# Exos® Protect 4006 Series Event Descriptions Reference Guide


**Abstract**

This guide is for reference by storage administrators to help troubleshoot Seagate Exos Protect 4006 Series storage system issues. It describes event messages that may be reported during system operation and specifies any actions recommended in response to an event.



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# 1 Introduction

This guide is for reference by storage administrators to help troubleshoot Seagate Exos Protect 4006 Series storage system issues. It describes event messages that may be reported during system operation and specifies any actions recommended in response to an event.

This guide describes all Seagate Exos Protect 4006 Series event codes that exist as of publication.

For information about product features and terms, including how to set up SMTP or other methods to receive or access the event messages, see the Storage Management Guide for your product.

## Events and event messages

When an event occurs in a storage system, an event message is recorded in the system's event log and, depending on the system's event notification settings, may also be sent to users (using email) and host-based applications (via SNMP).

**TIP** A best practice is to enable notifications to be sent for events having severity Warning and above.

Each event has a numeric code that identifies the type of event that occurred, and has one of the following severities:

- Critical: A failure occurred that may cause a controller to shut down. Correct the problem *immediately*.
- Error: A failure occurred that may affect data integrity or system stability. Correct the problem as soon as possible.
- Warning: A problem occurred that may affect system stability but not data integrity. Evaluate the problem and correct it if necessary.
- Informational: A configuration or state change occurred, or a problem occurred that the system corrected. No immediate action is required. In this guide, this severity is abbreviated as "Info."
- Resolved: A condition that caused an event to be logged has been resolved.

An event message may specify an associated error code or reason code. Error codes and reason codes are outside the scope of this guide.

## Resources for diagnosing and resolving problems

For further information about diagnosing and resolving problems, see the troubleshooting chapter and the LED descriptions appendix in the Hardware Installation and Maintenance Guide for your product.

# 2 Event reference

This section lists event code variants and their recommended actions. Events are listed in the following format.

- Event code - Event summary
- Event variant, in the form <event-code>.<variant-number>
- Event severity
- Event message
- Event information
- Recommended actions

## 1 - Disk group critical

### 1.2

**Warning**

`A disk group is critical. (disk group: <name>, SN: <serial number>)`

- The disk group is online and cannot tolerate another disk failure.
- If the indicated disk group is RAID 6, it is operating with degraded health due to the failure of two disks.
- If the indicated disk group is not RAID 6, it is operating with degraded health due to the failure of one disk.

A global spare of the proper size and type is being used to automatically reconstruct the disk group. Events 9 and 37 are logged to indicate this.

**Recommended action:**

- If event 37 was not logged, a spare of the proper type and size was not available for reconstruction. Replace the failed disk with one of the same type and the same or greater capacity and, if necessary, designate it as a spare. Confirm this by checking that events 9 and 37 are logged.
- Otherwise, reconstruction automatically started and event 37 was logged. Replace the failed disk and configure the replacement as a global spare for future use.
- For continued optimum I/O performance, the replacement disk should have the same or better performance.
- Confirm that all failed disks have been replaced and that there are sufficient spare disks configured for future use.

### 1.4

**Critical**

`A disk group is critical. (disk group: <name>, SN: <serial number>)`

- The disk group is online and cannot tolerate another disk failure.
- If the indicated disk group is RAID 6 or ADAPT, it is operating with degraded health due to the failure of two disks.
- If the indicated disk group is not RAID 6 or ADAPT, it is operating with degraded health due to the failure of one disk.

**Recommended action:**

- If event 37 was not logged, a spare of the proper type and size was not available for reconstruction. Replace the failed disk with one of the same type and the same or greater capacity and, if necessary, designate it as a spare. Confirm this by

checking that events 9 and 37 are logged.

- Otherwise, reconstruction automatically started and event 37 was logged. Replace the failed disk and configure the replacement as a global spare for future use.
- For continued optimum I/O performance, the replacement disk should have the same or better performance.
- Confirm that all failed disks have been replaced and that there are sufficient spare disks configured for future use.

## 3 - Disk group offline

### 3.1

**Error**

`A disk group went offline. (disk group: <name>, SN: <serial number>)`

One disk failed for RAID 0 or NRAID, three disks failed for RAID 6, or two disks failed for other RAID levels. The disk group cannot be reconstructed. This is not a normal status for a disk group unless you have done a manual dequarantine.

For virtual disk groups in the Performance tier, when a disk failure occurs the data in the disk group that uses that disk will be automatically migrated to another available disk group if space is available, so no user data is lost. Data will be lost only if multiple disk failures occur in rapid succession so there is not enough time to migrate the data, or if there is insufficient space to fit the data in another tier, or if failed disks are not replaced promptly by the user.

**Recommended action:**

The CLI 'trust' command may be able to recover some of the data in the disk group. See the CLI help for the 'trust' command. Contact technical support for help to determine if the trust operation applies to your situation and for help to perform it.

- If you choose not to use the 'trust' command, perform these steps:
  - Replace the failed disk or disks. (Look for event 8 in the event log to determine which disks failed and for advice on replacing them.)
  - Delete the disk group (CLI 'remove disk-groups' command).
  - Re-create the disk group (CLI 'add disk-group' command).
- To prevent this problem in the future, use a fault-tolerant RAID level, configure one or more disks as spare disks, and replace failed disks promptly.

## 4 - Disk bad block corrected

### 4.1

**Info**

`A bad block was corrected by <block correction>. LBA: <logical block address>, (disk: channel: <channel index>, ID: <device identifier>, enclosure: <enclosure number>, slot: <slot number>)`

The indicated disk had a bad block which was corrected.

**Recommended action:**

- Monitor the error trend and whether the number of errors approaches the total number of bad-block replacements available.

## 6 - Create disk group completed

### 6.1

**Info**

Disk group creation completed successfully. (disk group: <name>, SN: <serial number>)

**Recommended action:**

- No action is required.

**6.2**

**Info**

Disk group creation was aborted. <Error> (error code: <error code>) (disk group: <name>, SN: <serial number>)

**Recommended action:**

- No action is required.

**6.3**

**Warning**

A failure occurred during disk group creation. <Error> (error code: <error code>) (disk group: <name>, SN: <serial number>)

A failure occurred during offline initialization of the indicated disk group. This was probably caused by a disk failure. The disk group has a status of OFFL (offline).

**Recommended action:**

- Look for another event logged at approximately the same time that indicates a disk failure, such as event 55, 58, or 412. Follow the recommended actions for that event.

**6.4**

**Info**

A failure occurred during disk group creation. <Error> (error code: <error code>) (disk group: <name>, SN: <serial number>)

Disk group creation failed immediately. The user was given immediate feedback that it failed at the time they attempted to add the disk group.

**Recommended action:**

- No action is required.

## 7 - Diagnostic failure

**7.1**

**Error**

Controller diagnostic failure. Error code: <error code>

In a testing environment, a controller diagnostic failed and reports a product-specific diagnostic code.

**Recommended action:**

- Perform failure analysis.

## 8 - Drive down

**8.1**

**Warning**

A disk that was part of a disk group is down. Excessive media errors. <Event Details>

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.2**

**Warning**

A disk that was part of a disk group is down. Disk failure is imminent. <Event Details>

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.3**

**Warning**

A disk that was part of a disk group is down. The disk has a possible hardware failure. <Event Details>

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.4**

**Warning**

A disk that was part of a disk group is down. The disk is not supported. <Event Details>

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.5**

**Warning**

`A disk that was part of a disk group is down. A user forced the disk out of the disk group. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- If the associated disk group is offline or quarantined, contact technical support. Otherwise, clear the disk's metadata to reuse the disk.

**8.6**

**Warning**

`A disk that was part of a disk group is down. RAID-6 initialization failed. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- If the associated disk group is offline or quarantined, contact technical support. Otherwise, clear the disk's metadata to reuse the disk.

**8.7**

**Warning**

`A disk that was part of a disk group is down. A previously detected disk is no longer present. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Reinsert the disk or insert a replacement disk of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity as the one that was in the slot. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

- If the disk then has a status of leftover (LEFTOVR), clear the metadata to reuse the disk.
- If the associated disk group is offline or quarantined, contact technical support.

#### 8.8

**Warning**

`Reconstruction of a disk group failed. This disk has become leftover. <Event Details>`

The indicated disk was being used as the target disk for reconstructing the indicated disk group. While the disk group was reconstructing, another disk in the disk group failed and the status of the disk group went to OFFL (offline). The indicated disk has a status of LEFTOVR (leftover).

**Recommended action:**

- If the associated disk group is online, clear the indicated disk's metadata so that the disk can be re-used.
- If the associated disk group is offline, the CLI 'trust' command may be able to recover some of the data in the disk group. However, trusting a partially reconstructed disk may lead to data corruption. See the CLI help for the 'trust' command. Contact technical support for help to determine if the trust operation applies to your situation and for help to perform it.
- If the associated disk group is offline and you do not want to use the 'trust' command, perform these steps:
  - Delete the disk group (CLI 'remove disk-groups' command).
  - Clear the indicated disk's metadata so the disk can be re-used (CLI 'clear disk-metadata' command).
  - Replace the failed disk or disks. (Look for other instances of event 8 in the event log to determine which disks failed.)
  - Re-create the disk group (CLI 'add disk-group' command).

#### 8.9

**Warning**

`An SSD that was part of a disk group has reported that it has no life remaining. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with one of the same type and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

#### 8.10

**Warning**

`A disk that was part of a disk group is down. The disk is down due to a protection information error. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.11**

**Warning**

`A disk that was part of a disk group is down. The disk has become leftover because of too many controller-recoverable errors. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.12**

**Warning**

`A disk that was part of a disk group is down. The disk is down due to degraded disk error criteria. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.13**

**Warning**

`A disk that was part of a disk group is down. The disk reported a request as illegal. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.14**

**Warning**

`A disk that was part of a disk group is down. The disk has become leftover due to being degraded. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.15**

**Warning**

`A disk that was part of a disk group is down. The disk failed due to a configured performance threshold. <Event Details>`

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**8.16**

**Warning**

`A disk that was part of a disk group is down. A disk remanufacture operation is in progress. <Event Details>`

The system is reworking the disk so that it can be reused. Do not remove the disk while the remanufacture operation is in progress. Completion will be indicated by event 631.

**Recommended action:**

- No action is required.

**8.17**

**Warning**

`A disk that was part of a disk group is down. Enclosure has been powered off. <Event Details>`

Once the enclosure is powered back on, the disk group will become active, and the disk will leave the LEFTOVR state.

**Recommended action:**

- No action is required.

**8.18**

**Warning**

A disk that was part of a disk group is down. Unknown reason. <Event Details>

The indicated disk in the indicated disk group failed and the disk group probably has a status of FTDN (fault tolerant with a down disk), CRIT (critical), or OFFL (offline), depending on the RAID level and the number of disks that failed. If a spare is present and the disk group is not offline, the controller automatically uses the spare to reconstruct the disk group. Subsequent events indicate the changes that happen to the disk group.

When the problem is resolved, event 9 is logged.

**Recommended action:**

- If the associated disk group is offline or quarantined, contact technical support. Otherwise, clear the disk's metadata to reuse the disk.

## 9 - Spare disk used

### 9.1

**Info**

A spare disk was used in a disk group to bring it back to a fault-tolerant state. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

Disk group reconstruction starts automatically. This event indicates that a problem reported by event 8 is resolved.

**Recommended action:**

- No action is required.

### 9.2

**Info**

A spare disk was used in a disk group to bring it back to a fault-tolerant state. (disk group: <name>, SN: <serial number>) (disk: Unknown)

Disk group reconstruction starts automatically. This event indicates that a problem reported by event 8 is resolved.

**Recommended action:**

- No action is required.

## 16 - Global spare disk added

### 16.1

**Info**

A global spare disk was added. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

**Recommended action:**

- No action is required.

## 18 - Reconstruct disk group completed

### 18.1

**Info**

Full reconstruction of a disk group completed. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

None.

**Recommended action:**

- No action is required.

**18.2**

**Info**

Quick rebuild of a disk group completed. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

None.

**Recommended action:**

- No action is required.

**18.3**

**Info**

Preemptive full reconstruction of a disk group completed. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

None.

**Recommended action:**

- No action is required.

**18.4**

**Info**

Preemptive quick rebuild of a disk group completed. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

None.

**Recommended action:**

- No action is required.

**18.5**

**Error**

Full reconstruction of a disk group completed with errors. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

When a disk fails, reconstruction is performed using a spare disk. However, this operation failed. Some of the data in the other disk(s) in the disk group is unreadable (uncorrectable media error), so part of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data, take a backup.
- Look for another event logged at approximately the same time that indicates a disk failure. Follow the recommended actions for that event.

**18.6**

**Error**

`Quick rebuild of a disk group completed with errors. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. However, this operation failed. Some of the data in the other disk(s) in the disk group is unreadable (uncorrectable media error), so part of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data, take a backup.
- Look for another event logged at approximately the same time that indicates a disk failure. Follow the recommended actions for that event.

**18.7**

**Error**

`Preemptive full reconstruction of a disk group completed with errors. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. However, this operation failed. Some of the data in the other disk(s) in the disk group is unreadable (uncorrectable media error), so part of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data, take a backup.
- Look for another event logged at approximately the same time that indicates a disk failure. Follow the recommended actions for that event.

**18.8**

**Error**

`Preemptive quick rebuild of a disk group completed with errors. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. However, this operation failed. Some of the data in the other disk(s) in the disk group is unreadable (uncorrectable media error), so part of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data, take a backup.
- Look for another event logged at approximately the same time that indicates a disk failure. Follow the recommended actions for that event.

**18.9**

**Info**

`Full reconstruction of degraded capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.10**

**Info**

`Full reconstruction of degraded capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.11**

**Info**

`Full reconstruction of critical capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.12**

**Info**

`Full reconstruction of critical capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.13**

**Info**

`Full preemptive reconstruct of an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)`

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.14**

**Info**

Quick rebuild of degraded capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.15**

**Info**

Quick rebuild of degraded capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.16**

**Info**

Quick rebuild of critical capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.17**

**Info**

Quick rebuild of critical capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.18**

**Info**

Quick preemptive rebuild of an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.19**

**Info**

Full preemptive reconstruction of degraded capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.20**

**Info**

Full preemptive reconstruction of degraded capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.21**

**Info**

Full preemptive reconstruction of critical capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.22**

**Info**

Full preemptive reconstruction of critical capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.23**

**Info**

Full preemptive reconstruction of an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.24**

**Info**

Preemptive quick rebuild of degraded capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.25**

**Info**

Preemptive quick rebuild of degraded capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.26**

**Info**

Preemptive quick rebuild of critical capacity within an ADAPT disk group completed successfully. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.27**

**Info**

Preemptive quick rebuild of critical capacity within an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

**18.28**

**Info**

Preemptive quick rebuild of an ADAPT disk group completed partially. (disk group: <name>, SN: <serial number>) (number of uncorrectable media errors detected: <error code>)

- If the disk group that completed partially uses ADAPT, either there is no available spare space or the spare space cannot be used because of ADAPT fault-tolerant requirements.

**Recommended action:**

- No action is required.

## 19 - Rescan bus completed

**19.1**

**Info**

A rescan-bus operation was done. (number of disks that were found: <number of disks>, number of enclosures that were found: <number of enclosures>) (rescan reason: initiated by a user, rescan reason code: <rescan reason code>)

**Recommended action:**

- No action is required.

**19.2**

**Info**

A rescan-bus operation was done. (number of disks that were found: <number of disks>, number of enclosures that were found: <number of enclosures>) (rescan reason: initiated by internal logic, rescan reason code: <rescan reason code>)

**Recommended action:**

- No action is required.

## 20 - Firmware update completed

### 20.1

**Info**

Storage Controller firmware was installed successfully. (new version: <version string>)

**Recommended action:**

- No action is required.

### 20.2

**Info**

Storage Controller firmware was installed successfully. (new version: <version string>, baselevel: <version string>)

**Recommended action:**

- No action is required.

