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SATA SSD module

Feature History for SATA SSD module

This table provides release and platform support information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature Name and Description	Supported Platform
Cisco IOS XE 17.18.1	SATA SSD module: The SATA SSD module is a field replaceable unit (FRU). You can perform file based operations on the SATA SSD module.	Cisco C9610 Series Smart Switches

SATA SSD module

The Cisco C9610 supervisor engine modules support pluggable Serial Advanced Technology Attachment (SATA) Solid State Drive (SSD) module. The SATA SSD module slot is located on the front panel of the supervisor engine.

The SATA SSD module is a field replaceable unit (FRU). A hot-swap button on the front panel of the supervisor engine initiates the removal of the SATA SSD module. You must press the button to safely eject the SATA SSD module from the supervisor engine.

This feature provides additional and flexible storage options for users. With expanded storage capacity, users can host a wide range of applications on the switch, such as packet collection and analysis, testing, monitoring, and other network management tasks. This flexibility enhances the overall utility and performance of the switch in demanding network environments.

Supported SATA SSD module

The switch supports these SATA SSD modules:

- 480GB
- 960GB

File system on SATA SSD module

The default file system format of a SATA SSD module is EXT4. In addition to EXT, the SATA SSD module also supports all other extended file systems such as EXT2 and EXT3.

Characteristics of a SATA SSD module

The SATA SSD module has the following characteristics:

- Files stored on the SATA SSD module are compatible with files stored on other devices.
- You can copy or store files between SATA SSD module and other types of storage devices such as USB, eUSB, flash cards, or any other IOS-XE file storage system.
- You can read, write, delete, and format the SATA SSD module.

S.M.A.R.T functionality

The switch is equipped with Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T) functionality. This functionality allows you to monitor the health of the device through command-line interfaces (CLIs). In addition, S.M.A.R.T functionality executes different self-tests to monitor the reliability of the storage device and predict failures.

When a storage device is connected to a USB 3.0 SSD port, a linux SMART Disk Monitoring Daemon (smartd) starts running by default. With smartd, errors and warnings are logged in the log file located at /crashinfo/tracelogs/smart_errors.log, and also displayed on the console. When you remove the storage device, smartd stops running.

Limitations of SATA SSD module

A SATA SSD module has these limitations:

- Non-EXT based file systems are not supported. If a SATA SSD module with a non-EXT based file system is inserted, then the SATA SSD module is not detected.
- You cannot upgrade the firmware on the SATA SSD module.
- The SATA SSD module is not accessible from ROMMON. Therefore, you cannot perform operations on the SATA SSD module in ROMMON mode. You cannot also use the SATA SSD module to boot images from ROMMON.

CLI-based operations allowed on the SATA SSD module

You can manage a SATA SSD module by using CLI command in global configuration mode. The following table shows the commands to manage the module.

Table 1: CLI-based operations

Command	Description
dir <i>filesystem</i>	Displays the directories on the specified file system.
copy <i>source-file destination-url</i>	Copies files from a specified source to a specified destination.
delete	Deletes a specified file.
format	Formats the filesystem on the disk.
show disk0:	Displays the content and details of disk0:
show file information <i>file-url</i>	Displays information about a specific file.
show file systems	Displays the available file system on the module.

Configuration examples of SATA SSD module

These sections provide examples of the CLI-based operations allowed on the SATA SSD module.

Example: Format a new SATA SSD module

You need to format a new SATA SSD module.

The following example shows how to format the SATA SSD module.

```
Device# format disk0: ?
<cr> <cr>
      ext2      ext2 filesystem type
      ext3      ext3 filesystem type
      ext4      ext4 filesystem type
      secure    Securely format the file system
<cr> <cr>

Device# format disk0:
Format operation may take a while. Continue? [confirm]
Format operation will destroy all data in "disk0:". Continue? [confirm]
Format of disk0: complete
```



Note

Before executing the **format disk0:** command, ensure that all stored files in the SATA SSD module are not being actively used.

