

DataDirectTM

NETWORKS



SS8460 Enclosure

MANDATORY FIRMWARE UPGRADE

Firmware Resolves Buzzer Resonance Issue that Causes Missing or Failed Drives

Technical Support Bulletin

Revision A2
10 June 2014

1.0 Overview

1.1 Summary

SS8460 enclosures can experience repeated or persistent instances of missing, failed, or faulted drives. These issues occur most frequently with near-line SAS disk drives located in the first two rows of the enclosure, but can occur with any drive in any slot.

This issue is resolved in enclosure SEP firmware version 0121-145.

ALERT Upgrade to firmware version 0121-145 is MANDATORY for SS8460 enclosures.

1.2 Affected Systems

This issue is found in SS8460 drive enclosures. The SS8460 may be installed in SFA7700, SFA10K, SFA10KE, SFA12K, SFA12KE, SFA12KX, and SFA12KXE storage systems.

2.0 Problem Description

2.1 Persistently Missing, Failed, or Faulted Drives

SS8460 drive enclosures can exhibit the following behavior in SFA storage systems:

- Disk drives can go “missing” (that is, they are no longer seen by the controller). They may also be marked as failed.
- Disk drives have a higher-than-expected rate of check conditions associated with medium errors and retries.

These issues can occur with drives at any location in the enclosure, but they are most frequently found in the first two rows of the enclosure, and particularly in slots 8 to 14. Near-line SAS disk drives (7200 rpm) are most frequently affected, but other drive types may be affected as well.

As a result of this behavior, the storage system can experience significant host I/O latency and/or disk failures. Disks may be taken out of service (or “failed”) by the SFA controller. In some cases these disks can be rebuilt, with or without a power cycle, but in other cases these drives fail to complete power-on diagnostics and will no longer come online.

2.2 Root Cause

The root cause of this issue has been identified as mechanical resonance (vibration) induced by the enclosure audible alarm. The alarm is a piezoelectric buzzer located between slots 10 and 11. The susceptibility of a disk to resonance varies by disk make and model as well as by its location in the enclosure.

The SS8460 alarm buzzer will sound for notification events that are also shown via LED lights or LCD display on the enclosure and by Enclosure Services reporting at the controller. It will also sound for 5 seconds immediately after opening the top cover of the enclosure, again for 1 to 2 seconds every 20 seconds for the next 5 minutes that the enclosure remains opened, and then continuously if the cover remains open more than 5 minutes. A continuous alarm buzzer tone increases the likelihood that disks will be affected by resonance issues.

Enclosure firmware version 0120-100 sounds an additional continuous alarm buzzer if a fault is sensed in the power supply or voltage regulator module. Turning off a PDU that feeds a power supply will trigger this alarm.

3.0 Resolution

A new release of the SS8460 enclosure SEP firmware, version 0121-145, permanently disables the buzzer and resolves this issue.

Upgrade to the new SS8460 firmware is MANDATORY for all customers. Contact DDN Technical Support for assistance with this upgrade.

4.0 Contacting DDN Technical Support

Please feel free to contact DDN Technical Support for assistance at any time. Support can be reached by telephone, email, or on the web as follows:

Telephone

DDN Support Worldwide Directory <http://www.ddn.com/support/contact-support>

Email

Support Email support@ddn.com
Mailing List Subscriptions support-tsb@ddn.com

Web

Support Portal <https://portal.ddnsupport.com>
Portal Assistance webportal.support@ddn.com
Technical Support Bulletins <http://www.ddn.com/support/technical-service-bulletins>