## 21 - Verify disk group completed

### 21.1

**Info**

A verify-disk-group job was aborted. <error code> (error code: <error code>) (disk group: <name>, SN: <serial number>)

**Recommended action:**

- No action is required.

### 21.2

**Warning**

A verify-disk-group job did not complete because of an internally detected condition such as a failed disk. (number of errors found: <error code>) (disk group: <name>, SN: <serial number>)

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.

- If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

#### 21.3

**Error**

A verify-disk-group job failed. <error code> (error code: <error code>) (number of errors found: <error code>) (disk group: <name>, SN: <serial number>)

**Recommended action:**

- Perform a disk group scrub to find and correct the errors.

#### 21.4

**Error**

A verify-disk-group job completed. No errors were found. (disk group: <name>, SN: <serial number>)

**Recommended action:**

- Perform a disk group scrub to find and correct the errors.

#### 21.5

**Error**

A verify-disk-group job completed. Errors were found and corrected. (number of corrections made: <error code>) (disk group: <name>, SN: <serial number>)

**Recommended action:**

- Perform a disk group scrub to find and correct the errors.

#### 21.6

**Error**

A verify-disk-group job completed. Errors were found but not corrected. (number of errors found: <error code>) (disk group: <name>, SN: <serial number>)

**Recommended action:**

- Perform a disk group scrub to find and correct the errors.

## 23 - Create disk group started

#### 23.1

**Info**

Disk group creation started, but was not successful. (disk group: <name>, SN: <serial number>) (error code: <error code>...<possible additional parameters>)

**Recommended action:**

- No action is required.

#### 23.2

**Info**

Disk group creation started. (disk group: <name>, SN: <serial number>) (RAID50, number of disks: <number of low levels>x<number of drives per low level>...<possible additional parameters>)

**Recommended action:**

- No action is required.

#### 23.3

**Info**

Disk group creation started. (disk group: <name>, SN: <serial number>) (<RAID level>, number of disks: <number of disks>...<possible additional parameters>)

**Recommended action:**

- No action is required.

### 25 - Disk group statistics reset

#### 25.1

**Info**

Disk group statistics were reset for all disk groups.

**Recommended action:**

- No action is required.

#### 25.2

**Info**

Disk group statistics were reset. (disk group: <name>, SN: <serial number>)

**Recommended action:**

- No action is required.

### 28 - Controller parameters changed

#### 28.1

**Info**

Controller configuration parameters were changed.

This event is logged when general configuration changes are made. For example, utility priority, remote notification settings, user interface passwords, and network port IP values. This event is not logged when changes are made to disk group or volume configuration.

**Recommended action:**

- No action is required.

### 31 - Spare disk deleted

#### 31.1

**Info**

A spare disk was deleted. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

The indicated disk is no longer designated as a spare.

**Recommended action:**

- No action is required.

## 32 - Verify disk group started

**32.1**

**Info**

Disk group verification was started. (disk group: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 33 - Time/Date set

**33.1**

**Info**

Date/time was changed to <time>.

This event is logged before the change happens, so the timestamp of the event shows the old time. This event may occur often if NTP is enabled.

**Recommended action:**

- No action is required.

## 34 - Controller defaults restored

**34.1**

**Info**

Default configuration was restored.

None.

**Recommended action:**

- For an FC controller, restart it to make the default loop ID take effect.

## 35 - Utility aborted

**35.1**

**Info**

A disk group job was aborted. (disk group: <name>, SN: <serial number>, job: <identifier>)

**Recommended action:**

- No action is required.

## 37 - Reconstruct disk group started

### 37.1

**Info**

Disk group standard full reconstruction started. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <numeric value>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.3

**Info**

Disk group preemptive full reconstruction started. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <numeric value>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.5

**Info**

Disk group reconstruction started. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <numeric value>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.6

**Info**

Disk group standard full reconstruction started. (disk group: <name>, SN: <serial number>) (disk: unknown)

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.8

**Info**

Disk group preemptive full reconstruction started. (disk group: <name>, SN: <serial number>) (disk: unknown)

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.10

**Info**

`Disk group reconstruction started. (disk group: <name>, SN: <serial number>) (disk: unknown)`

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.11

**Info**

`Standard full reconstruction of degraded capacity within an ADAPT disk group started. (disk group: <name>, SN: <serial number>)`

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.13

**Info**

`Preemptive full reconstruction of degraded capacity within an ADAPT disk group started. (disk group: <name>, SN: <serial number>)`

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.15

**Info**

`Standard full reconstruction of critical capacity within an ADAPT disk group started. (disk group: <name>, SN: <serial number>)`

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

### 37.17

**Info**

`Preemptive full reconstruction of critical capacity within an ADAPT disk group started. (disk group: <name>, SN: <serial number>)`

When complete, event 18 is logged.

**Recommended action:**

- No action is required.

## 39 - Sensor warning

### 39.1

**Warning**

`An unknown sensor warning occurred. (p1: <drive index>, p2: <channel index>)`

A sensor monitored a temperature or voltage in the warning range. When the problem is resolved, event 47 is logged for the component that logged event 39.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 39.2

**Warning**

`A disk temperature sensor reached a warning threshold. (measured temperature: <temperature> C) (threshold temperature: <temperature> C)`

A sensor monitored a temperature or voltage in the warning range. When the problem is resolved, event 47 is logged for the component that logged event 39.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 39.3

**Warning**

The right fan warning occurred because the the fan is operating at an improperly high speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)

A sensor monitored a temperature or voltage in the warning range. When the problem is resolved, event 47 is logged for the component that logged event 39.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

**39.4**

**Warning**

The right fan warning occurred because the the fan is operating at an improperly low speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)

A sensor monitored a temperature or voltage in the warning range. When the problem is resolved, event 47 is logged for the component that logged event 39.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

**39.5**

**Warning**

The left fan warning occurred because the the fan is operating at an improperly high speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)

A sensor monitored a temperature or voltage in the warning range. When the problem is resolved, event 47 is logged for the component that logged event 39.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

**39.6**

**Warning**

`The left fan warning occurred because the the fan is operating at an improperly low speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)`

A sensor monitored a temperature or voltage in the warning range. When the problem is resolved, event 47 is logged for the component that logged event 39.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

**39.7**

**Warning**

`<Sensor String>`

A sensor monitored a temperature or voltage in the warning range. When the problem is resolved, event 47 is logged for the component that logged event 39.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

## 40 - Sensor failure

### 40.1

**Error**

`An unknown sensor failure occurred. (p1: <voltage>, p2: <temperature>)`

A sensor monitored a temperature or voltage in the failure range. When the problem is resolved, event 47 is logged for the component that logged event 40.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 40.2

**Error**

`A disk temperature sensor reached a failure threshold. (measured temperature: <temperature> C) (threshold temperature: <temperature> C)`

A sensor monitored a temperature or voltage in the failure range. When the problem is resolved, event 47 is logged for the component that logged event 40.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 40.3

**Error**

`The right fan failure occurred because the the fan is operating at an improperly high speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)`

A sensor monitored a temperature or voltage in the failure range. When the problem is resolved, event 47 is logged for the component that logged event 40.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 40.4

**Error**

`The right fan failure occurred because the the fan is operating at an improperly low speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)`

A sensor monitored a temperature or voltage in the failure range. When the problem is resolved, event 47 is logged for the component that logged event 40.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 40.5

**Error**

`The left fan failure occurred because the the fan is operating at an improperly high speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)`

A sensor monitored a temperature or voltage in the failure range. When the problem is resolved, event 47 is logged for the component that logged event 40.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 40.6

**Error**

`The left fan failure occurred because the the fan is operating at an improperly low speed. (measured speed: <temperature> rpm) (threshold speed: <temperature> rpm)`

A sensor monitored a temperature or voltage in the failure range. When the problem is resolved, event 47 is logged for the component that logged event 40.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

#### 40.7

**Error**

`<Sensor String>`

A sensor monitored a temperature or voltage in the failure range. When the problem is resolved, event 47 is logged for the component that logged event 40.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

### 41 - Dedicated spare added

#### 41.1

**Info**

`A spare disk drive was added to a disk group (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

None.

**Recommended action:**

- No action is required.

### 43 - Disk group deleted

#### 43.1

**Info**

`A disk group was removed. (disk group: <name>, SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 44 - Unwritable cache data exists

### 44.1

**Warning**

`Unwritable write-back cache data exists for a volume. (pool: <name>, volume: <volume name>, SN: <serial number>) It comprises <numeric value>% of cache space.`

The controller contains cache data for the indicated volume but the corresponding disk group is not online.

**Recommended action:**

- Determine the reason that the disks comprising the disk group are not online.
- If an enclosure is down, determine corrective action.
- If the disk group is no longer needed, you can clear the orphan data. This will result in lost data.
- If the disk group is missing and was not intentionally removed, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

## 47 - Sensor warning cleared

### 47.1

**Info**

`A disk temperature warning cleared. (disk: channel: <channel index>, ID: <numeric value>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

This event indicates that a problem reported by event 39, 40, or 524 is resolved.

**Recommended action:**

- No action is required.

### 47.2

**Info**

`A previous temperature, voltage, capacitance or current warning or failure cleared.`

This event indicates that a problem reported by event 39, 40, or 524 is resolved.

**Recommended action:**

- No action is required.

## 48 - Disk group name changed

### 48.1

**Info**

`A disk group name was changed. (old name: <serial number>, new name: <name>, SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 49 - SCSI maintenance command

### 49.1

**Info**

A SCSI maintenance command completed successfully. (command: <numeric value>. disk: Unknown, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>.)

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

### 49.2

**Info**

A SCSI maintenance command completed successfully. (command: <numeric value>. disk: Unknown, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>. <detailed error information>)

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

### 49.3

**Info**

A SCSI maintenance command completed successfully. (command: <numeric value>. disk: channel: <channel index>, ID: <identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>.)

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

### 49.4

**Info**

A SCSI maintenance command completed successfully. (command: <numeric value>. disk: channel: <channel index>, ID: <identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>. <detailed error information>)

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

### 49.5

**Info**

A SCSI maintenance command completed with error. (command: <numeric value>. disk: Unknown, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>. [error code: <error code>])

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

#### 49.6

**Info**

A SCSI maintenance command completed with error. (command: <numeric value>. disk: Unknown, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>. <detailed error information> [error code: <error code>])

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

#### 49.7

**Info**

A SCSI maintenance command completed with error. (command: <numeric value>. disk: channel: <channel index>, ID: <identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>. [error code: <error code>])

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

#### 49.8

**Info**

A SCSI maintenance command completed with error. (command: <numeric value>. disk: channel: <channel index>, ID: <identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>. <detailed error information> [error code: <error code>])

A lengthy SCSI maintenance command has completed. (This typically occurs during disk firmware update.)

**Recommended action:**

- No action is required.

### 50 - Correctable ECC error

#### 50.1

**Warning**

A correctable ECC error occurred in cache memory. (<detailed error information>)

- This event is logged with Warning severity to provide information that may be useful to technical support, but no action is required now. It will be logged with Error severity if it is necessary to replace the controller module.

**Recommended action:**

- No action is required.

**50.2**

**Error**

`A correctable ECC error occurred in cache memory. (<detailed error information>)`

- A correctable ECC error occurred in cache memory more than 10 times during a 24-hour period, indicating a probable hardware fault.

**Recommended action:**

- Replace the controller module that logged this event.

## 51 - Uncorrectable ECC error

**51.1**

**Warning**

`An uncorrectable ECC error occurred in cache memory. (<detailed error information>)`

- This event is logged with Warning severity to provide information that may be useful to technical support, but no action is required now. It will be logged with Error severity if it is necessary to replace the controller module.

**Recommended action:**

- No action is required.

**51.2**

**Error**

`An uncorrectable ECC error occurred in cache memory. (<detailed error information>)`

- An uncorrectable ECC error occurred in cache memory more than once during a 48-hour period, indicating a probable hardware fault.

**Recommended action:**

- Replace the controller module that logged this event.

## 52 - Expand disk group started

**52.1**

**Info**

`An expand-disk-group job started. (disk group: <name>, SN: <serial number>, number of disks added: <count>)`

- Depending on the RAID level, this operation can complete very quickly (for ADAPT) or take days or weeks to complete. Allow adequate time for the expansion to complete.

When complete, event 53 is logged.

**Recommended action:**

- No action is required.

**52.2**

**Info**

`An expand-disk-group job started. (disk group: <name>, SN: <serial number>, number of stripes to expand: <Stripes to Expand>)`

- Depending on the RAID level, this operation can complete very quickly (for ADAPT) or take days or weeks to complete. Allow adequate time for the expansion to complete.

When complete, event 53 is logged.

**Recommended action:**

- No action is required.

## 53 - Expand disk group completed

**53.1**

**Info**

`An expand-disk-group job completed successfully. (disk group: <name>, SN: <serial number>)`

Disk group expansion either completed successfully, failed immediately, or was aborted by a user.

**Recommended action:**

- If the expansion failed because of a disk problem, replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing. If disk group reconstruction starts, wait for it to complete and then retry the expansion.

**53.2**

**Warning**

`An expand-disk-group job failed. <detailed error information> (error code: <error code>) (disk group: <name>, SN: <serial number>)`

Too many errors occurred during disk group expansion to allow the expansion to continue.

**Recommended action:**

- If the expansion failed because of a disk problem, replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing. If disk group reconstruction starts, wait for it to complete and then retry the expansion.

**53.3**

**Info**

`An expand-disk-group job completed successfully. (disk group: <name>, SN: <serial number>) The ADAPT user space added was <numeric value>.`

Disk group expansion either completed successfully, failed immediately, or was aborted by a user.

**Recommended action:**

- If the expansion failed because of a disk problem, replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing. If disk group reconstruction starts, wait for it to complete and then retry the expansion.

## 55 - Disk SMART event

### 55.1

**Warning**

A disk drive reported a SMART event. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (<name>)

A SMART event indicates impending disk failure.

**Recommended action:**

- Resolve any non-disk hardware problems, especially a cooling problem or a faulty power supply.
- If the disk is in a disk group that uses a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disk.
- If the disk is in a disk group that uses a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

## 56 - Storage Controller booted

### 56.1

**Info**

Storage Controller booted up (cold boot - power up). SC firmware version: <version string>

**Recommended action:**

- No action is required.

### 56.2

**Info**

Storage Controller booted up (cold boot - power up). SC firmware version: <version string> (baselevel: <version string>)

**Recommended action:**

- No action is required.

### 56.3

**Info**

Storage Controller booted up (warm boot - kill was released or a reset occurred). SC firmware version: <version string>

**Recommended action:**

- No action is required.

**56.4**

**Info**

Storage Controller booted up (warm boot - kill was released or a reset occurred). SC firmware version: <version string> (baselevel: <version string>)

**Recommended action:**

- No action is required.

**56.5**

**Info**

Storage Controller booted up. SC firmware version: <version string>

**Recommended action:**

- No action is required.

**56.6**

**Info**

Storage Controller booted up. SC firmware version: <version string> (baselevel: <version string>)

**Recommended action:**

- No action is required.

## 58 - Disk error detected

**58.1**

**Info**

An event was reported by a disk drive. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (<key code qualifier decode string>) (<device identifier>)<device identifier>(<sense key decode string>, <additional sense code qualifier decode string>)

None.

**Recommended action:**

- No action is required.

**58.2**

**Error**

An error was reported by a disk drive. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (<key code qualifier decode string>) (<device identifier>)<device identifier>(<sense key decode string>, <additional sense code qualifier decode string>)

A disk drive detected a serious error, such as a parity error or disk hardware failure.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**58.3**

**Warning**

`An error was reported by a disk drive. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (<key code qualifier decode string>) (<device identifier>)<device identifier>(<sense key decode string>, <additional sense code qualifier decode string>)`

A disk drive reset itself due to an internal logic error.