Example: View the directories in a SATA SSD module

The following example shows how to view the directories in a SATA SSD module.

```
Device# dir disk0:
Directory of disk0:/
11 drwx 16384 May 11 2018 16:06:14 +00:00 lost+found
10747905 drwx 4096 May 25 2018 13:03:43 +00:00 test
236154740736 bytes total (224072925184 bytes free)
```

Example: Copy a file from the SATA SSD module

The following example shows how to copy a file, *test.txt*, from the SATA SSD module (disk0:) to a USB storage device.

```
Device# copy disk0:test.txt usbflash0:
Destination filename [test.txt]?
Copy in progress...C
17866 bytes copied in 0.096 secs (186104 bytes/sec)
```

The following example shows how to check if the copied file is available in the directory of the USB storage device.

```
Device# dir usbflash0:
Directory of usbflash0:/
 12 -rw-          33554432  Jul 28 2017 10:12:58 +00:00  nvram_config
 11  drwx           16384  Jul 28 2017 10:09:46 +00:00  lost+found
 13  -rw-          17866  Aug 11 2017 09:52:16 +00:00  test.txt
189628416 bytes total (145387520 bytes free)
```

Example: Delete a file from a SATA SSD module

The following example shows how to delete a file, *test.txt*, from a SATA SSD module.

```
Device# delete disk0:test.txt
Delete filename [test.txt]?
Delete disk0:/test.txt? [confirm]
```

The following example shows how to confirm if the file is deleted by checking the directory of the SATA SSD module.

```
Device# dir disk0:
Directory of disk0:/
No files in directory
118148280320 bytes total (112084135936 bytes free)
```

Example: Access file system on the SATA SSD module

The following example shows how to access the file system on the SATA SSD module.

```
Device# show file systems
File Systems:
Size(b) Free(b) Type Flags Prefixes
-
-
* 11250098176 9694093312 disk rw bootflash: flash:
1651314688 1232220160 disk rw crashinfo:
118148280320 112084115456 disk rw disk0:
189628416 145387520 disk rw usbflash0:
7763918848 7696850944 disk ro webui:
- - opaque rw null:
- - opaque ro tar:
- - network rw tftp:
33554432 33532852 nvram rw nvram:
- - opaque wo syslog:
- - network rw rcp:
- - network rw http:
- - network rw ftp:
- - network rw scp:
- - network rw https:
- - opaque ro cns:
```

Example: Format the filesystem from a SATA SSD module

The following example shows how to format the EX4 file system from a SATA SSD module.

```
Device# format disk0: ext4
```

Example: Logs from smartd daemon

The following example shows how to view the logs from the smartd daemon.

```
Device# more crashinfo:tracelogs/smart_errors.log
%IOSXEBOOT-4-SMART_LOG: (local/local): Mon Jan 4 00:13:10 Universal 2016
INFO: Starting SMART daemon
```

The following example shows how to view the overall health of the storage device.

```
Device# more flash:smart_overall_health.log
smartctl 6.4 2015-06-04 r4109 [x86_64-linux-4.4.131] (local build)
Copyright (C) 2002-15, Bruce Allen, Christian Franke, www.smartmontools.org
=== START OF READ SMART DATA SECTION ===
SMART overall-health self-assessment test result: PASSED
```

Example: View information about a specified file

The following example is a sample output of the **show file information disk0:** command.

```
Device# show file information disk0: test.txt

disk0:test.txt:
  type is image (elf64) []
```

```
file size is 448 bytes, run size is 448 bytes
Foreign image, entry point 0x400610
```

Example: View the details of a SATA SSD module

The following example is a sample output of the **show disk0** command.

```
Device# show disk0:
```

```
-#- --length-- -----date/time----- path
  2      17866 Aug 11 2017 09:54:06.0000000000 +00:00 test.txt
112084115456 bytes available (62513152 bytes used)
```

The following example is a sample output of the **show disk0: filesystem** command.

```
Device# show disk0: filesystem
```

```
Filesystem: disk0
Filesystem Path: /vol/disk0
Filesystem Type: ext4
Mounted: Read/Write
```