SFA14K™
SFA12K™
SFA10K™
SFA7700™

Mandatory Upgrade for SanDisk SSDs

ALERT!	SanDisk Lightning SSD firmware versions lower than P405 have known issues that can cause them to go "missing" while still present or to permanently fail if power-cycled. ***These failure modes can put data at risk. Upgrade to P405 firmware is MANDATORY.***

Issue Summary

SanDisk Lightning solid state drive (SSD) models LT1600MO, LT0800MO, and LT0400MO running firmware versions P404, P403, and earlier have known issues that can cause them to go "missing" while still present, or to permanently fail if power-cycled. If multiple drives in the same storage pool should fail as a result, that pool could become nonredundant or inoperative, putting ***data at risk***. In RAID1 metadata pools, a single SSD failure is sufficient to put the pool in a nonredundant state. A second failure in the same pool can make the pool inoperative and put data at risk.

Resolution of these issues requires ***upgrade of the SSDs to firmware version P405***. This is a ***MANDATORY UPGRADE*** on all DDN platforms where these drives are installed.

Mandatory Data Integrity Precautions

SanDisk SSDs running P404 or earlier firmware can be permanently disabled by power-cycling the storage subsystem, the enclosure in which the drives reside, or an individual drive. Consequently:

- **Customers should avoid power-cycling** the storage subsystem or any enclosure where SanDisk SSDs with P404, P403, or earlier firmware reside.

- **Customers should avoid reseating** SanDisk SSDs running P404, P403, or earlier firmware, as reseating temporarily removes power to the drive.

- **Customers should NOT upgrade the drive firmware themselves**. All SanDisk SSD firmware upgrades from earlier versions to P405 should be overseen by DDN Support.

- **Upgrades should be performed on one drive at a time**. Power-cycling multiple drives to reset them after downloading P405 firmware might permanently disable any SanDisk SSDs where the firmware upgrade did not "take".

Affected Products

All SFA platforms with SAS connectivity to the back-end drives are affected by this issue, including the SFA14K, SFA14KX, SFA14KE, SFA14KXE, ES14K, GS14K, SFA12K, SFA12KX, SFA12KXi, SFA12KE, SFA12KXE, ES12K, GS12K, SFA10K, SFA10KX, SFA10KE, SFA10KXE, SFA7700, SFA7700X, SFA7700E, SFA7700XE, ES7K, and GS7K.

The SFA200NV all-flash NVMe storage platform uses NVMe instead of SAS channels between the controller and the drives. Consequently, it does not support SanDisk Lightning SAS SSDs and is not affected by this issue.

IME all-flash burst buffer platforms use NVMe instead of SAS between the controller and the drives, and therefore do not support SanDisk Lightning SAS SSDs. They are not affected by this issue.

WOS object storage platforms implement a SAS back end, but are designed for rotating media, not SSDs, and so should not be affected by this issue.

Identifying Affected Storage Systems

On SFA storage platforms, you can determine whether SanDisk Lightning SSDs with P404 or earlier firmware versions are installed by running the command:

```
show pd *
```

At the end of the resulting report, a summary count of drives by manufacturer, model, and firmware level is shown. For example:

```
---------------------------------------------------------------------------
    | NUM| Vendor |    Product ID    |Type|Cap GB | RPM|Revision|Block Size|
---------------------------------------------------------------------------
Found:361 HGST     HUS726060AL4210     SAS    5589 7.2K A980     4K
Found: 29 SanDisk  LT0800MO            SAS     745 SSD P404      512
Found:  1 HGST     HUS726060AL4210     SAS    5589 7.2K A7JD     4K
Found:  2 SanDisk  LT0800MO            SAS     745 SSD P403      512
```

Look for "SanDisk" in the **Vendor** column, "SSD" in the **RPM** column, and "P404", "P403", or earlier in the **Revision** column. These are the drives that ***MUST be upgraded*** to firmware version P405.

Please contact DDN Support at your earliest convenience to arrange for firmware upgrade assistance if any qualifying SanDisk Lightning SSDs are found.

Contacting DDN Technical Support

Please contact DDN Technical Support at any time if you have questions or require assistance. Support can be reached by phone, by email, or on the web as listed below.

Web
DDN Community Support Portal   https://community.ddn.com/login
Portal Assistance   webportal.support@ddn.com

Telephone
DDN Support Worldwide Directory   https://www.ddn.com/support/global-services-overview/

Email
Support Email   support@ddn.com

Bulletins
Support Bulletins   http://www.ddn.com/support/technical-support-bulletins
End-of-Life Notices   http://www.ddn.com/support/end-of-life-notices
Bulletin Subscription Requests   support-tsb@ddn.com