**Recommended action:**

- The first time this event is logged with Warning severity, if the indicated disk is not running the latest firmware, update the disk firmware.
- If this event is logged with Warning severity for the same disk more than five times in one week, and the indicated disk is running the latest firmware, replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

## 59 - Disk channel error

**59.1**

**Warning**

`Disk channel event. (channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>): <text> ...<text>`

The controller detected a parity error while communicating with the indicated SCSI device. The error was detected by the controller, not the disk.

**Recommended action:**

- If the event indicates that a disk or an expansion module is bad, replace the indicated device.

**59.2**

**Info**

`Disk channel event. (channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>): <text> ...<text>`

The controller detected a non-parity event while communicating with the indicated SCSI device. The event was detected by the controller, not the disk.

**Recommended action:**

- No action is required.

**59.3**

**Warning**

`Disk channel event. (channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>): <text> ...<numeric value> additional`

The controller detected a parity error while communicating with the indicated SCSI device. The error was detected by the controller, not the disk.

**Recommended action:**

- If the event indicates that a disk or an expansion module is bad, replace the indicated device.

#### 59.4

**Info**

`Disk channel event. (channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>): <text> ...<numeric value> additional`

The controller detected a non-parity event while communicating with the indicated SCSI device. The event was detected by the controller, not the disk.

**Recommended action:**

- No action is required.

## 61 - Disk channel failure

#### 61.1

**Error**

`Disk channel failure. This may indicate a hardware failure, but the controller will attempt to recover. (Event context: <numeric value>)`

The controller reset a disk channel to recover from a communication error. This event is logged to identify an error trend over time.

**Recommended action:**

- If the controller recovers, no action is required.
- View other logged events to determine other action to take.

#### 61.2

**Error**

`Disk channel failure. This may indicate a hardware failure, but the controller will attempt to recover. (channel: <channel index>, Excessive errors)`

The controller reset a disk channel to recover from a communication error. This event is logged to identify an error trend over time.

**Recommended action:**

- If the controller recovers, no action is required.
- View other logged events to determine other action to take.

#### 61.3

**Error**

`Disk channel failure. This may indicate a hardware failure, but the controller will attempt to recover. (channel: <channel index>, Excessive transitions)`

The controller reset a disk channel to recover from a communication error. This event is logged to identify an error trend over time.

**Recommended action:**

- If the controller recovers, no action is required.
- View other logged events to determine other action to take.

#### 61.4

**Critical**

`Disk channel failure. This indicates a hardware failure, so the controller needs to be replaced. (channel: <channel index>, Excessive transitions)`

The controller reset a disk channel to recover from a communication error. This event is logged to identify an error trend over time.

**Recommended action:**

- Replace the controller.

## 62 - Spare disk failed

#### 62.1

**Warning**

`A spare disk drive failed. The disk was a dedicated spare for a disk group. (disk: channel: <channel index>, ID: <identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (disk group: <name>, SN: <serial number>)`

**Recommended action:**

- Replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.
- configure the new disk as a dedicated spare for the same disk group.

#### 62.2

**Warning**

`A spare disk drive failed. The disk was a global spare. (disk: channel: <channel index>, ID: <identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

**Recommended action:**

- Replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.
- configure the new disk as a global spare.

## 65 - Uncorrectable ECC error

#### 65.1

**Error**

`An uncorrectable ECC error was detected in cache memory when booting up. (address: <numeric value>)`

The controller is automatically restarted and its cache data is restored from the partner controller's cache.

**Recommended action:**

- Replace the controller module that logged this event.

## 68 - Controller shutdown

### 68.1

**Info**

`The controller that logged this event has shut down; no restart <status>`

**Recommended action:**

- No action is required.

### 68.2

**Info**

`The controller that logged this event has shut down; restarting. <status>`

**Recommended action:**

- No action is required.

### 68.3

**Info**

`Both controllers have shut down; no restart`

**Recommended action:**

- No action is required.

### 68.4

**Info**

`Both controllers have shut down; restarting.`

**Recommended action:**

- No action is required.

## 71 - Controller failover

### 71.1

**Info**

`Failover was initiated. (failed or shutdown controller: B)`

**Recommended action:**

- No action is required.

### 71.2

**Info**

`Failover completed. (failed or shutdown controller: B)`

**Recommended action:**

- No action is required.

**71.3**

**Info**

`Failover was initiated. (failed or shutdown controller: A)`

**Recommended action:**

- No action is required.

**71.4**

**Info**

`Failover completed. (failed or shutdown controller: A)`

**Recommended action:**

- No action is required.

## 72 - Controller failback

**72.1**

**Info**

`Recovery was initiated for controller B.`

**Recommended action:**

- No action is required.

**72.2**

**Info**

`Shutdown was initiated for controller B.`

**Recommended action:**

- No action is required.

**72.3**

**Info**

`Recovery completed for controller B.`

**Recommended action:**

- No action is required.

**72.4**

**Info**

`Shutdown completed for controller B.`

**Recommended action:**

- No action is required.

**72.5**

**Info**

Recovery was initiated for controller A.

**Recommended action:**

- No action is required.

**72.6**

**Info**

Shutdown was initiated for controller A.

**Recommended action:**

- No action is required.

**72.7**

**Info**

Recovery completed for controller A.

**Recommended action:**

- No action is required.

**72.8**

**Info**

Shutdown completed for controller A.

**Recommended action:**

- No action is required.

## 73 - Partner controller heartbeat

**73.1**

**Info**

Heartbeat was detected from the partner controller. This indicates that the partner controller is operational.

None.

**Recommended action:**

- No action is required.

## 74 - Disk group host ID changed

**74.1**

**Info**

The host ID was changed from <numeric value> to <numeric value> for a disk group. (disk group: <name>, SN: <serial number>)

The FC loop ID for the indicated disk group was changed to be consistent with the IDs of other disk groups. This can occur when disks that constitute a disk group are inserted from an enclosure having a different FC loop ID.

This event is also logged by the new owning controller after disk group ownership is changed.

**Recommended action:**

- No action is required.

## 75 - LUN conflict detected

**75.1**

**Info**

`A LUN was changed to 'undefined' due to a LUN conflict. (disk group: <name>, volume: <volume name>, SN: <serial number>, original LUN: <logical unit number>)`

The indicated volume's LUN has been unassigned because it conflicts with LUNs assigned to other volumes. This can happen when disks containing data for a mapped volume have been moved from one storage system to another.

**Recommended action:**

- If you want hosts to access the volume data in the inserted disks, map the volume with a different LUN.

## 76 - Booted with default configuration

**76.1**

**Info**

`The system booted up with default configuration settings.`

The controller is using default configuration settings. This event occurs on the first power up, and might occur after a firmware update.

**Recommended action:**

- If you have just performed a firmware update and your system requires special configuration settings, you must make those configuration changes before your system will operate as before.

## 77 - Cache initialized

**77.1**

**Info**

`Write-back cache was initialized for controller B. Write-back data was found.`

The cache was initialized as a result of power up or failover.

**Recommended action:**

- No action is required.

**77.2**

**Info**

`Write-back cache was initialized for controller B. Cache was clean.`

The cache was initialized as a result of power up or failover.

**Recommended action:**

- No action is required.

**77.3**

**Info**

`Write-back cache was initialized for controller A. Write-back data was found.`

The cache was initialized as a result of power up or failover.

**Recommended action:**

- No action is required.

**77.4**

**Info**

`Write-back cache was initialized for controller A. Cache was clean.`

The cache was initialized as a result of power up or failover.

**Recommended action:**

- No action is required.

## 78 - Spare disks unusable

**78.1**

**Warning**

`All spare disk drives are unusable (too small) for a disk group. (disk group: <name>, SN: <serial number>)`

This occurs when a disk in a disk group fails and there is no dedicated spare available and all global spares are too small or, if the dynamic spares feature is enabled, all global spares and available disks are too small, or if there is no spare of the correct type. There may be more than one failed disk in the system.

**Recommended action:**

- Replace each failed disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.
- Configure disks as dedicated spares or global spares.
  - For a dedicated spare, the disk must be of the same type as the other disks in the disk group and at least as large as the smallest-capacity disk in the disk group, and it should have the same or better performance.
  - For a global spare, it is best to choose a disk that is as big as or bigger than the largest disk of its type in the system and of equal or greater performance. If the system contains a mix of disk types (SSD, enterprise SAS, or midline SAS), there should be at least one global spare of each type (unless dedicated spares are used to protect every disk group of a given type).

**78.2**

**Warning**

`All spare disk drives are unusable (too small) for a disk group. (disk group: <name>, SN: <serial number>)`

This occurs when a disk in a disk group fails and all global spares are too small or, if the dynamic spares feature is enabled, all global spares and available disks are too small, or if there is no spare of the correct type. There may be more than one failed disk in the system.

**Recommended action:**

- Replace each failed disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.
- Configure disks as global spares.
- For a global spare, it is best to choose a disk that is as big as or bigger than the largest disk of its type in the system and of equal or greater performance. If the system contains a mix of disk types (SSD, enterprise SAS, or midline SAS), there should be at least one global spare of each type.

## 79 - Trust disk group completed

### 79.1

**Info**

A trust-disk-group job completed successfully. (disk group: <name>, SN: <serial number>)

None.

**Recommended action:**

- Be sure to complete the trust procedure as documented in the CLI help for the 'trust' command.

## 80 - Disk configuration changed

### 80.1

**Info**

The configuration of one or more disks was changed. (changed parameter: Write-back cache, new setting: enabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.2

**Info**

The configuration of one or more disks was changed. (changed parameter: SMART support, new setting: enabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.3

**Info**

The configuration of one or more disks was changed. (changed parameter: Read ahead, new setting: enabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.4

**Info**

The configuration of one or more disks was changed. (changed parameter: Initiator response timeout, new setting: enabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.5

**Info**

The configuration of one or more disks was changed. (changed parameter: Command aging limit, new setting: enabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.6

**Info**

The configuration of one or more disks was changed. (changed parameter: Unknown setting, new setting: enabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.7

**Info**

The configuration of one or more disks was changed. (changed parameter: Write-back cache, new setting: disabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.8

**Info**

The configuration of one or more disks was changed. (changed parameter: SMART support, new setting: disabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.9

**Info**

The configuration of one or more disks was changed. (changed parameter: Read ahead, new setting: disabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 80.10

**Info**

The configuration of one or more disks was changed. (changed parameter: Initiator response timeout, new setting: disabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

#### 80.11

**Info**

The configuration of one or more disks was changed. (changed parameter: Command aging limit, new setting: disabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

#### 80.12

**Info**

The configuration of one or more disks was changed. (changed parameter: Unknown setting, new setting: disabled, number of disks changed: <count>, total number of disks: <count>)

**Recommended action:**

- No action is required.

### 81 - Partner controller allowed to boot

#### 81.1

**Info**

Kill was released (that is, the partner controller was allowed to boot up), user requested.

**Recommended action:**

- No action is required.

#### 81.2

**Info**

Kill was released (that is, the partner controller was allowed to boot up), automatic.

**Recommended action:**

- No action is required.

#### 81.3

**Info**

Kill was released (that is, the partner controller was allowed to boot up), internal.

**Recommended action:**

- No action is required.

#### 81.4

**Info**

Kill was released (that is, the partner controller was allowed to boot up), partner controller installed.

**Recommended action:**

- No action is required.

**81.5**

**Info**

Kill was released (that is, the partner controller was allowed to boot up), unknown reason.

**Recommended action:**

- No action is required.

## 83 - Partner controller changed state

**83.1**

**Info**

Partner controller changed state. (new state: <description>)

None.

**Recommended action:**

- No action is required.

## 84 - Other controller killed

**84.1**

**Warning**

Killed partner controller. (reason: <description>)

The controller that logged this event forced the partner controller to fail over.

**Recommended action:**

- Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

## 86 - Channel parameters changed

**86.1**

**Info**

Host port parameters were changed.

**Recommended action:**

- No action is required.

**86.2**

**Info**

Disk channel parameters were changed.

**Recommended action:**

- No action is required.

## 87 - Configuration recovered

**87.1**

**Warning**

`The mirrored configuration retrieved by this controller from the partner controller had a bad CRC. The local flash configuration will be used instead.`

None.

**Recommended action:**

- Restore the default configuration by using the 'restore defaults' command, as described in the CLI guide.

## 88 - Configuration recovered

**88.1**

**Warning**

`The mirrored configuration retrieved by this controller from the partner controller was corrupt. The local flash configuration will be used instead.`

None.

**Recommended action:**

- Restore the default configuration by using the 'restore defaults' command, as described in the CLI guide.

## 89 - Configuration recovered

**89.1**

**Warning**

`The mirrored configuration level is too high; the controller probably has down-level firmware. The local flash configuration will be used instead.`

The mirrored configuration retrieved by this controller from the partner controller has a configuration level that is too high for the firmware in this controller to process.

**Recommended action:**

- The controller that logged this event probably has down-level firmware. Update the firmware in the down-level controller. Both controllers should have the same firmware versions.

When the problem is resolved, event 20 is logged.

## 90 - Configuration recovered

**90.1**

**Info**

`No mirrored configuration was available from the partner controller. The local flash configuration will be used instead.`

This event is expected if the other controller is new or its configuration has been changed.

**Recommended action:**

- No action is required.

## 91 - Diagnostic failure

**91.1**

**Error**

`The diagnostic test failed that tests the hardware reset signals between controllers.`

In a testing environment, the diagnostic that checks hardware reset signals between controllers in Active-Active mode failed.

**Recommended action:**

- Perform failure analysis.

## 95 - Controller serial number conflict

**95.1**

**Error**

`Both controllers have the same serial number.`

Both controllers in an Active-Active configuration have the same serial number. Non-unique serial numbers can cause system problems. For example, WWNs are determined by serial number.

**Recommended action:**

- Remove one of the controller modules and insert a replacement, then return the removed module to be reprogrammed.

## 96 - Configuration changes ignored

**96.1**

**Info**

`Some configuration changes were ignored because there may be customer data in write-back cache.`

Pending configuration changes that take effect at startup were ignored because customer data might be present in cache.

**Recommended action:**

- If the requested configuration changes did not occur, make the changes again and then use a user-interface command to shut down the Storage Controller and then restart it.

## 103 - Volume name changed

**103.1**

**Info**

`A volume name was changed. (old name: <name>, new name: <name>, SN: <serial number>)`

**Recommended action:**

- No action is required.

## 104 - Volume geometry changed

**104.1**

**Info**

A volume size was changed. (pool: <pool name>, volume: <volume name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 105 - Volume LUN changed

### 105.1

**Info**

The default LUN for a volume was changed. (pool: <pool name>, volume: <volume name>, SN: <serial number>) (new LUN: <logical unit number>)

None.

**Recommended action:**

- No action is required.

## 106 - Add volume completed

### 106.1

**Info**

A volume was added. (pool: <pool name>, volume: <volume name>, SN: <serial number>) (default LUN: <logical unit number>)

**Recommended action:**

- No action is required.

### 106.2

**Info**

A volume was added. (pool: <pool name>, volume: <volume name>, SN: <serial number>) (default LUN: none)

**Recommended action:**

- No action is required.

## 107 - Critical error

### 107.1

**Error**

<detailed error information>

A serious error has been detected by the controller. In a single-controller configuration, the controller will restart automatically. In an Active-Active configuration, the partner controller will kill the controller that experienced the error.

**Recommended action:**

- Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

## 108 - Delete volume completed

### 108.1

**Info**

A volume was deleted. (pool: <pool name>, volume: <volume name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 109 - Reset Volume stats

### 109.1

**Info**

Volume statistics were reset for all volumes.

**Recommended action:**

- No action is required.

### 109.2

**Info**

Volume statistics were reset for one volume. (pool: <pool name>, volume: <volume name>, SN: <serial number>)

**Recommended action:**

- No action is required.

