



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 RAID. 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 device 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

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- 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.

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.
