



Configuring SD Card Support

- [FlexFlash Secure Digital Card Support, on page 1](#)
- [FlexUtil Secure Digital Card Support, on page 6](#)

FlexFlash Secure Digital Card Support

Overview

Cisco UCS B-Series, C-Series M3 and M4 and higher, and S-Series M4 servers support internal Secure Digital (SD) memory cards.

The SD cards are hosted by the Cisco Flexible Flash storage controller, a PCI-based controller which has two slots for SD cards. The cards contain a single partition called HV. When FlexFlash is enabled, Cisco UCS Manager displays the HV partition as a USB drive to both the BIOS and the host operating system.

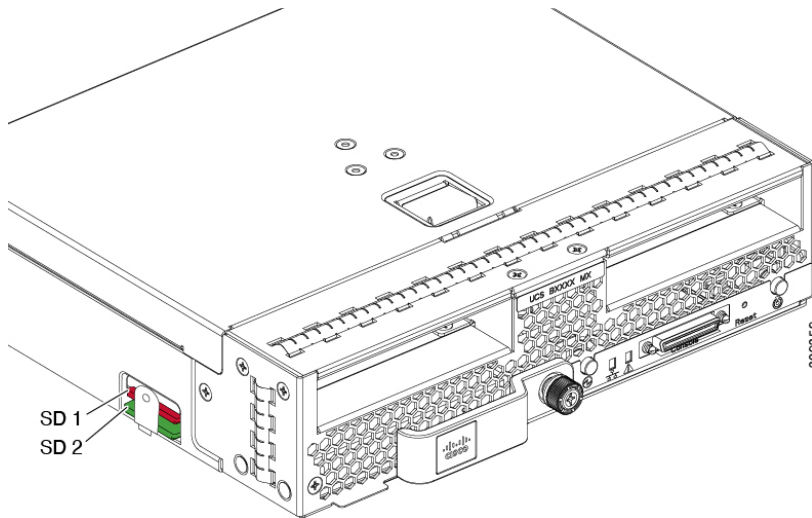
You can populate one or both the SD card slots that are provided. If two SD cards are populated, you can use them in a mirrored mode.



Note Do not mix different capacity cards in the same server.

The SD cards can be used to store operating system boot images or other information. The following figure illustrates the SD card slots.

Figure 1: SD Card Slots



FlexFlash is disabled by default. You can enable FlexFlash in a local disk policy used in a service profile. When FlexFlash is enabled in a local disk policy, and the server is capable of supporting SD cards, the FlexFlash controller is enabled during service profile association. If a server is not capable of supporting SD cards or has an older CIMC version, a config failure message is displayed.

If you disable FlexFlash in a supported server, the Hypervisor or HV partition is immediately disconnected from the host. The FlexFlash controller will also be disabled as part of a related service profile disassociation.

The FlexFlash controller supports RAID-1 for dual SD cards. The FlexFlash scrub policy erases the HV partition in both cards, and brings the cards to a healthy RAID state.

You can configure new SD cards in a RAID pair and format them using one of the following methods:

- Format the SD cards. [Formatting the SD Cards, on page 5](#) provides detailed information.
- For an associated server, create a FlexFlash scrub policy and disassociate the service profile from the server. For an unassociated server, create a FlexFlash scrub policy and reacknowledge the server after modifying the default scrub policy.

The *Scrub Policy Settings* section in the *Cisco UCS Manager Server Management Guide* provides more details about the usage of the scrub policy.



Note Disable the scrub policy as soon as the pairing is complete.

To boot from the HV partition, the SD card must be present in the boot policy used in the service profile.

FlexFlash Firmware Management

The FlexFlash controller firmware is bundled as part of the CIMC image. When you upgrade the CIMC, if a newer firmware version is available for the FlexFlash controller, the controller can no longer be managed, and the FlexFlash inventory displays the **Controller State** as **Waiting For User Action** and the **Controller Health** as **Old Firmware Running**. To upgrade the FlexFlash controller firmware, you need to perform a board controller update. For more information, see the appropriate *Cisco UCS B-Series Firmware Management*

Guide, available at the following URL:

http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html.

Limitations for the Cisco Flexible Flash Storage Controller:

- The Cisco Flexible Flash storage controller only supports 16 GB, 32 GB, and 64 GB SD cards.



Note The 16 GB and 32 GB cards are supported only on the B200-M3 blade servers, and the 64 GB SD cards are supported only on the B200-M4 and M5 blade servers.

- We do not recommend using an SD card from a rack server in a blade server, or using an SD card from a blade server in a rack server. Switching SD cards between server types might result in data loss from the SD card.
- Some Cisco UCS C-Series rack-mount servers have SD cards with four partitions: HV, HUU, SCU, and Drivers. Only the HV partition is visible in Cisco UCS Manager. You can migrate a four-partition SD card to a single HV partition card with a FlexFlash scrub policy.
- The FlexFlash controller does not support RAID-1 sync (mirror rebuild). If the SD cards are in a degraded RAID state, or if any metadata errors are reported by the controller, you must run the FlexFlash scrub policy to pair the cards for RAID. For more information about the FlexFlash scrub policy, see [Server-Related Policies](#). The following conditions might result in degraded RAID or metadata errors:
 - Inserting a new or used SD card in one slot, when the server already has an SD card populated in the second slot.
 - Inserting two SD cards from different servers.
- The server firmware version must be at 2.2(1a) or higher.