## 110 - Set preferred owner

### 110.1

**Info**

Ownership of a disk group was given to the other controller. (disk group: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 111 - Host port link up

### 111.1

**Info**

Host link up. (port: <channel index>, type: <type>)

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.2**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>)`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.3**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, number of loop ID(s): <count>, controller could not acquire all its own loop ID(s), fabric)`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.4**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, number of loop ID(s): <count>, controller could not acquire all its own loop ID(s), external device(s))`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.5**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, number of loop ID(s): <count>, controller could not acquire all its own loop ID(s))`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.6**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, number of loop ID(s): <count>, fabric)`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.7**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, number of loop ID(s): <count>, external device(s))`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.8**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, number of loop ID(s): <count>)`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.9**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, point-to-point, fabric)`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.10**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, point-to-point, external device(s))`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

**111.11**

**Info**

`Host link up. (port: <channel index>, speed: <link speed>, point-to-point)`

This event indicates that a problem reported by event 112 is resolved. For a system with FC ports, this event also appears after loop initialization.

**Recommended action:**

- No action is required.

## 112 - Host port link down

### 112.1

**Warning**

`Host link down. (port: <port number>)`

The link for the indicated host port has unexpectedly gone down. This can affect host mappings.

**Recommended action:**

- Look for corresponding event 111 and monitor excessive transitions. If this event occurs more than 8 times per hour, it should be investigated.
- This event is probably caused by equipment outside of the storage system, such as faulty cabling or a faulty switch.
- If the problem is not outside of the storage system, replace the controller module that logged this event.

### 112.2

**Info**

`Host link down. (port: <port number>)`

The link for the indicated host port has gone down because the controller is starting up.

**Recommended action:**

- No action is required.

## 114 - Disk channel link down

### 114.1

**Info**

`Disk link down. (channel: <channel index>)`

The link for the indicated disk channel is down. Note that events 114 and 211 are logged whenever a user-requested rescan occurs and do not indicate an error.

**Recommended action:**

- Look for corresponding event 211 and monitor excessive transitions indicating disk problems. If more than 8 transitions occur per hour, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

## 116 - Reboot to avoid lost write back data

### 116.1

**Error**

`This controller restarted to avoid losing write-back data that is in the partner controller.`

After a recovery, the partner controller was killed while mirroring write-back data to the controller that logged this event. The controller that logged this event restarted to avoid losing the data in the partner controller's cache, but if the other controller does not restart successfully, the data will be lost.

**Recommended action:**

- To determine if data might have been lost, check whether this event was immediately followed by event 56 (Storage Controller booted up), closely followed by event 71 (failover started). The failover indicates that the restart did not succeed.

## 117 - Host port error

### 117.1

**Warning**

`This controller detected an error on one of its host channels. (channel: <channel index>, error code: <error code>)`

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If more errors are detected, check the connectivity between the controller and the attached host.
- If more errors are generated, shut down the Storage Controller and replace the controller module.

### 117.2

**Warning**

`This controller generated an error on one of its host channels. (channel: <channel index>, status: <numeric value>, <numeric value>)`

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If more errors are detected, check the connectivity between the controller and the attached host.
- If more errors are generated, shut down the Storage Controller and replace the controller module.

### 117.3

**Warning**

`This controller generated an error on one of its host channels. (channel: <channel index>, sense data: <numeric value>, <numeric value>)`

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If more errors are detected, check the connectivity between the controller and the attached host.
- If more errors are generated, shut down the Storage Controller and replace the controller module.

## 118 - Volume cache parameters changed

### 118.1

**Info**

`Cache parameters were changed for a volume. (pool: <pool name>, volume: <volume name>, SN: <serial number>) (cache optimization: <description>, read-ahead size: <description>, write-back cache: <on or off>)`

None.

**Recommended action:**

- No action is required.

## 127 - Invalid dual port connection

**127.1**

**Warning**

`An invalid disk-drive connection was detected. An expansion port is connected to a host port. (channel: <channel index>)`

None.

**Recommended action:**

- Disconnect the host port and expansion port from each other and connect them to the proper devices.

## 136 - Disk channel degraded

**136.1**

**Warning**

`A disk channel went to a degraded state. (channel: <channel index>) (reason: excessive errors)`

Errors detected on the indicated disk channel have caused the controller to mark the channel as degraded.

**Recommended action:**

- Determine the source of the errors on the indicated disk channel and replace the faulty hardware.

When the problem is resolved, event 189 is logged.

**136.2**

**Warning**

`A disk channel went to a degraded state. (channel: <channel index>) (reason: excessive LIPs)`

Errors detected on the indicated disk channel have caused the controller to mark the channel as degraded.

**Recommended action:**

- Determine the source of the errors on the indicated disk channel and replace the faulty hardware.

When the problem is resolved, event 189 is logged.

## 139 - Management Controller booted

**139.1**

**Info**

`The Management Controller booted up. MC firmware version: <version string>`

The Management Controller (MC) has powered up or restarted.

**Recommended action:**

- No action is required.

**139.2**

**Info**

The Management Controller booted up. MC firmware version: <version string> (baselevel: <version string>)

The Management Controller (MC) has powered up or restarted.

**Recommended action:**

- No action is required.

## 140 - Management Controller restarted

**140.1**

**Info**

The Management Controller is about to restart.

None.

**Recommended action:**

- No action is required.

## 141 - Management Controller IP addr changed

**141.1**

**Info**

The Management Controller IP address changed. (new IP address: <IP address>)

This event is logged when the IP address used for management of the system has been changed by a user or by a DHCP server (if DHCP is enabled). This event is also logged during power up or failover recovery, even when the address has not changed.

**Recommended action:**

- No action is required.

## 152 - Management Controller comm error

**152.1**

**Warning**

The Storage Controller is not receiving data from the Management Controller. (This is normal during firmware update.)

The Management Controller (MC) has not communicated with the Storage Controller (SC) for 15 minutes and may have failed.

This event is initially logged as Informational severity. If the problem persists, this event is logged a second time as Warning severity and the MC is automatically restarted in an attempt to recover from the problem. Event 156 is then logged.

**Recommended action:**

- If this event is logged only one time as Warning severity, no action is required.
- If this event is logged more than one time as Warning severity, do the following:

- If you are now able to access the management interfaces of the controller that logged this event, do the following:
  - Check the version of the controller firmware and update to the latest firmware if needed.
  - If the latest firmware is already installed, the controller module that logged this event probably has a hardware fault. Replace the module.
- If you are NOT able to access the management interfaces of the controller that logged this event, do the following:
  - Shut down that controller and reseat the module.
  - If you are then able to access the management interfaces, check the version of the controller firmware and update to the latest firmware if needed.
  - If the problem recurs, replace the module.

**152.2**

**Info**

`The Storage Controller is not receiving data from the Management Controller. (This is normal during firmware update.)`

The Management Controller (MC) has not communicated with the Storage Controller (SC) for 160 seconds.

If communication is restored in less than 15 minutes, event 153 is logged. If the problem persists, this event is logged a second time as Warning severity.

NOTE: It is normal for this event to be logged as Informational severity during firmware update.

**Recommended action:**

- Check the version of the controller firmware and update to the latest firmware if needed.
- If the latest firmware is already installed, no action is required.

## 153 - Management Controller comm resumed

**153.1**

**Info**

`The Storage Controller resumed communications with the Management Controller.`

None.

**Recommended action:**

- No action is required.

## 156 - Management Controller reset

**156.1**

**Info**

`The Management Controller was restarted by a user.`

None.

**Recommended action:**

- No action is required.

**156.2**

**Warning**

The Management Controller was restarted automatically by the Storage Controller for the purpose of error recovery.

None.

**Recommended action:**

- See the recommended actions for event 152, which is logged at approximately the same time.

## 157 - Flash chip write failure

**157.1**

**Error**

A failure was encountered trying to write to a flash chip.

A failure occurred when trying to write to the Storage Controller (SC) flash chip.

**Recommended action:**

- Replace the controller module that logged this event.

## 158 - Storage Controller ECC Error

**158.1**

**Error**

A correctable ECC error occurred in Storage Controller CPU memory. (<detailed error information>)

- A correctable ECC error occurred in CPU memory more than once during a 12-hour period, indicating a probable hardware fault.

**Recommended action:**

- Replace the controller module that logged this event.

**158.2**

**Warning**

A correctable ECC error occurred in Storage Controller CPU memory. (<detailed error information>)

- This event is logged with Warning severity to provide information that may be useful to technical support, but no action is required now. It will be logged with Error severity if it is necessary to replace the controller module.

**Recommended action:**

- No action is required.

## 161 - Enclosure Management Processor error

**161.1**

**Info**

One or more enclosures do not have a valid path to an Enclosure Management Processor.

All enclosure EMPs are disabled.

**Recommended action:**

- Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

## 162 - Previous WWN unknown

**162.1**

**Warning**

`The previous WWN of this controller is unknown.`

The host WWNs (node and port) previously presented by this controller module are unknown. In a dual-controller system this event has two possible causes:

- One or both controller modules have been replaced or moved while the system was powered off.
- One or both controller modules have had their flash configuration cleared (this is where the previously used WWNs are stored).

The controller module recovers from this situation by generating a WWN based on its own serial number.

**Recommended action:**

- If the controller module was replaced or someone reprogrammed its FRU ID data, verify the WWN information for this controller module on all hosts that access it.

## 163 - Previous WWN unknown

**163.1**

**Warning**

`The previous WWN of the partner controller is unknown.`

The host WWNs (node and port) previously presented by the partner controller module, which is currently offline, are unknown.

This event has two possible causes:

- The online controller module reporting the event was replaced or moved while the system was powered off.
- The online controller module had its flash configuration (where previously used WWNs are stored) cleared.

The online controller module recovers from this situation by generating a WWN based on its own serial number for the other controller module.

**Recommended action:**

- If the controller module was replaced or someone reprogrammed its FRU ID data, verify the WWN information for the other controller module on all hosts that access it.

## 166 - RAID metadata mismatch

**166.1**

**Warning**

`The RAID metadata level of the two controllers does not match. Make sure both controllers have the same firmware version.`

Usually, the controller at the higher firmware level can read metadata written by a controller at a lower firmware level. The reverse is typically not true. Therefore, if the controller at the higher firmware level failed, the surviving controller at the lower firmware level cannot read the metadata in disks that have failed over.

**Recommended action:**

- If this occurs after a firmware update, it indicates that the metadata format changed, which is rare. Update the controller with the lower firmware level to match the firmware level in the other controller.

## 167 - Diagnostic test warning

**167.1**

**Warning**

`A warning condition occurred during boot-up diagnostics.`

A diagnostic test at controller bootup detected an abnormal operation, which might require a power cycle to correct.

**Recommended action:**

- Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

## 170 - Enclosure added

**170.1**

**Info**

`The last rescan detected an added enclosure. (enclosure: <enclosure number>, WWN: <World Wide Name>, info: <product information>)`

None.

**Recommended action:**

- No action is required.

## 171 - Enclosure removed

**171.1**

**Info**

`The last rescan detected a removed enclosure. (enclosure: <enclosure number>, WWN: <World Wide Name>)`

None.

**Recommended action:**

- No action is required.

## 172 - Disk group quarantined

**172.1**

**Warning**

`A disk group was quarantined. (disk group: <name>, SN: <serial number>)`

The indicated disk group has been quarantined because not all of its disks are accessible. While the disk group is quarantined, in linear storage any attempt to access its volumes from a host will fail. In virtual storage, all volumes in the pool will be forced read-only. If all of the disks become accessible, the disk group will be dequarantined automatically with a resulting status of FTOL. If not all of the disks become accessible but enough become accessible to allow reading from and writing to the disk group, it will be dequarantined automatically with a resulting status of FTDN or CRIT. If a spare disk is available, reconstruction will begin automatically. When the disk group has been removed from quarantine, event 173 is logged. For a more detailed discussion of dequarantine, see the WBI or CLI documentation.

Caution: Avoid using the manual dequarantine operation as a recovery method when event 172 is logged because this causes data recovery to be more difficult or impossible.

Caution: If you clear unwritten cache data while a disk group is quarantined or offline, that data will be permanently lost.

**Recommended action:**

- If event 173 has subsequently been logged for the indicated disk group, no action is required. The disk group has already been removed from quarantine.
- Otherwise, perform the following actions:
  - Check that all enclosures are powered on.
  - Check that all disks and I/O modules in every enclosure are fully seated in their slots and that their latches are locked.
  - Reseat any disks in the quarantined disk group that are reported as missing or failed in the user interface. (Do NOT remove and reinsert disks that are not members of the disk group that is quarantined.)
  - Check that the SAS expansion cables are connected between each enclosure in the storage system and that they are fully seated. (Do NOT remove and reinsert the cables because this can cause problems with additional disk groups.)
  - Check that no disks have been removed from the system unintentionally.
  - Check for other events that indicate faults in the system and follow the recommended actions for those events. But, if the event indicates a failed disk and the recommended action is to replace the disk, do NOT replace the disk at this time because it may be needed later for data recovery.
  - If the disk group is still quarantined after performing the above steps, shut down both controllers and then power down the entire storage system. Power it back up, beginning with any disk enclosures (expansion enclosures), then the controller enclosure.
  - If the disk group is still quarantined after performing the above steps, contact technical support.

### 172.2

**Warning**

`A disk group was quarantined. (disk group SN: <serial number>)`

The indicated disk group has been quarantined because not all of its disks are accessible. While the disk group is quarantined, in linear storage any attempt to access its volumes from a host will fail. In virtual storage, all volumes in the pool will be forced read-only. If all of the disks become accessible, the disk group will be dequarantined automatically with a resulting status of FTOL. If not all of the disks become accessible but enough become accessible to allow reading from and writing to the disk group, it will be dequarantined automatically with a resulting status of FTDN or CRIT. If a spare disk is available, reconstruction will begin automatically. When the disk group has been removed from quarantine, event 173 is logged. For a more detailed discussion of dequarantine, see the WBI or CLI documentation.

Caution: Avoid using the manual dequarantine operation as a recovery method when event 172 is logged because this causes data recovery to be more difficult or impossible.

Caution: If you clear unwritten cache data while a disk group is quarantined or offline, that data will be permanently lost.

**Recommended action:**

- If event 173 has subsequently been logged for the indicated disk group, no action is required. The disk group has already been removed from quarantine.
- Otherwise, perform the following actions:
  - Check that all enclosures are powered on.
  - Check that all disks and I/O modules in every enclosure are fully seated in their slots and that their latches are locked.
  - Reseat any disks in the quarantined disk group that are reported as missing or failed in the user interface. (Do NOT remove and reinsert disks that are not members of the disk group that is quarantined.)
  - Check that the SAS expansion cables are connected between each enclosure in the storage system and that they are fully seated. (Do NOT remove and reinsert the cables because this can cause problems with additional disk groups.)
  - Check that no disks have been removed from the system unintentionally.
  - Check for other events that indicate faults in the system and follow the recommended actions for those events. But, if the event indicates a failed disk and the recommended action is to replace the disk, do NOT replace the disk at this time because it may be needed later for data recovery.
  - If the disk group is still quarantined after performing the above steps, shut down both controllers and then power down the entire storage system. Power it back up, beginning with any disk enclosures (expansion enclosures), then the controller enclosure.
  - If the disk group is still quarantined after performing the above steps, contact technical support.

**172.3**

**Warning**

`A disk group was quarantined because it contains data in a format that is not supported by this system. (disk group: <name>, SN: <serial number>)`

This controller does not support linear disk groups.

**Recommended action:**

- Recover full support and manageability of the quarantined disk groups and volumes by replacing your controllers with controllers that support this type of disk group.
- If you are sure that the data on this disk group is not needed, simply delete the disk group, and thus the volumes, using the currently installed controllers.

**172.4**

**Warning**

`A disk group was quarantined because it contains data in a format that is not supported by this system. (disk group SN: <serial number>)`

This controller does not support linear disk groups.

**Recommended action:**

- Recover full support and manageability of the quarantined disk groups and volumes by replacing your controllers with controllers that support this type of disk group.
- If you are sure that the data on this disk group is not needed, simply delete the disk group, and thus the volumes, using the currently installed controllers.

