</p>																																			

Related Topics

- [Understanding RAID Options, page 4-1](#)
- [Entering the RAID Management Command Environment, page 7-1](#)

Troubleshooting RAID

- [Cannot View Datastores, page 7-7](#)
- [Rebuild Process Does Not Start, page 7-7](#)
- [Maintain RAID 1 Logical Volume, page 7-9](#)

Cannot View Datastores

Problem

After disk migration, reboot, or Cisco SRE-V software upgrade, you are unable to view the datastores in **Inventory > Configuration > Storage**.

Solution

To resolve this problem, do the following:

1. Rescan the system a couple of times. From the vSphere Client GUI Home page, do the following:
 - a. Choose **Inventory > Configuration**.
 - b. From the Hardware pane (left pane), choose **Storage**.
 - c. From the Datastores pane (right pane), choose **Rescan All...** (located on the upper right corner). The Rescan dialog box opens.
 - d. Click **OK**.
2. If rescanning the system does not resolve the problem, do the following:
 - a. Choose **Inventory > Configuration**.
 - b. From the Hardware pane (left pane), choose **Storage**.
 - c. Click the **Add Storage...** button. The Select Storage Type wizard page opens.
 - d. From the right pane, choose **Disk/LUN**, and then click **Next**. The Select Disk/LUN wizard page opens.
 - e. From the right pane, choose a disk, and then click **Next**. The Select VMFS Mount Options wizard page opens.
 - f. From the right pane, choose the **Assign a New Signature** radio button, and then click **Next**.
 - g. Choose **Free Space**, and then click **Finish**.

The missing datastores display with a modified name, which you can change. For example, Datastore_R0 displays as snap-XXXXX-datastore_R0; and datastore_R1 displays as snap-XXXXX-datastore_R1. To change the name of the datastore, right-click the appropriate datastore, and then choose **Rename**.

Related Topics

- [Migrating the Cisco SRE-V Software from Release 1.0 or 1.1 to Release 2.0, page 4-9](#)

Rebuild Process Does Not Start

Problem

After hot-swapping the faulty RAID 1 disk drive, the rebuild process does not start.

Probable Cause

RAID configuration shows a new JBOD volume, which you must delete.

Solution

To resolve this problem, do the following:

1. From the RAID management CLI, use the **logdrv** command to view RAID configuration.

When the valid partition table appears on the newly inserted drive, you might notice that the RAID configuration is unbalanced, as shown in the following example:

```
raid-cli> logdrv
ID    RAID    Disks Sectors    Size(MB)    DiskID Name
0     RAID1     2      64    476876.00    (-,2) RAID1
1     JBOD      1      64    476940.02    (1) JBOD on port 01 (00)
```

where (-,2) RAID1 represents an unbalanced array; and ID 1 shows a new JBOD volume. JBOD represents non-RAID, which you must delete.

2. Use the **logdrv -a del -l <ID number of the JBOD>** command to delete the JBOD volume:

```
raid-cli> logdrv -a del -l 1
```



Note -l in the command is lower case “L” and stands for logical.

After the JBOD volume is deleted, the rebuild process starts automatically on the new disk drive.

The rebuild process might take approximately two hours to complete. You can continue to perform normal system operations during the rebuild process.



Caution Do not unplug the functional disk drive during the rebuild process. If you do, you will lose data.

3. (Optional) To check the rebuild status, use the **rb -a list** command, as shown in the following example:

```
raid-cli> rb -a list
Rebuild is in progress 10% in logical drive with ID 0 on controller #0!
```

You can also check the rebuild status in syslog.

Related Topic

- [Hot-Swapping the Faulty RAID 1 Disk Drive, page 7-2](#)

Maintain RAID 1 Logical Volume

Problem

User data on the RAID 1 logical volume can become unsynchronized after you hot-swap a running RAID 1 disk drive.

Probable Cause

The RAID subsystem does not aggressively monitor user data on the RAID 1 logical volume. If the user data on the disk drive is altered or corrupted when it is removed from the chassis, for example when doing an offline data backup, the RAID 1 rebuild process does not start when the disk drive is placed back into the system unless user data on the RAID 1 logical volume was accessed during the hot-swap.

Solution

Manually start the RAID 1 rebuild process or perform a redundancy check.

1. If the rebuild process does not start automatically, from the RAID management CLI, use the **event -v -c 10** command to identify the disk drive that is hot-swapped.

```
raid-cli>event -v -c 10
Time: Feb 11, 2008 03:12:50
EventID: 0x90002
Event Description: Logical drive "raid1" goes online
Time: Feb 11, 2008 03:12:50
EventID: 0xd000a
Event Description: Port 2 target 1 plugged in
```



Note

- Port 2 refers to disk drive 2, which may require a rebuild.
- If the rebuild process started automatically, the event description does not display “Logical drive “raid1” goes online” as shown above. Instead, it shows “Rebuild on logical drive “raid1” started”.

2. Use the **logdrv** command to find out the logical volume ID of RAID 1.

```
raid-cli>logdrv
ID    RAID Disks  Stripe   Size(MB)      DiskID Name
0    RAID1        2        N/A   476837.12    (1,2) raid1
```

3. Use the **rb -a start -l 0 -i 0 -p 2 -e 0** command to start the rebuild process or use the **rc -a start -l 0 -i 0** command to start a redundancy check.
4. (Optional) To check the rebuild status, use the **rb -a list** command.

```
raid-cli> rb -a list
Rebuild is in progress 10% in logical drive with ID 0 on controller #0!
```

The redundancy check starts the synchronization process. To check the synchronization status, use the **sync -a list** command, as show in the following example:

```
raid-cli>sync -a list
Synchronization is in progress 0% in logical drive with ID 0 on controller #0!
```

You can also check the status in syslog.

