Configuring RAID Levels

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RAID Configuration

You can use the RAID Configuration functionality to configure the on-board or PCIe supported RAID controller cards.

If your system has multiple RAID controllers, UCS-SCU displays a list of all available RAID cards, and physical and logical disks on the RAID Configuration page.

The following RAID configuration options are available:

- Single RAID levels—RAID 0, RAID 1, RAID 5 and RAID 6
- Nested RAID levels—RAID 10, RAID 50 and RAID 60

Storage Configuration

RAID Configuration page contains the following components:

Table 1: RAID Configuration Page

Component	Description
Physical Disks Area	Contains the list of physical disk available in the server in table format. See Physical Disks Area, on page 2.
Logical Disks Area	Contains the list of virtual disk available in the server in table format. See Logical Disks Area, on page 3.
Create RAID button	You can use this feature to create new RAIDs. See Configuring Single-Level RAID, on page 3 and Configuring Nested RAID, on page 4.

Component	Description
Delete RAID button	You can use this feature to delete an existing RAID. To delete an existing RAID, select it from the **Logical Disks** area and click **Delete**.
Refresh button	You can use this feature to refresh the RAID list.

Physical Disks Area

The Physical Disks table in the RAID Configuration page lists the following:

Table 2: Physical Disks

Column	Description
Enc ID	The identifying number of the physical disk.
Slot ID	The slot in which the physical disk belongs.
Device Node	The devide node in which the physical disk belongs.
Size (MB)	The size of the physical disk.
Serial No	The status of the disk. For more information see .
State	The status of the disk. For more information, see Table 3: Disk State Condition, on page 2.
Block Size	The block size of the physical disk.
Type	Type of physical disk.

Table 3: Disk State Condition

Status	Description
Online	The drive is already used in another array.
Global Hotspare	The drive will be used to repair any array in the system that had a drive failure, if the failed drive is equal to, or smaller than the hot spare drive.
Un-configured Good	The drive is unused or available.
Ready	The drive is online and operating correctly.
Offline	The drive is offline or absent. No actions can be performed on the drive until it is back online.
Un-configured Bad	The drive is not operational and needs to be replaced. Disks with a status of "Unconfigured bad" cannot be used for RAID configurations.

Status	Description
Foreign	The drive is part of an array created on a different controller, or created within one enclosure and moved to another on the same controller. It can be used to create a new array after clearing the configuration.

Logical Disks Area

The Logical Disks table in the RAID Configuration page lists the following:

Table 4: Logical Disks

Column	Description
Select check box	**Select** check box is used to select one or more disk.
VD No	The identifying number of the VD.
Name	Name of the VD.
Device Node	The device node in which the VD belongs.
Size (MB)	Logical drive size. The maximum value depends on RAID level selected and the physical disks size involved.
RAID Level	RAID 0 (Data striping), 1 (Disk Mirroring), 5 (Data Striping with Striped Parity), 6 (Distributed Parity and Disk Striping).
RAID PDs	Physical disk to which the VDs belong.

Creating RAID Arrays

Configuring Single-Level RAID

Procedure

Step 1 Select **Server Configuration** > **Storage Configuration** from the navigation pane

The **RAID Configuration** window is displayed.

Step 2 Click **Create RAID**.

The **Configure RAID** page is displayed.

Step 3 From the **RAID** drop-down list, select a RAID level (0 or 1 or 5 or 6).

Step 4 From the Physical Disks list on the left side, select the physical disks that you want to include in the Drive Groups list.

Table 5: Minimum Number of Required Physical Drives

RAID Level	Number of Physical Disks Required
RAID 0	1
RAID 1	2
RAID 5	3
RAID 6	4

Step 5 Enter the following information:

Field	Description
Name field	Enter a name of the RAID.
Read Policy drop-down list	From the Read Policy list, choose a read policy for the RAID level.
Disk Cache Policy drop-down list	From the Disk Cache Policy list, choose a disk cache policy for the RAID level.
Stripe Size (KB) drop-down list	From the Stripe Size list, choose a stripe size for the RAID level.
Access Policy drop-down list	From the Access Policy list, choose an access policy for the RAID level.
Cache Policy drop-down list	From the Cache Policy list, choose a cache policy for the RAID level.
Write Policy drop-down list	From the Write Policy list, choose a write policy for the RAID level.
Size field and **Unit** drop-down list	In the Size text field, enter the size of the logical disk and from the unit drop-down list, select the unit.

Step 6 Click **OK**.

Note
The Create Drive Group button remains disabled until the minimum number of physical disks for a RAID level is selected.

The selected physical disks are included in the Drive Groups list.

Configuring Nested RAID

Nested RAID levels have primary and secondary RAID levels. You should create a minimum of two drive groups in nested RAID levels and the drive groups should have the same number of physical disks.

Procedure

Step 1 Select **Server Configuration** > **Storage Configuration** from the navigation pane

The **RAID Configuration** window is displayed.

Step 2 Click **Create RAID**.

The **Configure RAID** page is displayed.

Step 3 From the **RAID** drop-down list, select a nested RAID level (10 or 50 or 60).

Step 4 From the **Physical Disks** list, select the physical disks that you want to include in the Drive Groups list.

Table 6: Minimum Number of Required Physical Drives and Data Groups

RAID Level	Minimum Number of Physical Disks	Minimum Number of Data Groups
RAID 10	4	2
RAID 50	6	2
RAID 60	8	2

Step 5 Enter the following information:

Field	Description
Name field	Enter a name of the RAID.
Read Policy drop-down list	From the Read Policy list, choose a read policy for the RAID level.
Disk Cache Policy drop-down list	From the Disk Cache Policy list, choose a disk cache policy for the RAID level.
Stripe Size (KB) drop-down list	From the Stripe Size list, choose a stripe size for the RAID level.
Access Policy drop-down list	From the Access Policy list, choose an access policy for the RAID level.
Cache Policy drop-down list	From the Cache Policy list, choose a cache policy for the RAID level.
Write Policy drop-down list	From the Write Policy list, choose a write policy for the RAID level.
Size field and **Unit** drop-down list	In the Size text field, enter the size of the logical disk and from the unit drop-down list, select the unit.

Step 6 Click **OK**.

Note

The Create Drive Group button remains disabled until the minimum number of physical disks for a RAID level is selected.

The selected physical disks are included in the Drive Groups list.