**172.5**

**Warning**

`A disk group was quarantined. (SN: <serial number>, disk group: <name>)`

The indicated disk group has been quarantined because not all of its disks are accessible. While the disk group is quarantined, in virtual storage, all volumes in the pool will be forced read-only. If all of the disks become accessible, the disk group will be dequarantined automatically with a resulting status of FTOL. If not all of the disks become accessible but enough become accessible to allow reading from and writing to the disk group, it will be dequarantined automatically with a resulting status of FTDN or CRIT. If a spare disk is available, reconstruction will begin automatically. When the disk group has been removed from quarantine, event 173 is logged. For a more detailed discussion of dequarantine, see the WBI or CLI documentation.

Caution: Avoid using the manual dequarantine operation as a recovery method when event 172 is logged because this causes data recovery to be more difficult or impossible.

Caution: If you clear unwritten cache data while a disk group is quarantined or offline, that data will be permanently lost.

**Recommended action:**

- If event 173 has subsequently been logged for the indicated disk group, no action is required. The disk group has already been removed from quarantine.
- Otherwise, perform the following actions:
  - Check that all enclosures are powered on.
  - Check that all disks and I/O modules in every enclosure are fully seated in their slots and that their latches are locked.
  - Reseat any disks in the quarantined disk group that are reported as missing or failed in the user interface. (Do NOT remove and reinsert disks that are not members of the disk group that is quarantined.)
  - Check that the SAS expansion cables are connected between each enclosure in the storage system and that they are fully seated. (Do NOT remove and reinsert the cables because this can cause problems with additional disk groups.)
  - Check that no disks have been removed from the system unintentionally.
  - Check for other events that indicate faults in the system and follow the recommended actions for those events. But, if the event indicates a failed disk and the recommended action is to replace the disk, do NOT replace the disk at this time because it may be needed later for data recovery.
  - If the disk group is still quarantined after performing the above steps, shut down both controllers and then power down the entire storage system. Power it back up, beginning with any disk enclosures (expansion enclosures), then the controller enclosure.
  - If the disk group is still quarantined after performing the above steps, contact technical support.

### 172.6

**Warning**

`A disk group was quarantined. (disk group SN: <serial number>)`

The indicated disk group has been quarantined because not all of its disks are accessible. While the disk group is quarantined, in virtual storage, all volumes in the pool will be forced read-only. If all of the disks become accessible, the disk group will be dequarantined automatically with a resulting status of FTOL. If not all of the disks become accessible but enough become accessible to allow reading from and writing to the disk group, it will be dequarantined automatically with a resulting status of FTDN or CRIT. If a spare disk is available, reconstruction will begin automatically. When the disk group has been removed from quarantine, event 173 is logged. For a more detailed discussion of dequarantine, see the WBI or CLI documentation.

Caution: Avoid using the manual dequarantine operation as a recovery method when event 172 is logged because this causes data recovery to be more difficult or impossible.

Caution: If you clear unwritten cache data while a disk group is quarantined or offline, that data will be permanently lost.

**Recommended action:**

- If event 173 has subsequently been logged for the indicated disk group, no action is required. The disk group has already been removed from quarantine.
- Otherwise, perform the following actions:
  - Check that all enclosures are powered on.
  - Check that all disks and I/O modules in every enclosure are fully seated in their slots and that their latches are locked.
  - Reseat any disks in the quarantined disk group that are reported as missing or failed in the user interface. (Do NOT remove and reinsert disks that are not members of the disk group that is quarantined.)
  - Check that the SAS expansion cables are connected between each enclosure in the storage system and that they are fully seated. (Do NOT remove and reinsert the cables because this can cause problems with additional disk groups.)
  - Check that no disks have been removed from the system unintentionally.
  - Check for other events that indicate faults in the system and follow the recommended actions for those events. But, if the event indicates a failed disk and the recommended action is to replace the disk, do NOT replace the disk at this time because it may be needed later for data recovery.
  - If the disk group is still quarantined after performing the above steps, shut down both controllers and then power down the entire storage system. Power it back up, beginning with any disk enclosures (expansion enclosures), then the controller enclosure.
  - If the disk group is still quarantined after performing the above steps, contact technical support.

## 173 - Disk group dequarantined

**173.1**

**Info**

`A disk group was dequarantined. (disk group: <name>, SN: <serial number>) (disk group status: <description>, mode: <description>)`

The indicated disk group has been removed from quarantine.

**Recommended action:**

- No action is required.

**173.2**

**Info**

`A disk group was dequarantined. (disk group SN: <serial number>) (disk group status: <description>, mode: <description>)`

The indicated disk group has been removed from quarantine.

**Recommended action:**

- No action is required.

## 174 - Enclosure Management Processor updated

**174.1**

**Info**

Enclosure management processor (EMP) firmware was installed successfully. (enclosure: <enclosure number>, module: A)

If the firmware update fails, the user will be notified about the problem immediately and should take care of the problem at that time, so even when there is a failure, this event is logged as Informational severity.

**Recommended action:**

- No action is required.

**174.2**

**Info**

Enclosure management processor (EMP) firmware was installed successfully. (enclosure: <enclosure number>, module: B)

If the firmware update fails, the user will be notified about the problem immediately and should take care of the problem at that time, so even when there is a failure, this event is logged as Informational severity.

**Recommended action:**

- No action is required.

**174.3**

**Info**

EMP firmware update failed. (enclosure: <enclosure number>, module: A, status: <numeric value>)

If the firmware update fails, the user will be notified about the problem immediately and should take care of the problem at that time, so even when there is a failure, this event is logged as Informational severity.

**Recommended action:**

- No action is required.

**174.4**

**Info**

EMP firmware update failed. (enclosure: <enclosure number>, module: B, status: <numeric value>)

If the firmware update fails, the user will be notified about the problem immediately and should take care of the problem at that time, so even when there is a failure, this event is logged as Informational severity.

**Recommended action:**

- No action is required.

**174.5**

**Info**

Disk firmware was installed successfully. (enclosure: <enclosure number>, slot: <slot number>)

If the firmware update fails, the user will be notified about the problem immediately and should take care of the problem at that time, so even when there is a failure, this event is logged as Informational severity.

**Recommended action:**

- No action is required.

**174.6**

**Info**

`Disk firmware update failed. (enclosure: <enclosure number>, slot: <slot number>, status: <numeric value>)`

If the firmware update fails, the user will be notified about the problem immediately and should take care of the problem at that time, so even when there is a failure, this event is logged as Informational severity.

**Recommended action:**

- No action is required.

**174.7**

**Info**

`Firmware was installed successfully.`

If the firmware update fails, the user will be notified about the problem immediately and should take care of the problem at that time, so even when there is a failure, this event is logged as Informational severity.

**Recommended action:**

- No action is required.

## 175 - Ethernet link change

**175.1**

**Info**

`The network-port Ethernet link is down for controller <name>.`

**Recommended action:**

- If this event is logged indicating the network port is up shortly after the Management Controller (MC) has booted up (event 139), no action is required.
- Otherwise, monitor occurrences of this event for an error trend. If this event occurs more than 8 times per hour, it should be investigated.
  - This event is probably caused by equipment outside of the storage system, such as faulty cabling or a faulty Ethernet switch.
  - If this event is being logged by only one controller in a dual-controller system, swap the network-port Ethernet cables between the two controllers. This will show whether the problem is outside or inside the storage system.
  - If the problem is not outside of the storage system, replace the controller module that logged this event.

**175.2**

**Info**

`The network-port Ethernet link is up for controller <name>.`

**Recommended action:**

- If this event is logged indicating the network port is up shortly after the Management Controller (MC) has booted up (event 139), no action is required.
- Otherwise, monitor occurrences of this event for an error trend. If this event occurs more than 8 times per hour, it should be investigated.

- This event is probably caused by equipment outside of the storage system, such as faulty cabling or a faulty Ethernet switch.
- If this event is being logged by only one controller in a dual-controller system, swap the network-port Ethernet cables between the two controllers. This will show whether the problem is outside or inside the storage system.
- If the problem is not outside of the storage system, replace the controller module that logged this event.

## 176 - Disk error statistics reset

### 176.1

**Info**

`The disk error statistics were reset for all disks.`

**Recommended action:**

- No action is required.

### 176.2

**Info**

`The disk error statistics were reset for one disk. (disk: SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

**Recommended action:**

- No action is required.

## 177 - Cache memory freed

### 177.1

**Info**

`Cache memory used for write data was freed for a volume. (pool: <pool name>, volume: <volume name>, SN: <serial number>)`

Cache data was purged for the indicated missing volume.

**Recommended action:**

- No action is required.

## 181 - Management controller parameters set

### 181.1

**Info**

`Management Controller configuration parameters were set.`

One or more configuration parameters associated with the Management Controller (MC) have been changed, such as configuration for SNMP, email notification, and system strings (system name, system location, etc.).

**Recommended action:**

- No action is required.

## 182 - Disk channels paused

### 182.1

**Info**

`Disk channels were paused. (pause type: Suspend disk I/O)`

All disk channels have been paused. I/O will not be performed on the disks until all channels are unpaused.

**Recommended action:**

- If this event occurs in relation to disk firmware update, no action is required. When the condition is cleared, event 183 is logged.
- If this event occurs and you are not performing disk firmware update, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

**182.2**

**Info**

`Disk channels were paused. (pause type: Hide all disks)`

All disk channels have been paused. I/O will not be performed on the disks until all channels are unpaused.

**Recommended action:**

- If this event occurs in relation to disk firmware update, no action is required. When the condition is cleared, event 183 is logged.
- If this event occurs and you are not performing disk firmware update, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

**182.3**

**Info**

`Disk channels were paused. (pause type: Locked disks)`

All disk channels have been paused. I/O will not be performed on the disks until all channels are unpaused.

**Recommended action:**

- If this event occurs in relation to disk firmware update, no action is required. When the condition is cleared, event 183 is logged.
- If this event occurs and you are not performing disk firmware update, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

**182.4**

**Info**

`Disk channels were paused. (pause type: <name>)`

All disk channels have been paused. I/O will not be performed on the disks until all channels are unpaused.

**Recommended action:**

- If this event occurs in relation to disk firmware update, no action is required. When the condition is cleared, event 183 is logged.
- If this event occurs and you are not performing disk firmware update, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

## 183 - Disk channels unpaused

**183.1**

#### Info

`Disk channels were unpaused.`

All disk channels have been unpaused, meaning that I/O can resume. An unpause initiates a rescan, which when complete is logged as event 19.

This event indicates that the pause reported by event 182 has ended.

#### Recommended action:

- No action is required.

## 185 - Enclosure Management Processor command

#### 185.1

#### Info

`A command was sent to an Enclosure Management Processor. (EMP SN: <serial number>, index: <numeric value>, command: <numeric value>, length: <numeric value>)`

#### Recommended action:

- No action is required.

#### 185.2

#### Info

`A command was sent to an Enclosure Management Processor. (EMP SN: Unknown SN, index: <numeric value>, command: <numeric value>, length: <numeric value>)`

#### Recommended action:

- No action is required.

## 186 - Enclosure parameters changed

#### 186.1

#### Info

`Enclosure parameters were changed by a user. (enclosure: <enclosure number>, enclosure WWN: <World Wide Name>, name: <name>, location: <numeric value>, rack number: <numeric value>, rack position: <numeric value>)`

#### Recommended action:

- No action is required.

#### 186.2

#### Info

`Enclosure parameters were changed by a user. (enclosure: unknown, enclosure WWN: <World Wide Name>, name: <name>, location: <numeric value>, rack number: <numeric value>, rack position: <numeric value>)`

#### Recommended action:

- No action is required.

## 187 - Write-back cache enabled

**187.1**

**Info**

`Write-back cache was enabled.`

Event 188 is the corresponding event that is logged when write-back cache is disabled.

**Recommended action:**

- No action is required.

## 188 - Write-back cache disable

**188.1**

**Info**

`Write-back cache was disabled.`

Event 187 is the corresponding event that is logged when write-back cache is enabled.

**Recommended action:**

- No action is required.

## 189 - Disk channel healthy

**189.1**

**Info**

`A disk channel link that was previously degraded or failed is now healthy. (channel: <channel index>)`

None.

**Recommended action:**

- No action is required.

## 190 - AWT supercapacitor failure

**190.1**

**Info**

`Auto-write-through trigger event: supercapacitor charging.`

This change met a condition to trigger the auto-write-through feature, which has disabled write-back cache and put the system in write-through mode. When the fault is resolved, event 191 is logged to indicate that write-back mode has been restored.

**Recommended action:**

- If event 191 is not logged within 5 minutes after this event, the supercapacitor has probably failed and the controller module should be replaced.

## 191 - AWT supercapacitor good

**191.1**

**Info**

`Auto-write-through trigger event: supercapacitor good.`

The auto-write-through trigger event that caused event 190 to be logged has been resolved.

**Recommended action:**

- No action is required.

## 192 - AWT over temperature

**192.1**

**Info**

`Auto-write-through trigger event: over-temperature.`

This change met a condition to trigger the auto-write-through feature, which has disabled write-back cache and put the system in write-through mode. When the fault is resolved, event 193 is logged to indicate that write-back mode has been restored.

**Recommended action:**

- If event 193 has not been logged since this event was logged, the over-temperature condition probably still exists and should be investigated. Another over-temperature event was probably logged at approximately the same time as this event (such as event 39, 40, 553, 307, 469, 476, or 477). See the recommended actions for that event.

## 193 - AWT temperature good

**193.1**

**Info**

`Auto-write-through trigger event: temperature recovered.`

The auto-write-through trigger event that caused event 192 to be logged has been resolved.

**Recommended action:**

- No action is required.

## 194 - AWT partner down

**194.1**

**Info**

`Auto-write-through trigger event: partner processor down.`

This indicates that a trigger condition has occurred that has caused the auto-write-through feature to disable write-back cache and put the system in write-through mode. When the fault is resolved, event 195 is logged to indicate that write-back mode has been restored.

**Recommended action:**

- If event 195 has not been logged since this event was logged, the other Storage Controller is probably still down and the cause should be investigated. Other events were probably logged at approximately the same time as this event. See the recommended actions for those events.

## 195 - AWT partner good

**195.1**

**Info**

`Auto-write-through trigger event: partner processor recovered.`

The auto-write-through trigger event that caused event 194 to be logged has been resolved.

**Recommended action:**

- No action is required.

## 198 - AWT PSU failure

**198.1**

**Info**

`Auto-write-through trigger event: power supply failed.`

This indicates that a trigger condition has occurred that has caused the auto-write-through feature to disable write-back cache and put the system in write-through mode. When the fault is resolved, event 199 is logged to indicate that write-back mode has been restored.

**Recommended action:**

- If event 199 has not been logged since this event was logged, the power supply probably does not have a health of OK and the cause should be investigated. Another power-supply event was probably logged at approximately the same time as this event (such as event 551). See the recommended actions for that event.

## 199 - AWT PSU good

**199.1**

**Info**

`Auto-write-through trigger event: power supply recovered.`

The auto-write-through trigger event that caused event 198 to be logged has been resolved.

**Recommended action:**

- No action is required.

## 200 - AWT fan failure

**200.1**

**Info**

`Auto-write-through trigger event: fan failed.`

This indicates that a trigger condition has occurred that has caused the auto-write-through feature to disable write-back cache and put the system in write-through mode. When the fault is resolved, event 201 is logged to indicate that write-back mode has been restored.

**Recommended action:**

- If event 201 has not been logged since this event was logged, the fan probably does not have a health of OK and the cause should be investigated. Another fan event was probably logged at approximately the same time as this event (such as event 552). See the recommended actions for that event.

## 201 - AWT fan good

**201.1**

**Info**

`Auto-write-through trigger event: fan recovered.`

The auto-write-through trigger event that caused event 200 to be logged has been resolved.

**Recommended action:**

- No action is required.

## 202 - AWT cache enabled

### 202.1

**Info**

`Auto-write-through: Write-Back cache was re-enabled.`

An auto-write-through trigger condition has been cleared, causing write-back cache to be re-enabled. The environmental change is also logged at approximately the same time as this event (event 191, 193, 195, 199, 201, or 241).

