Configuring SD Card Support

This chapter includes the following sections:

FlexFlash Secure Digital Card Support

Overview

Cisco UCS B-Series, C-Series M3 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.
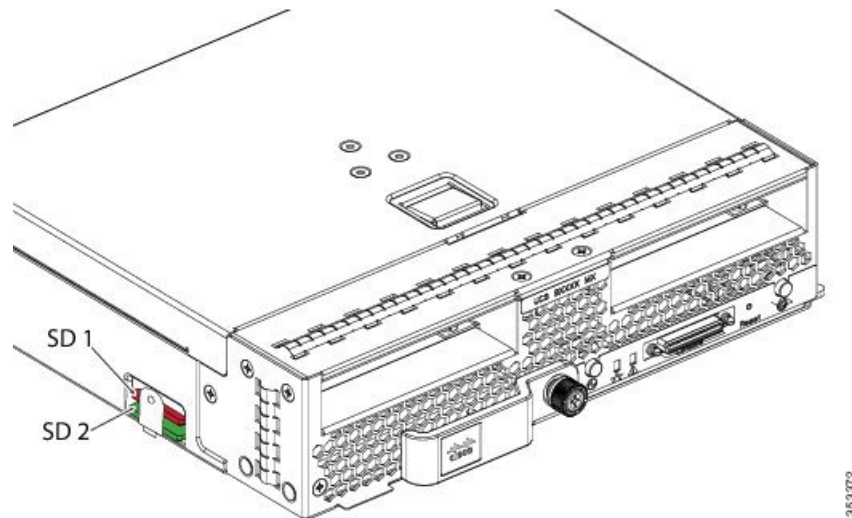
You can populate one or both the SD card slots that are provided. If two SD cards are populated, you can use them in a mirrored mode.

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.

- 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 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.

Enabling or Disabling FlexFlash SD Card Support

Procedure

	Command or Action	Purpose
Step 1	UCS-A# **scope org** *org-name*	Enters organization mode for the specified organization. To enter the root organization mode, type **/** as the *org-name* .
Step 2	UCS-A /org # **scope local-disk-config-policy** *policy-name*	Enters the specified local disk configuration policy mode.
Step 3	UCS-A /org/local-disk-config-policy # **set flexflash-state** {**enable**	**disable**}	Specifies whether FlexFlash SD card support is enabled.
Step 4	UCS-A /org/local-disk-config-policy # **set flexflash-raid-reporting-state** {**enable**	**disable**}	Specifies whether FlexFlash RAID reporting support is enabled.

	Command or Action	Purpose
		Note If only one SD card is installed, the FlexFlash inventory displays the RAID State as Disabled and the RAID Health as NA.
Step 5	UCS-A /org/local-disk-config-policy# **set flexflash-removable-state { no	no-change	yes }**	Specifies whether the FlexFlash removable state is disabled or enabled. The non-removable state is for hypervisors that require that option. All other remaining hypervisors can use the no-change option.
Step 6	UCS-A /org/local-disk-config-policy # **commit-buffer**	Commits the transaction to the system.

Example

The following example shows how to enable FlexFlash SD card support and FlexFlash RAID reporting state on the local disk config policy default, and commits the transaction to the system:

```
UCS-A# scope org/
UCS-A /org # scope local-disk-config-policy default
UCS-A /org/local-disk-config-policy #set flexflash-state enable
UCS-A /org/local-disk-config-policy# #set flexflash-raid-reporting-state enable
UCS-A /org/local-disk-config-policy# #set flexflash-removable-state no
UCS-A /org/local-disk-config-policy* # commit-buffer
UCS-A /org/local-disk-config-policy #
```

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.