

SFA™ OS

DIF Issue Resolved for 4 KB Native Sector Drives

Issue Summary

Description

In SFA OS 2.3.0.3 and earlier, a coding error allows DIF to be enabled at creation time on pools containing drives with a native 4 KB sector size. However, the DIF algorithm is not optimized for these drives, and enabling DIF on pools containing these drives can cause the drives to fail. If two or more such drives are failed in a pool, their failure will place the pool in a nonredundant state.

DIF (Data Integrity Field) is a block-level checksum encoding feature of DDN DirectProtect that enables silent read errors to be detected and corrected automatically on SATA disk drives. DDN's performance-optimized version of DIF is most reliable with block sizes of 512 KB or less and is intended for use with SATA drives. For drives with a 4 KB native sector size, which generally use the SAS protocol, T10-PI (T10 Protection Information) type 2 encoding is more effective and has been implemented in DirectProtect for Advanced Format pools.

When Advanced Format pools were introduced in SFA OS to support 4 KB sector drives in native mode, DirectProtect prevented the user from *changing* the required T10-PI format to DIF formatting on these pools. However, users could still create a *new* Advanced Format pool using DIF instead of T10-PI. This error was corrected in SFA OS 2.3.1.

Affected Systems

All SFA7700 and SFA12K models running SFA OS 2.3.0.3 or earlier are affected by this issue if 4 KB

native sector drives are installed.

Resolution

This issue is resolved by upgrading to SFA OS 2.3.1.3 or higher.

Determining Whether 4 KB Native Sector Drives Are Installed

The fastest way to determine whether you have 4 KB native sector drives installed is to run the following command at the SFA OS command line:

```
show pd * all
```

Capture the complete output to a text file, then search for the string 4K_BYTE_BLOCK, which will appear in the **Block Size** field for 4 KB native sector drives.

Alternatively, you can run the command:

```
show pd *
```

Save the summary section of the output to a text file, then use a script to search for the following vendor part numbers in the **Product ID** field. Only these 4 KB native sector drives have been qualified for use in SFA storage arrays by DDN.

PRODUCT ID	DESCRIPTION	SUPPORTED ENCLOSURES
H08C0800234CH21	8 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS8462, SS8460, SS8412
H08C0600234CH12	6 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS8462, SS8460, SS8412
H08C0400234CH12	4 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS8462, SS8460, SS8412
H08C0200234CH12	2 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS8462, SS8460, SS8412
H08C0600234EH12	6 TB 7200 RPM 12 Gbs SAS SED 4 KB drive module	SS8462, SS8460, SS8412
H08C0400234EH12	4 TB 7200 RPM 12 Gbs SAS SED 4 KB drive module	SS8462, SS8460, SS8412
H08C0200234EH12	2 TB 7200 RPM 12 Gbs SAS SED 4 KB drive module	SS8462, SS8460, SS8412
H08P0090224CH14	900 GB 10K RPM 12 Gbs SAS 4 KB drive module	SS8462, SS8460, SS8412
H08P0180224CH14	1.8 TB 10K RPM 12 Gbs SAS 4 KB drive module	SS8462, SS8460, SS8412
H07C0800234CH21	8 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS7000, SFA7700
H07C0600234CH12	6 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS7000, SFA7700
H07C0400234CH12	4 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS7000, SFA7700
H07C0200234CH12	2 TB 7200 RPM 12 Gbs SAS 4 KB drive module	SS7000, SFA7700
H07C0600234EH12	6 TB 7200 RPM 12 Gbs SAS SED 4 KB drive module	SS7000, SFA7700
H07C0400234EH12	4 TB 7200 RPM 12 Gbs SAS SED 4 KB drive module	SS7000, SFA7700
H07C0200234EH12	2 TB 7200 RPM 12 Gbs SAS SED 4 KB drive module	SS7000, SFA7700
H07P0090224CH14	900 GB 10K RPM 12 Gbs SAS 4 KB drive module	SS7000, SFA7700
H07P0180224CH14	1.8 TB 10K RPM 12 Gbs SAS 4 KB drive module	SS7000, SFA7700
H07P0090224EH14	900 GB 10K RPM 12 Gbs SAS SED 4 KB drive module	SS7000, SFA7700
H07P0180224EH14	1.8 TB 10K RPM 12 Gbs SAS SED 4 KB drive module	SS7000, SFA7700

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
Portal Assistance

<https://community.ddn.com/login>
webportal.support@ddn.com

Telephone

DDN Support Worldwide Directory

<http://www.ddn.com/support/contact-support>

Email

Support Email

support@ddn.com

Bulletins

Support Bulletins

End-of-Life Notices

Bulletin Subscription Requests

<http://www.ddn.com/support/technical-support-bulletins>

<http://www.ddn.com/support/end-of-life-notices>

support-tsb@ddn.com