**Recommended action:**

- No action is required.

## 203 - User disable write-back cache disabled

### 203.1

**Warning**

`Auto-write-through: Write-Back cache may be enabled, but is not enabled by the user.`

An environmental change occurred that allows write-back cache to be enabled, but the auto-write-back preference is not set. The environmental change is also logged at approximately the same time as this event (event 191, 193, 195, 199, 201, or 241).

**Recommended action:**

- Manually enable write-back cache.

## 204 - NV device notice

### 204.1

**Info**

`The system has come up normally and the NV device is in a normal expected state. (p1: <numeric value>, p2: <numeric value>, p3: <numeric value>, p4: <numeric value>)`

This event will be logged as an Error or Warning event if any user action is required.

**Recommended action:**

- No action is required.

### 204.2

**Warning**

`The system has started and found an issue with the NV device. The system will attempt to recover itself. (p1: <numeric value>, p2: <numeric value>, p3: <numeric value>, p4: <numeric value>).`

The memory card is used for backing up unwritten cache data when a controller goes down unexpectedly, such as when a power failure occurs. This event is generated when the Storage Controller (SC) detects a problem with the memory card as it is booting up

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

**204.3**

**Error**

An Error occurred with either the NV device itself or the transport mechanism. The system may attempt to recover itself. (p1: <numeric value>, p2: <numeric value>, p3: <numeric value>, p4: <numeric value>)

The memory card is used for backing up unwritten cache data when a controller goes down unexpectedly, such as when a power failure occurs. This event is generated when the Storage Controller (SC) detects a problem with the memory card as it is booting up

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

## 205 - Volume mapped/unmapped

**205.1**

**Info**

A mapping or masking operation for a volume was performed. (pool: <name>, volume: <volume name>, SN: <serial number>) (access: read-only, LUN: <logical unit number>)

**Recommended action:**

- No action is required.

**205.2**

**Info**

A mapping or masking operation for a volume was performed. (pool: <name>, volume: <volume name>, SN: <serial number>) (access: read-write, LUN: <logical unit number>)

**Recommended action:**

- No action is required.

**205.3**

**Info**

A mapping or masking operation for a volume was performed. (pool: <name>, volume: <volume name>, SN: <serial number>) (access: no-access)

**Recommended action:**

- No action is required.

**205.4**

**Info**

A mapping or masking operation for an internal virtual replication snapshot was performed. (pool: <name>)

**Recommended action:**

- No action is required.

## 206 - Scrub disk group started

**206.1**

**Info**

A scrub-disk-group job was started. (disk group: <name>, SN: <serial number>)

The scrub checks disks in the disk group for the following types of errors:

- Data parity errors for a RAID 5, RAID 6, or ADAPT disk group.
- Mirror verify errors for a RAID 1 or RAID 10 disk group.
- Media errors for all RAID levels including RAID 0 and non-RAID disk groups.

When errors are detected, they are automatically corrected for all RAID levels except RAID 0 and non-RAID disk groups.

When the scrub is complete, event 207 is logged.

**Recommended action:**

- No action is required.

## 207 - Scrub disk group completed

**207.1**

**Error**

A scrub-disk-group job was aborted by a user. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**207.2**

**Warning**

A scrub-disk-group job was aborted by a user. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**207.3**

**Info**

A scrub-disk-group job was aborted by a user. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

**207.4**

**Error**

A scrub-disk-group job was aborted because of an internally detected condition such as a failed disk. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.

- If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
- If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**207.5**

**Warning**

A scrub-disk-group job was aborted because of an internally detected condition such as a failed disk. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**207.6**

**Info**

A scrub-disk-group job was aborted because of an internally detected condition such as a failed disk. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

**207.7**

**Error**

A scrub-disk-group job failed. <detailed error information> (error code: <error code>) (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.8

**Warning**

`A scrub-disk-group job failed. <detailed error information> (error code: <error code>) (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)`

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.9

**Info**

`A scrub-disk-group job failed. <detailed error information> (error code: <error code>) (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)`

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

**207.10**

**Error**

`A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)`

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**207.11**

**Warning**

`A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)`

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**207.12**

**Info**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

### 207.13

**Error**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.14

**Warning**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.

- If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.15

**Info**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

### 207.16

**Error**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.17

**Warning**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.18

**Info**

`A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)`

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

### 207.19

**Error**

`A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)`

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.20

**Warning**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

### 207.21

**Info**

A scrub-disk-group job completed. Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

### 207.22

**Error**

A scrub-disk-group job completed. No errors were found. (disk group: <name>, SN: <serial number>)

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.

- If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
- If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

#### 207.23

**Warning**

`A scrub-disk-group job completed. No errors were found. (disk group: <name>, SN: <serial number>)`

If a disk fails, data may be at risk.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

#### 207.24

**Info**

`A scrub-disk-group job completed. No errors were found. (disk group: <name>, SN: <serial number>)`

This event is logged as Informational severity when fewer than 100 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- No action is required.

### 208 - Scrub disk start

#### 208.1

**Info**

`A scrub-disk job was started. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

The result will be logged with event 209.

**Recommended action:**

- No action is required.

## 209 - Scrub disk completed

**209.1**

**Error**

A scrub-disk job was aborted by a user. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found one or more media errors, SMART events, or hard (non-media) errors. If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**209.2**

**Warning**

A scrub-disk job was aborted by a user. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has reassigned a disk block. These bad-block replacements are reported as "other errors". If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Monitor the error trend and whether the number of errors approaches the total number of bad-block replacements available.

**209.3**

**Info**

A scrub-disk job was aborted by a user. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found no errors, or a disk being scrubbed (with no errors found) has been added to a disk group, or a user has aborted the job.

**Recommended action:**

- No action is required.

**209.4**

**Error**

A scrub-disk job was aborted by a user. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found one or more media errors, SMART events, or hard (non-media) errors. If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**209.5**

**Warning**

A scrub-disk job was aborted by a user. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has reassigned a disk block. These bad-block replacements are reported as "other errors". If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Monitor the error trend and whether the number of errors approaches the total number of bad-block replacements available.

**209.6**

**Info**

A scrub-disk job was aborted by a user. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found no errors, or a disk being scrubbed (with no errors found) has been added to a disk group, or a user has aborted the job.

**Recommended action:**

- No action is required.

**209.7**

**Error**

A scrub-disk job was aborted because of an error or other internally detected condition. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found one or more media errors, SMART events, or hard (non-media) errors. If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**209.8**

**Warning**

A scrub-disk job was aborted because of an error or other internally detected condition. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-

media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has reassigned a disk block. These bad-block replacements are reported as "other errors". If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Monitor the error trend and whether the number of errors approaches the total number of bad-block replacements available.

### 209.9

**Info**

A scrub-disk job was aborted because of an error or other internally detected condition. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found no errors, or a disk being scrubbed (with no errors found) has been added to a disk group, or a user has aborted the job.

**Recommended action:**

- No action is required.

### 209.10

**Error**

A scrub-disk job was aborted because of an error or other internally detected condition. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found one or more media errors, SMART events, or hard (non-media) errors. If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

### 209.11

**Warning**

A scrub-disk job was aborted because of an error or other internally detected condition. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has reassigned a disk block. These bad-block replacements are reported as "other errors". If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Monitor the error trend and whether the number of errors approaches the total number of bad-block replacements available.

### 209.12

**Info**

A scrub-disk job was aborted because of an error or other internally detected condition. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found no errors, or a disk being scrubbed (with no errors found) has been added to a disk group, or a user has aborted the job.

**Recommended action:**

- No action is required.

**209.13**

**Error**

A scrub-disk job completed. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found one or more media errors, SMART events, or hard (non-media) errors. If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**209.14**

**Warning**

A scrub-disk job completed. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has reassigned a disk block. These bad-block replacements are reported as "other errors". If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Monitor the error trend and whether the number of errors approaches the total number of bad-block replacements available.

**209.15**

**Info**

A scrub-disk job completed. Errors were found. (number of errors found: media errors: <count>, SMART events: <count>, hard (non-media) errors: <count>, other errors: <count>) (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found no errors, or a disk being scrubbed (with no errors found) has been added to a disk group, or a user has aborted the job.

**Recommended action:**

- No action is required.

**209.16**

**Error**

A scrub-disk job completed. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found one or more media errors, SMART events, or hard (non-media) errors. If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

**209.17**

**Warning**

A scrub-disk job completed. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has reassigned a disk block. These bad-block replacements are reported as "other errors". If this disk is used in a non-fault-tolerant disk group, data may have been lost.

**Recommended action:**

- Monitor the error trend and whether the number of errors approaches the total number of bad-block replacements available.

**209.18**

**Info**

A scrub-disk job completed. No errors were found. (disk: channel: <channel index>, ID: <drive index>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

A scrub-disk job logged with event 208 has completed and found no errors, or a disk being scrubbed (with no errors found) has been added to a disk group, or a user has aborted the job.

**Recommended action:**

- No action is required.

## 210 - Delete all snapshots completed

**210.1**

**Info**

All snapshots were deleted for a snap pool. (pool: <pool name>, snap pool: <pool name>, SN: <serial number>)

**Recommended action:**

- No action is required.

**210.2**

**Info**

All snapshots were deleted for a parent volume. (parent volume: <volume name>, SN: <serial number>)

**Recommended action:**

- No action is required.

**210.3**

**Info**

`All snapshots were deleted for a snap pool (linear only) or parent volume. (snap pool or parent volume: <volume name>, SN: <serial number>)`

**Recommended action:**

- No action is required.

## 211 - SAS topology changed

**211.1**

**Warning**

`The SAS topology changed (hardware components were added or removed). (Channel: <channel index>, number of elements: <number of elements>, expanders: <expanders>, native levels: <native levels>, partner levels: <partner levels>, device PHYs: <device PHYs>)`

SAS topology has changed. No elements are detected in the SAS map. The message specifies the number of elements in the SAS map, the number of expanders detected, the number of expansion levels on the native (local controller) side and on the partner (partner controller) side, and the number of device PHYs.

**Recommended action:**

- Perform a rescan to repopulate the SAS map.
- If a rescan does not resolve the problem, then shut down and restart both Storage Controllers.
- If the problem persists, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

**211.2**

**Info**

`The SAS topology changed (hardware components were added or removed). (Channel: <channel index>, number of elements: <number of elements>, expanders: <expanders>, native levels: <native levels>, partner levels: <partner levels>, device PHYs: <device PHYs>)`

SAS topology has changed. The number of SAS expanders has increased or decreased. The message specifies the number of elements in the SAS map, the number of expanders detected, the number of expansion levels on the native (local controller) side and on the partner (partner controller) side, and the number of device PHYs.

**Recommended action:**

- No action is required.

## 214 - Create snapshots completed

**214.1**

**Info**

`Snapshot creation completed. (number of snapshots created: <count>, type: <description>)`

Additional events give more information for each snapshot.

**Recommended action:**

- No action is required.

## 215 - Commit snapshots completed

**215.1**

**Info**

Snapshots that were previously created are now committed and ready for use. (number of snapshots committed: <count>, type: <description>)

Additional events give more information for each snapshot.

**Recommended action:**

- No action is required.

## 216 - Delete snapshots completed

**216.1**

**Info**

Uncommitted snapshot has been deleted. (parent volume SN: <serial number>, snapshot SN: <serial number>)

**Recommended action:**

- No action is required.

## 217 - Supercapacitor fault

**217.1**

**Error**

Supercapacitor failure. Status: charging current is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

**217.2**

**Error**

Supercapacitor failure. Status: charging current is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

**217.3**

**Error**

Supercapacitor failure. Status: charging current is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

**217.4**

**Error**

`Supercapacitor failure. Status: charging current is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

**217.5**

**Error**

`Supercapacitor failure. Status: charging current is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

**217.6**

**Error**

`Supercapacitor failure. Status: charging current is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

**217.7**

**Error**

`Supercapacitor failure. Status: it is taking too long to charge (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

**217.8**

**Error**

`Supercapacitor failure. Status: it is taking too long to charge (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

**217.9**

**Error**

`Supercapacitor failure. Status: it is taking too long to charge (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.10

**Error**

`Supercapacitor failure. Status: it is taking too long to charge (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.11

**Error**

`Supercapacitor failure. Status: it is taking too long to charge (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.12

**Error**

`Supercapacitor failure. Status: it is taking too long to charge (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.13

**Error**

`Supercapacitor failure. Status: cell 1 charging voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.14

**Error**

`Supercapacitor failure. Status: cell 1 charging voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.15

**Error**

`Supercapacitor failure. Status: cell 1 charging voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.16

**Error**

`Supercapacitor failure. Status: cell 1 charging voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.17

**Error**

`Supercapacitor failure. Status: cell 1 charging voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.18

**Error**

`Supercapacitor failure. Status: cell 1 charging voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.19

**Error**

`Supercapacitor failure. Status: cell 2 charging voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.20

**Error**

`Supercapacitor failure. Status: cell 2 charging voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.21

**Error**

`Supercapacitor failure. Status: cell 2 charging voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.22

**Error**

`Supercapacitor failure. Status: cell 2 charging voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.23

**Error**

`Supercapacitor failure. Status: cell 2 charging voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.24

**Error**

`Supercapacitor failure. Status: cell 2 charging voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.25

**Error**

`Supercapacitor failure. Status: cell 3 charging voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.26

**Error**

`Supercapacitor failure. Status: cell 3 charging voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.27

**Error**

`Supercapacitor failure. Status: cell 3 charging voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.28

**Error**

`Supercapacitor failure. Status: cell 3 charging voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.29

**Error**

`Supercapacitor failure. Status: cell 3 charging voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.30

**Error**

`Supercapacitor failure. Status: cell 3 charging voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.31

**Error**

`Supercapacitor failure. Status: cell 4 charging voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.32

**Error**

`Supercapacitor failure. Status: cell 4 charging voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.33

**Error**

`Supercapacitor failure. Status: cell 4 charging voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.34

**Error**

`Supercapacitor failure. Status: cell 4 charging voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.35

**Error**

`Supercapacitor failure. Status: cell 4 charging voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.36

**Error**

`Supercapacitor failure. Status: cell 4 charging voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.37

**Error**

`Supercapacitor failure. Status: cell 1 voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.38

**Error**

`Supercapacitor failure. Status: cell 1 voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.39

**Error**

`Supercapacitor failure. Status: cell 1 voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.40

**Error**

`Supercapacitor failure. Status: cell 1 voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.41

**Error**

`Supercapacitor failure. Status: cell 1 voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.42

**Error**

`Supercapacitor failure. Status: cell 1 voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.43

**Error**

`Supercapacitor failure. Status: cell 2 voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.44

**Error**

`Supercapacitor failure. Status: cell 2 voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.45

**Error**

`Supercapacitor failure. Status: cell 2 voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.46

**Error**

`Supercapacitor failure. Status: cell 2 voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.47

**Error**

`Supercapacitor failure. Status: cell 2 voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.48

**Error**

`Supercapacitor failure. Status: cell 2 voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.49

**Error**

`Supercapacitor failure. Status: cell 3 voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.50

**Error**

`Supercapacitor failure. Status: cell 3 voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.51

**Error**

`Supercapacitor failure. Status: cell 3 voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.52

**Error**

`Supercapacitor failure. Status: cell 3 voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.53

**Error**

`Supercapacitor failure. Status: cell 3 voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.54

**Error**

`Supercapacitor failure. Status: cell 3 voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.55

**Error**

`Supercapacitor failure. Status: cell 4 voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.56

**Error**

`Supercapacitor failure. Status: cell 4 voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.57

**Error**

`Supercapacitor failure. Status: cell 4 voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.58

**Error**

`Supercapacitor failure. Status: cell 4 voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.59

**Error**

`Supercapacitor failure. Status: cell 4 voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.60

