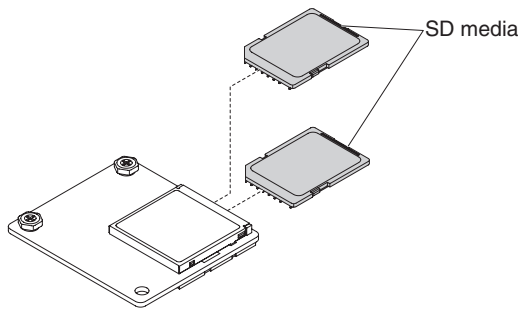

SD Media Adapter for System x

The SD Media Adapter for System x is an option supported in select System x servers that adds dual SD card slots, which supports up to two removable SD cards. The option also features a RAID controller capable of supporting RAID level 1.



This SD media adapter option includes the following parts:

- 1 SD Media Adapter
- 2 blank SD cards
- This document and the product warranty

Read this document before you begin installing the option. Store this document with your system documentation for future reference. Refer to your system documentation for the location of the SD media adapter connector and the procedure for installing this option in your system.

Before installing the SD media adapter, you should download and apply the most recent firmware updates for your system. This step will help to ensure that any known issues are addressed and that your system is ready to function at maximum levels of performance.

Important: If your SD media adapter option comes with VMware vSphere ESXi software preloaded, you must make configuration changes to your system UEFI *before* installing the SD media adapter in your system.

Configure system UEFI (for VMware vSphere ESXi software preload)

Before installing the SD media adapter, you must make the following configuration changes to your system UEFI using the Setup utility for your system. For more information about the Setup utility, see the documentation for your system or go to the IBM Support Portal (<http://www.ibm.com/support/>).

1. Set Embedded Hypervisor as the primary boot device. In the Setup utility for your system:
 - a. Set **Boot Manager > Add Boot Option > Generic Boot Option to Embedded Hypervisor**.
 - b. Go to **Boot Manager > Change Boot Order** and set **Embedded Hypervisor** as the first item in the list.
2. Disable PCI 64-bit resource allocation. In the Setup utility for your system, set **System Settings > Devices and I/O Ports > PCI 64-Bit Resource to Disabled**.
3. Set the memory-mapped I/O base window to 3 GB. In the Setup utility for your system, set **System Settings > Devices and I/O Ports > MM Config Base to 3 GB**.

Installing the SD Media Adapter

To install the SD media adapter in your system, remove the system cover and other parts, as needed, to access the SD media adapter connector on the system board. Refer to your system documentation for detailed instructions about installing the SD media adapter.

Note: Obtain a #1 Phillips screwdriver for use during the installation procedure.

Configuring the VMware vSphere ESXi preload

If your SD media adapter option came with VMware vSphere ESXi software preloaded, no initialization of the SD media adapter is required.

You can view existing Hypervisor drives through the IMM CLI. Access the server Integrated Management Module (IMM) command-line interface (CLI) through a Secure Shell (SSH) session. For more information about accessing the IMM CLI, see “Command-line interface” in the *Integrated Management Module II User’s Guide*.

Issue the following command from the IMM CLI to view existing Hypervisor drives:

```
system> sdraid -driveList
```

If you want to create additional drives, see “Creating drives on the SD card,” located in this document, for more information.

SD Media Adapter modes of operation

The SD media adapter has two main modes, Configuration and Operational. You can check the current mode of the SD media adapter through the IMM CLI.

Access the server Integrated Management Module (IMM) command-line interface (CLI) through a Secure Shell (SSH) session. For more information about accessing the IMM CLI, see “Command-line interface” in the *Integrated Management Module II User’s Guide*.

Issue the following command from the IMM CLI to view the current mode of your SD media adapter:

```
system> sdraid -getMode
```

The modes are listed as follows, with the associated actions:

- Configuration mode
 - Initialize blank SD cards for use
 - Create, modify, and delete drives

Note: Drives are not visible to your system when the SD media adapter is in Configuration mode.

To set the SD media adapter mode to Configuration mode, issue the following command from the IMM CLI:

```
system> sdraid -setMode Configuration -now
```

- Operational mode
 - Connect drives to the system

To set the SD media adapter mode to Operational mode, issue the following command from the IMM CLI:

```
system> sdraid -setMode Operational
```

Initializing an SD card in the SD Media Adapter

In order to use a blank SD card that is installed in the SD media adapter, you must first initialize it. Complete the following procedure to initialize a blank SD card:

1. Access the server Integrated Management Module (IMM) command-line interface (CLI) through a Secure Shell (SSH) session. For more information about accessing the IMM CLI, see “Command-line interface” in the *Integrated Management Module II User’s Guide*.

Attention: The following code example used for initialization will remove everything stored on the SD card and initialize the SD card for use.

2. To remove everything on the SD card and initialize it for use, issue the following commands from the IMM CLI:

```
system> sdraid -setMode Configuration -now
system> sdraid -initializeConfig -now
```

After the command has completed successfully, the blank SD card will be ready for the creation of new drives.

Creating drives on the SD card

The SD media adapter supports the creation of non-mirrored drives on one SD card or mirrored drives (RAID-1) that use both SD cards. You can create up to 16 non-mirrored drives, 8 mirrored drives, or a mix of mirrored and non-mirrored drives.

Notes:

1. For mirrored drives, you must have two SD cards installed in the SD media adapter.
2. A non-mirrored drive counts as one drive and a mirrored drive counts as two drives.
3. No more than 8 non-mirrored drives may be created per card. If you mix non-mirrored and mirrored drives, the total number of drives can not exceed 16.

Use the following procedure to help create drives on your SD card:

1. Access the server Integrated Management Module (IMM) command-line interface (CLI) through a Secure Shell (SSH) session. For more information about accessing the IMM CLI, see “Command-line interface” in the *Integrated Management Module II User’s Guide*.

2. Set the SD media adapter mode to Configuration mode by issuing the following command from the IMM CLI:

```
system> sdraid -setMode Configuration -now
```

3. You can create drives using the `-create` option. The following code example creates a RAID-1 drive to use as a Hypervisor:

```
system> sdraid -create -driveName Hypervisor -sizeMB 2000 -target mirror -removable 1 -owner system
-systemReadOnly 0 -LUN 0
```

Note: If the `-LUN 0` argument is used when creating a drive, the resulting drive is assigned a LUN number of 0. Any drive that was previously assigned a LUN number of 0 will no longer have this assignment. The UEFI identifies a drive with a LUN number of 0 as the generic Embedded Hypervisor boot target.

4. Create more drives as needed. The following code example creates two non-RAID drives:

```
system> sdraid -create -driveName sdDrive0 -sizeMB 4096 -target SDCard1 -removable 1 -owner system
-systemReadOnly 0
system> sdraid -create -driveName sdDrive1 -sizeMB 4096 -target SDCard2 -removable 1 -owner system
-systemReadOnly 0
```

5. For the system to discover the new drives, the SD media adapter must be placed in Operational mode after the drives are created. To set the SD media adapter to Operational mode, issue the following command from the IMM CLI:

```
system> sdraid -setMode Operational -now
```

SD Media Adapter features available on standby power

Some features are available for your supported server when on standby power. See your system documentation for more information.

These features include the following:

- Adapter for SD media configuration
- SD media configuration of RAID or non-RAID drives
- SD media configuration of logical drives
- Adapter for SD media health status indication, including logs

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