FlexFlash FX3S Support

Beginning with Release 2.2(3), Cisco UCS Manager allows additional FlexFlash support with the FX3S controller. The FX3S controller is present on the following servers:

- Cisco UCS B200 M4 and M5 blade server
- Cisco UCS C220 M4 and M5 rack server
- Cisco UCS C240 M4 and M5 rack server
- C480 M5 rack server
- C480 M5 ML blade server
- B480 M5 blade server
- Cisco UCS C125 M5 Server

FlexFlash operations with the FX3S control are similar to those with the Cisco Flexible Flash storage controller. FlexFlash is disabled by default, and is enabled using a local disk policy. You can also reset the controller, format the SD cards, and enable automatic synchronization of your paired SD cards.

The SD cards for the FX3S controller contain a single partition called Hypervisor.

Limitations for the Cisco FX3S Controller:

- The FX3S controller supports only 32 GB and 64 GB SD cards. 16 GB cards are not supported.
- The FX3S controller supports 128 GB cards on M5 blades and above.
- We do not recommend using an SD card from a rack server in a blade server, or using an SD card from a blade server in a rack server. Switching SD cards between server types might result in data loss from the SD card.
- The server firmware version must be at 2.2(3a) or higher.

Enabling FlexFlash SD Card Support

Procedure

- Step 1** In the **Navigation** pane, click **Servers**.
- Step 2** Expand **Servers > Policies**.
- Step 3** Expand the node for the organization where you want to create the policy.
If the system does not include multi tenancy, expand the **root** node.
- Step 4** Expand **Local Disk Config Policies** and choose the local disk config policy for which you want to enable FlexFlash support.
- Step 5** In the **Work** pane, click the **General** tab.
- Step 6** In the **FlexFlash State** field, click the **Enable** radio button.
- Step 7** In the **FlexFlash Removable State** field, select the removable state. Click the **Yes** option if you need to define the Flex Flash SD card as removable. Check your hypervisor requirements for the required removable state setting.
- **No Change**(default) - Use this option if the hypervisor does not require a preset state for the SD card.
 - **No** - Use this option if the hypervisor requires a non-removable state for the SD card.
- Step 8** Click **Save Changes**.
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Disabling FlexFlash SD Card Support

This procedure describes how to disable the FlexFlash capability in a local disk policy.

Procedure

- Step 1** In the **Navigation** pane, click on the **Servers** tab.
- Step 2** Select **Policies** from the **Filter** dropdown list.

- Step 3** Expand the **Local Disk Config Policies** tree.
 - Step 4** Highlight the policy for which you want to disable FlexFlash.
 - Step 5** Click the **Events** tab of the task pane, and select the **Disable** radio button next to **FlexFlash State**.
 - Step 6** If you need to replace the FlexFlash SD card, select the **Yes** radio button in the **FlexFlash Removable State** field. Make sure the SD cards are not in use before changing the FlexFlash Removable State.
 - Step 7** Click **Save Changes**.
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Enabling Auto-Sync

Procedure

- Step 1** In the **Navigation** pane, click **Equipment**.
 - Step 2** Expand **Equipment > Chassis > Chassis Number > Servers**.
 - Step 3** Click the server for which you want to enable auto-sync.
 - Step 4** In the **Work** pane, click the **Inventory** tab.
 - Step 5** Click the **Storage** subtab.
 - Step 6** In the **Actions** area, click **Enable Auto-sync**.
 - Step 7** In the **Enable Auto-sync** dialog box, choose the **Admin Slot Number** for the SD card that you want to use as the primary.
 - Step 8** Click **OK**.
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Formatting the SD Cards

Procedure

- Step 1** In the **Navigation** pane, click **Equipment**.
 - Step 2** Expand **Equipment > Chassis > Chassis Number > Servers**.
 - Step 3** Click the server for which you want to format the SD cards.
 - Step 4** In the **Work** pane, click the **Inventory** tab.
 - Step 5** Click the **Storage** subtab.
 - Step 6** In the **Actions** area, click **Format SD Cards**.
 - Step 7** Click **Yes** to format the SD cards.
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Resetting the FlexFlash Controller

Procedure

- Step 1** In the **Navigation** pane, click **Equipment**.
 - Step 2** Expand **Equipment** > **Chassis** > *Chassis Number* > **Servers**.
 - Step 3** Click the server for which you want to reset the FlexFlash controller.
 - Step 4** In the **Work** pane, click the **Inventory** tab.
 - Step 5** Click the **Storage** subtab.
 - Step 6** In the **Actions** area, click **Reset FlexFlash Controller**.
 - Step 7** Click **Yes** to reset the FlexFlash controller.
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FlexUtil Secure Digital Card Support

The C-Series M5 Rack-Mount servers support a Micro-SD (FlexUtil) memory card for storage. UCS Manager however does not provide management support for Micro-SD card.