**Error**

`Supercapacitor failure. Status: cell 4 voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.61

**Error**

`Supercapacitor failure. Status: pack voltage is too high (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.62

**Error**

`Supercapacitor failure. Status: pack voltage is too high (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.63

**Error**

`Supercapacitor failure. Status: pack voltage is too high (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.64

**Error**

Supercapacitor failure. Status: pack voltage is too high (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 217.65

**Error**

Supercapacitor failure. Status: pack voltage is too high (<description>), State: failure (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 217.66

**Error**

Supercapacitor failure. Status: pack voltage is too high (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 217.67

**Error**

Supercapacitor failure. Status: pack voltage is too low (<description>), State: reset (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 217.68

**Error**

Supercapacitor failure. Status: pack voltage is too low (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 217.69

**Error**

Supercapacitor failure. Status: pack voltage is too low (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 217.70

**Error**

`Supercapacitor failure. Status: pack voltage is too low (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.71

**Error**

`Supercapacitor failure. Status: pack voltage is too low (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.72

**Error**

`Supercapacitor failure. Status: pack voltage is too low (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.73

**Error**

`Supercapacitor failure. Status: pack is not installed (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.74

**Error**

`Supercapacitor failure. Status: pack is not installed (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.75

**Error**

`Supercapacitor failure. Status: pack is not installed (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.76

**Error**

`Supercapacitor failure. Status: pack is not installed (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.77

**Error**

`Supercapacitor failure. Status: pack is not installed (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.78

**Error**

`Supercapacitor failure. Status: pack is not installed (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.79

**Error**

`Supercapacitor failure. Status: pack has bad thermistor (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.80

**Error**

`Supercapacitor failure. Status: pack has bad thermistor (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.81

**Error**

`Supercapacitor failure. Status: pack has bad thermistor (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.82

**Error**

`Supercapacitor failure. Status: pack has bad thermistor (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.83

**Error**

`Supercapacitor failure. Status: pack has bad thermistor (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.84

**Error**

`Supercapacitor failure. Status: pack has bad thermistor (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.85

**Error**

`Supercapacitor failure. Status: second pack is not installed (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.86

**Error**

`Supercapacitor failure. Status: second pack is not installed (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.87

**Error**

`Supercapacitor failure. Status: second pack is not installed (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.88

**Error**

`Supercapacitor failure. Status: second pack is not installed (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.89

**Error**

`Supercapacitor failure. Status: second pack is not installed (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.90

**Error**

`Supercapacitor failure. Status: second pack is not installed (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.91

**Error**

`Supercapacitor failure. Status: pack capacity is too low (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.92

**Error**

`Supercapacitor failure. Status: pack capacity is too low (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.93

**Error**

`Supercapacitor failure. Status: pack capacity is too low (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.94

**Error**

`Supercapacitor failure. Status: pack capacity is too low (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.95

**Error**

`Supercapacitor failure. Status: pack capacity is too low (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.96

**Error**

`Supercapacitor failure. Status: pack capacity is too low (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.97

**Error**

`Supercapacitor failure. Status: pack is not calibrated (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.98

**Error**

`Supercapacitor failure. Status: pack is not calibrated (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.99

**Error**

`Supercapacitor failure. Status: pack is not calibrated (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.100

**Error**

`Supercapacitor failure. Status: pack is not calibrated (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.101

**Error**

`Supercapacitor failure. Status: pack is not calibrated (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.102

**Error**

`Supercapacitor failure. Status: pack is not calibrated (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.103

**Error**

`Supercapacitor failure. Status: unknown (<description>), State: reset (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.104

**Error**

`Supercapacitor failure. Status: unknown (<description>), State: charge started (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 217.105

**Error**

`Supercapacitor failure. Status: unknown (<description>), State: charge pending (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

#### 217.106

**Error**

`Supercapacitor failure. Status: unknown (<description>), State: charge completed (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

#### 217.107

**Error**

`Supercapacitor failure. Status: unknown (<description>), State: failure (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

#### 217.108

**Error**

`Supercapacitor failure. Status: unknown (<description>), State: unknown (<text>) (p2: <text>, p3: <text>)`

**Recommended action:**

- Replace the controller module that logged this event.

### 218 - Supercapacitor end of life

#### 218.1

**Warning**

`The supercapacitor has reached end of life. The controller should be replaced.`

**Recommended action:**

- Replace the controller module that logged this event.

### 219 - Job priority changed

#### 219.1

**Info**

`Job priority was changed from <numeric value> to <numeric value>.`

Utility priority has been changed by a user.

**Recommended action:**

- No action is required.

## 220 - Rollback started

### 220.1

**Info**

`A roll back was started. (parent volume SN: <serial number>, snapshot SN: <serial number>, subcommand: <numeric value>)`

Roll back of data in the indicated volume to data in the indicated snapshot has been started by a user.

**Recommended action:**

- No action is required.

## 221 - Reset snapshot completed

### 221.1

**Info**

`Reset of a snapshot completed successfully. (snapshot: <name>, SN: <serial number>)`

**Recommended action:**

- No action is required.

## 224 - Rollback completed

### 224.1

**Info**

`A roll back completed successfully. (parent volume SN: <serial number>)`

Roll back of data in the indicated volume to data in the indicated snapshot has completed.

**Recommended action:**

- No action is required.

## 232 - Maximum enclosures exceeded

### 232.1

**Warning**

`The number of enclosures exceeds the configuration limit. (excess enclosure number: <enclosure number>, on channel: <channel index>, WWN: <World Wide Name>)`

The platform does not support the number of enclosures that are configured. The enclosure indicated by this event has been removed from the configuration.

**Recommended action:**

- Reconfigure the system.

## 233 - Disk type not allowed

### 233.1

**Warning**

An invalid disk type was detected. SAS disks are not allowed. (Enclosure: <enclosure number>, WWN: <World Wide Name>)

All disks of the disallowed type have been removed from the configuration.

**Recommended action:**

- Replace the disallowed disks with ones that are supported.

#### 233.2

**Warning**

An invalid disk type was detected. SATA disks are not allowed. (Enclosure: <enclosure number>, WWN: <World Wide Name>)

All disks of the disallowed type have been removed from the configuration.

**Recommended action:**

- Replace the disallowed disks with ones that are supported.

#### 233.3

**Warning**

An invalid disk type was detected. Mixed disk types are not allowed. (Enclosure: <enclosure number>, WWN: <World Wide Name>)

All disks of the disallowed type have been removed from the configuration.

**Recommended action:**

- Replace the disallowed disks with ones that are supported.

### 235 - EMP error

#### 235.1

**Info**

An event was reported by an EMP. (channel: <channel index>, ID: <device identifier>, enclosure: <drive index>, module: <identifier>) (<key code qualifier decode string>) (<numeric value>)<numeric value>(<sense key decode string>, <additional sense code qualifier decode string>)

None.

**Recommended action:**

- No action is required.

#### 235.2

**Error**

An error was reported by an EMP. (channel: <channel index>, ID: <device identifier>, enclosure: <drive index>, module: <identifier>) (<key code qualifier decode string>) (<numeric value>)<numeric value>(<sense key decode string>, <additional sense code qualifier decode string>)

An enclosure management processor (EMP) detected a serious error.

**Recommended action:**

- Replace the indicated controller module or expansion module.

## 236 - Storage Controller shutdown

**236.1**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Normal, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.2**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: Normal, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.3**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.4**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.5**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, no restart, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.6

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, no restart, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.7

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: CPLD code update, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.8

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: CPLD code update, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.9

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: EC restart, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.10

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: EC restart, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.13**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: FDE unsupported, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.14**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: FDE unsupported, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.15**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Burn-to-Active configuration change, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.16**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: Burn-to-Active configuration change, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.17**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Configuration change, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.18**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: Configuration change, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.19**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Restore pool on restart, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.20**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: Restore pool on restart, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.21**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: SAS X2 mode change, controller: A)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.22**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: SAS X2 mode change, controller: A)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.23

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Pool recovery, controller: A)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.24

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Pool recovery, controller: A)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.25

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Supercapacitor calibration, controller: A)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.26

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Supercapacitor calibration, controller: A)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.27

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Unknown shutdown type=<numeric value>, controller: A)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.28

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Unknown shutdown type=<numeric value>, controller: A)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.29

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Normal, controller: B)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.30

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Normal, controller: B)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.31

**Info**

A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, controller: B)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.32

**Error**

A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, controller: B)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.33

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, no restart, controller: B)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.34

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, no restart, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.35

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: CPLD code update, controller: B)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.36

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: CPLD code update, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.37

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: EC restart, controller: B)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.38**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: EC restart, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.41**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: FDE unsupported, controller: B)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.42**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: FDE unsupported, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.43**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Burn-to-Active configuration change, controller: B)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.44**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: Burn-to-Active configuration change, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.45**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Configuration change, controller: B)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.46**

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Configuration change, controller: B)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.47**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Restore pool on restart, controller: B)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.48**

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Restore pool on restart, controller: B)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.49**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: SAS X2 mode change, controller: B)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.50**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: SAS X2 mode change, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.51**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Pool recovery, controller: B)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.52**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: Pool recovery, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.53**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Supercapacitor calibration, controller: B)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.54**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: Supercapacitor calibration, controller: B)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.55**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Unknown shutdown type=<numeric value>, controller: B)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.56**

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Unknown shutdown type=<numeric value>, controller: B)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.57**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Normal, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.58**

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Normal, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.59**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.60

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, controller: both)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.61

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, no restart, controller: both)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.62

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: SC firmware update, no restart, controller: both)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.63

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: CPLD code update, controller: both)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.64

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: CPLD code update, controller: both)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.65**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: EC restart, controller: both)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.66**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: EC restart, controller: both)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.69**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: FDE unsupported, controller: both)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.70**

**Error**

`A Storage Controller received a shutdown command. (special shutdown type: FDE unsupported, controller: both)`

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.71**

**Info**

`A Storage Controller received a shutdown command. (special shutdown type: Burn-to-Active configuration change, controller: both)`

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.72**

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Burn-to-Active configuration change, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.73**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Configuration change, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.74**

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Configuration change, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

**236.75**

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Restore pool on restart, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

**236.76**

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Restore pool on restart, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.77

**Info**

A Storage Controller received a shutdown command. (special shutdown type: SAS X2 mode change, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.78

**Error**

A Storage Controller received a shutdown command. (special shutdown type: SAS X2 mode change, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.79

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Pool recovery, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

### 236.80

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Pool recovery, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 236.81

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Supercapacitor calibration, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

#### 236.82

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Supercapacitor calibration, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

#### 236.83

**Info**

A Storage Controller received a shutdown command. (special shutdown type: Unknown shutdown type=<numeric value>, controller: both)

A special shutdown operation has started. These special shutdown types are used as part of the firmware-update process.

**Recommended action:**

- No action is required.

#### 236.84

**Error**

A Storage Controller received a shutdown command. (special shutdown type: Unknown shutdown type=<numeric value>, controller: both)

A special shutdown operation has started. These special shutdown types indicate an incompatible feature.

**Recommended action:**

- Replace the indicated controller module with one that supports the indicated feature.

### 237 - Firmware update in progress

#### 237.1

**Info**

Firmware update progress: The firmware was verified. (from MC: yes, for MC: yes)

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

#### 237.2

**Info**

Firmware update progress: The firmware was verified. (from MC: yes, for MC: no)

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.3

**Info**

`Firmware update progress: The firmware was verified. (from MC: no, for MC: yes)`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.4

**Info**

`Firmware update progress: The firmware was verified. (from MC: no, for MC: no)`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.5

**Info**

`Firmware update progress: The SC loader was updated. Saved in primary location in flash memory. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.6

**Info**

`Firmware update progress: The SC loader was updated. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.7

**Info**

`Firmware update progress: The SC loader was updated. Saved in primary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.8

**Info**

`Firmware update progress: The SC loader was updated. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.9

**Info**

`Firmware update progress: The SC loader was updated. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.10

**Info**

`Firmware update progress: The SC loader was updated. Saved in secondary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.11

**Info**

`Firmware update progress: The SC loader was updated. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.12

**Info**

Firmware update progress: The SC loader was updated. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.13

**Info**

Firmware update progress: The SC loader was updated. Saved in both locations in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.14

**Info**

Firmware update progress: The memory-controller FPGA was updated. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.15

**Info**

Firmware update progress: The memory-controller FPGA was updated. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.16

**Info**

Firmware update progress: The memory-controller FPGA was updated. Saved in primary location in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.17

**Info**

`Firmware update progress: The memory-controller FPGA was updated. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.18

**Info**

`Firmware update progress: The memory-controller FPGA was updated. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.19

**Info**

`Firmware update progress: The memory-controller FPGA was updated. Saved in secondary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.20

**Info**

`Firmware update progress: The memory-controller FPGA was updated. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.21

**Info**

`Firmware update progress: The memory-controller FPGA was updated. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.22

**Info**

`Firmware update progress: The memory-controller FPGA was updated. Saved in both locations in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.23

**Info**

`Firmware update progress: The SC app was updated. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.24

**Info**

`Firmware update progress: The SC app was updated. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.25

**Info**

`Firmware update progress: The SC app was updated. Saved in primary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.26

**Info**

`Firmware update progress: The SC app was updated. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.27

**Info**

`Firmware update progress: The SC app was updated. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.28

**Info**

`Firmware update progress: The SC app was updated. Saved in secondary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.29

**Info**

`Firmware update progress: The SC app was updated. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.30

**Info**

`Firmware update progress: The SC app was updated. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.31

**Info**

Firmware update progress: The SC app was updated. Saved in both locations in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.32

**Info**

Firmware update progress: The manufacturing firmware was updated. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.33

**Info**

Firmware update progress: The manufacturing firmware was updated. The SC loader was updated. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.34

**Info**

Firmware update progress: The manufacturing firmware was updated. Saved in primary location in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.35

**Info**

Firmware update progress: The manufacturing firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.36

**Info**

`Firmware update progress: The manufacturing firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.37

**Info**

`Firmware update progress: The manufacturing firmware was updated. Saved in secondary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.38

**Info**

`Firmware update progress: The manufacturing firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.39

**Info**

`Firmware update progress: The manufacturing firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.40

**Info**

`Firmware update progress: The manufacturing firmware was updated. Saved in both locations in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.41

**Info**

`Firmware update progress: Unknown. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.42

**Info**

`Firmware update progress: Unknown. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.43

**Info**

`Firmware update progress: Unknown. Saved in primary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.44

**Info**

`Firmware update progress: Unknown. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.45

**Info**

Firmware update progress: Unknown. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.46

**Info**

Firmware update progress: Unknown. Saved in secondary location in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.47

**Info**

Firmware update progress: Unknown. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.48

**Info**

Firmware update progress: Unknown. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.49

**Info**

Firmware update progress: Unknown. Saved in both locations in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.50

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.51

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.52

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in primary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.53

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.54

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.55

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in secondary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.56

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.57

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.58

**Info**

`Firmware update progress: The MRC firmware was updated. Saved in both locations in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.59

**Info**

`Firmware update progress: The PCIe configuration firmware was updated. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.60

**Info**

`Firmware update progress: The PCIe configuration firmware was updated. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.61

**Info**

`Firmware update progress: The PCIe configuration firmware was updated. Saved in primary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.62

**Info**

`Firmware update progress: The PCIe configuration firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.63

**Info**

`Firmware update progress: The PCIe configuration firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.64

**Info**

Firmware update progress: The PCIe configuration firmware was updated. Saved in secondary location in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.65

**Info**

Firmware update progress: The PCIe configuration firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.66

**Info**

Firmware update progress: The PCIe configuration firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.67

**Info**

Firmware update progress: The PCIe configuration firmware was updated. Saved in both locations in flash. The firmware is the same so it was not flashed.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.68

**Info**

Firmware update progress: The PCIe image firmware was updated. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.69

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.70

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in primary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.71

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.72

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.73

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in secondary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.74

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.75

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.76

**Info**

`Firmware update progress: The PCIe image firmware was updated. Saved in both locations in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.77

**Info**

`Firmware update progress: No changes needed. Saved in primary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.78

**Info**

`Firmware update progress: No changes needed. Saved in primary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.79

**Info**

`Firmware update progress: No changes needed. Saved in primary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.80

**Info**

`Firmware update progress: No changes needed. Saved in secondary location in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.81

**Info**

`Firmware update progress: No changes needed. Saved in secondary location in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.82

**Info**

`Firmware update progress: No changes needed. Saved in secondary location in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 237.83

**Info**

`Firmware update progress: No changes needed. Saved in both locations in flash. The firmware is different so it was flashed; flashed successfully.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

**237.84**

**Info**

`Firmware update progress: No changes needed. Saved in both locations in flash. The firmware is different so it was flashed; FAILURE while flashing.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

**237.85**

**Info**

`Firmware update progress: No changes needed. Saved in both locations in flash. The firmware is the same so it was not flashed.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

**237.86**

**Error**

`Firmware update progress: System health is insufficient to support firmware update.`

A firmware update attempt was aborted because of either general system health issue(s), or unwritable cache data that would be lost during a firmware update.

**Recommended action:**

- Resolve before retrying a firmware update. For health issues, issue the CLI 'show system' command to determine the specific health issue(s). For unwritten cache data, use the CLI 'show unwritable-cache' command.

**237.87**

**Info**

`Firmware update progress: System health is sufficient to support firmware update.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

**237.95**

#### Info

`Firmware update progress: Firmware update cannot proceed. System has unwritable cache data present.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

#### 237.96

#### Info

`Firmware update progress: Firmware update cannot proceed. Unable to determine if unwritable cache data is present.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

#### 237.97

#### Info

`Firmware update progress: The MC flash was updated.`

A firmware update has started and is in progress. This event provides details of the steps in a firmware-update operation that may be of interest if you have problems updating firmware.

**Recommended action:**

- No action is required.

### 238 - Invalid license

#### 238.1

#### Warning

`License data was not written because it was an invalid license.`

An attempt to install a licensed feature failed due to an invalid license.

**Recommended action:**

- Check the license for what is allowed for the platform, make corrections as appropriate, and reinstall.

### 239 - Memory card write timeout

#### 239.1

#### Warning

`A timeout occurred while writing to the memory card.`

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

## 240 - Memory card error detected

**240.1**

**Warning**

`Error detected in the memory card. (p1: <numeric value>, p2: <numeric value>, p3: <numeric value>)`

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

## 241 - AWT trigger

**241.1**

**Info**

`Auto-write-through trigger event: memory card recovered.`

The auto-write-through trigger event that caused event 242 to be logged has been resolved.

**Recommended action:**

- No action is required.

## 242 - AWT trigger

**242.1**

**Error**

`Auto-write-through trigger event: memory card failed.`

This change met a condition to trigger the auto-write-through feature, which has disabled write-back cache and put the system in write-through mode. When the fault is resolved, event 241 is logged to indicate that write-back mode has been restored.

**Recommended action:**

- If event 241 has not been logged since this event was logged, the memory card probably does not have health of OK and the cause should be investigated. Another memory card event was probably logged at approximately the same time as this event (such as event 239, 240, or 481). See the recommended actions for that event.

## 243 - Controller enclosure changed

**243.1**

**Info**

`The controller enclosure was changed. (new SN: <serial number>, old SN: <serial number>)`

A new controller enclosure has been detected. This happens when a controller module is moved from one enclosure to another and the controller detects that the midplane WWN is different from the WWN it has in its local flash.

**Recommended action:**

- No action is required.

## 245 - Disk channel error

### 245.1

**Info**

A disk-channel target device is not responding to SCSI discovery commands. (channel: <channel index>, ID: <device identifier>, type: SATA)

**Recommended action:**

- Check the indicated target device for bad hardware or bad cable, then initiate a rescan.

### 245.2

**Info**

A disk-channel target device is not responding to SCSI discovery commands. (channel: <channel index>, ID: <device identifier>, type: SAS)

**Recommended action:**

- Check the indicated target device for bad hardware or bad cable, then initiate a rescan.

## 246 - Coin battery failure

### 246.1

**Warning**

The coin battery is missing, has reached its end of life, or is not making a good connection.

The battery provides backup power for the real-time (date/time) clock. In the event of a power failure, the date and time will revert to 1980-01-01 00:00:00.

**Recommended action:**

- Replace the controller module that logged this event.

## 247 - FRU-ID read failure

### 247.1

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Controller module A) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.2

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Controller module B) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.3

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Expansion module A) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.4

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Expansion module B) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.5

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: PSU, Left) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.6

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: PSU, Right) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.7

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: PSU, Left) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.8

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: PSU, Right) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.9

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Midplane) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.10

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Disk drive) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.11

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Fan module, Left) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.12

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Fan module, Right) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.13

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Controller A memory card) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.14

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Controller B memory card) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.15

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Undefined) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.16

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Unknown) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.17

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Drawer, Left) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.18

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Drawer, Middle) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.19

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Drawer, Right) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.20

**Warning**

`The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Top drawer sideplane, Left) (<Baseplane Enclosure>, WWN: <World Wide Name>)`

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.21

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Top drawer sideplane, Right) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.22

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Bottom drawer sideplane, Left) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.23

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Bottom drawer sideplane, Right) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.24

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Fan Module 0) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 247.25

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Fan Module 1) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

#### 247.26

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Fan Module 2) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

#### 247.27

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Fan Module 3) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

#### 247.28

**Warning**

The FRU-ID SEEPROM cannot be read from a FRU. FRU-ID data might not be programmed. (FRU type: Fan Module 4) (<Baseplane Enclosure>, WWN: <World Wide Name>)

FRU ID data includes the worldwide name, serial numbers, firmware and hardware versions, branding information, etc. This event is logged once each time a Storage Controller (SC) is started for each FRU that is not programmed.

**Recommended action:**

- Return the FRU to have its FRU ID data reprogrammed.

### 248 - License installed

#### 248.1

**Info**

A new feature license was installed. (license key: <license string>)

See event 249 for details about each licensed feature.

**Recommended action:**

- No action is required.

### 249 - Licensed feature installed

#### 249.1

**Info**

A new licensed feature was installed: Snapshots. (value: Licensed for <count> snapshots, Permanent)

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.2

**Info**

`A new licensed feature was installed: Snapshots. (value: Licensed for <count> snapshots, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.3

**Info**

`A new licensed feature was installed: Snapshots. (value: Licensed for <count> snapshots, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.4

**Info**

`A new licensed feature was installed: Volume copy. (value: Licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.5

**Info**

`A new licensed feature was installed: Volume copy. (value: Licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.6**

**Info**

A new licensed feature was installed: Volume copy. (value: Licensed, Valid for <count> days)

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.7**

**Info**

A new licensed feature was installed: Volume copy. (value: Not licensed, Permanent)

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.8**

**Info**

A new licensed feature was installed: Volume copy. (value: Not licensed, Expired)

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.9**

**Info**

A new licensed feature was installed: Volume copy. (value: Not licensed, Valid for <count> days)

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.28**

**Info**

A new licensed feature was installed: Replication. (value: Licensed, Permanent)

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

#### 249.29

**Info**

`A new licensed feature was installed: Replication. (value: Licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

#### 249.30

**Info**

`A new licensed feature was installed: Replication. (value: Licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

#### 249.31

**Info**

`A new licensed feature was installed: Replication. (value: Not licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

#### 249.32

**Info**

`A new licensed feature was installed: Replication. (value: Not licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

#### 249.33

**Info**

`A new licensed feature was installed: Replication. (value: Not licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.40

**Info**

`A new licensed feature was installed: Drive spin down. (value: Licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.41

**Info**

`A new licensed feature was installed: Drive spin down. (value: Licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.42

**Info**

`A new licensed feature was installed: Drive spin down. (value: Licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.43

**Info**

`A new licensed feature was installed: Drive spin down. (value: Not licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.44

**Info**

`A new licensed feature was installed: Drive spin down. (value: Not licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.45

**Info**

`A new licensed feature was installed: Drive spin down. (value: Not licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.49

**Info**

`A new licensed feature was installed: Unknown. (value: not applicable, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.50

**Info**

`A new licensed feature was installed: Unknown. (value: not applicable, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.51

**Info**

`A new licensed feature was installed: Unknown. (value: not applicable, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.52**

**Info**

`A new licensed feature was installed: SRA. (value: Licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.53**

**Info**

`A new licensed feature was installed: SRA. (value: Licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.54**

**Info**

`A new licensed feature was installed: SRA. (value: Licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.55**

**Info**

`A new licensed feature was installed: SRA. (value: Not licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.56**

**Info**

`A new licensed feature was installed: SRA. (value: Not licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.57**

**Info**

`A new licensed feature was installed: SRA. (value: Not licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.58**

**Info**

`A new licensed feature was installed: Virtualization. (value: Licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.59**

**Info**

`A new licensed feature was installed: Virtualization. (value: Licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.60**

**Info**

`A new licensed feature was installed: Virtualization. (value: Licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.61**

**Info**

`A new licensed feature was installed: Virtualization. (value: Not licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.62**

**Info**

`A new licensed feature was installed: Virtualization. (value: Not licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.63**

**Info**

`A new licensed feature was installed: Virtualization. (value: Not licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.64**

**Info**

`A new licensed feature was installed: Performance-Tier. (value: Licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

**249.65**

**Info**

`A new licensed feature was installed: Performance-Tier. (value: Licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.66

**Info**

`A new licensed feature was installed: Performance-Tier. (value: Licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.67

**Info**

`A new licensed feature was installed: Performance-Tier. (value: Not licensed, Permanent)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.68

**Info**

`A new licensed feature was installed: Performance-Tier. (value: Not licensed, Expired)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

### 249.69

**Info**

`A new licensed feature was installed: Performance-Tier. (value: Not licensed, Valid for <count> days)`

After a valid license is installed, this event is logged for each licensed feature to show the new license value for that feature. The event specifies whether the feature is licensed, whether the license is temporary, and whether the temporary license is expired.

**Recommended action:**

- No action is required.

## 250 - License install failed

**250.1**

**Warning**

`License installation failed. <detailed error information> (error code: <error code>) (unsupported feature: Unknown)`

The license is invalid or specifies a feature that is not supported on your product.

**Recommended action:**

- Review the readme file that came with the license. Verify that you are trying to install the license in the system that the license was generated for.

**250.2**

**Warning**

`License installation failed. <detailed error information> (error code: <error code>) (unsupported feature: Snapshots)`

The license is invalid or specifies a feature that is not supported on your product.

**Recommended action:**

- Review the readme file that came with the license. Verify that you are trying to install the license in the system that the license was generated for.

**250.3**

**Warning**

`License installation failed. <detailed error information> (error code: <error code>) (unsupported feature: Volume copy)`

The license is invalid or specifies a feature that is not supported on your product.

**Recommended action:**

- Review the readme file that came with the license. Verify that you are trying to install the license in the system that the license was generated for.

**250.7**

**Warning**

`License installation failed. <detailed error information> (error code: <error code>) (unsupported feature: Replication)`

The license is invalid or specifies a feature that is not supported on your product.

**Recommended action:**

- Review the readme file that came with the license. Verify that you are trying to install the license in the system that the license was generated for.

**250.9**

**Warning**

License installation failed. <detailed error information> (error code: <error code>) (unsupported feature: Temporary license duration)

The license is invalid or specifies a feature that is not supported on your product.

**Recommended action:**

- Review the readme file that came with the license. Verify that you are trying to install the license in the system that the license was generated for.

#### 250.10

**Warning**

License installation failed. <detailed error information> (error code: <error code>) (unsupported feature: Drive spin down)

The license is invalid or specifies a feature that is not supported on your product.

**Recommended action:**

- Review the readme file that came with the license. Verify that you are trying to install the license in the system that the license was generated for.

#### 250.11

**Warning**

License installation failed. <detailed error information> (error code: <error code>)

The license is invalid or specifies a feature that is not supported on your product.

**Recommended action:**

- Review the readme file that came with the license. Verify that you are trying to install the license in the system that the license was generated for.

### 251 - Volume-copy started

#### 251.1

**Info**

A linear volume-copy operation started. (pool: <pool name>, volume: <volume name>, SN: <serial number>)

- If the source volume is a master volume, you can remount it.
- If the source volume is a snapshot, do not remount it until the copy is complete (as indicated by event 268).

**Recommended action:**

- No action is required.

#### 251.2

**Info**

A virtual volume-copy operation started. (source: <name>, destination: <name>, SN: <serial number>)

- Do not mount either volume until the copy is complete (as indicated by event 268).

**Recommended action:**

- No action is required.

## 253 - License uninstalled

**253.1**

**Info**

A licensed feature was uninstalled. (license key: <license string>)

**Recommended action:**

- No action is required.

## 255 - Host Interface Module mismatch

**255.1**

**Info**

Host Interface Module (HIM) mismatch. (local HIM model: <numeric value>, remote HIM model: <numeric value>)

**Recommended action:**

- No action is required.

## 256 - Snapshot prepare completed

**256.1**

**Info**

An internal snapshot was created for a virtual replication volume but it has not been committed yet. <tag numeric> ...<tag numeric>)

This can occur when a snapshot is taken by an application, such as the VSS hardware provider, that is timing-sensitive and needs to take a snapshot in two stages.

After the snapshot is committed and event 258 is logged, the snapshot can be used.

**Recommended action:**

- No action is required.

**256.2**

**Info**

A snapshot was created for a volume but it has not been committed yet. (snapshot SN: <serial number>, volume SN: <volume name>)

This can occur when a snapshot is taken by an application, such as the VSS hardware provider, that is timing-sensitive and needs to take a snapshot in two stages.

After the snapshot is committed and event 258 is logged, the snapshot can be used.

**Recommended action:**

- No action is required.

## 257 - Snapshot prepare and commit completed

### 257.1

**Info**

An internal snapshot was created and committed for a virtual replication volume. The snapshot is now ready for use.

**Recommended action:**

- No action is required.

### 257.2

**Info**

A snapshot was created and committed for a volume. The snapshot is now ready for use. (snapshot SN: <serial number>, volume SN: <serial number>)

**Recommended action:**

- No action is required.

## 258 - Snapshot commit completed

### 258.1

**Info**

A snapshot was committed for a volume. The snapshot is now ready for use. (snapshot SN: <serial number>, volume SN: <serial number>)

**Recommended action:**

- No action is required.

## 259 - In-band CAPI disabled

### 259.1

**Info**

In-band CAPI commands were disabled.

**Recommended action:**

- No action is required.

## 260 - In-band CAPI enabled

### 260.1

**Info**

In-band CAPI commands were enabled.

**Recommended action:**

- No action is required.

## 261 - In-band SES disabled

### 261.1

**Info**

`In-band SES commands were disabled.`

**Recommended action:**

- No action is required.

## 262 - In-band SES enabled

**262.1**

**Info**

`In-band SES commands were enabled.`

**Recommended action:**

- No action is required.

## 263 - Spare disk missing

**263.1**

**Warning**

`A spare disk drive is missing. It was removed or it is not responding. (disk: channel: <channel index>, ID: <numeric value>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

**Recommended action:**

- Replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity.
- Configure the disk as a spare.

## 266 - Volume-copy aborted

**266.1**

**Info**

`A volume-copy operation was aborted by a user. (volume SN: <serial number>)`

**Recommended action:**

- No action is required.

## 267 - Volume-copy failure

**267.1**

**Info**

`A volume-copy operation completed with a failure. (volume SN: <serial number>, error code qualifier: <error code>)`

- If the source volume is a master volume, you can remount it.
- If the source volume is a snapshot, do not remount it until the copy is complete (as indicated by event 268).

**Recommended action:**

- No action is required.

**267.2**

**Info**

A volume-copy operation completed with a failure. <detailed error information> (volume SN: <serial number>)

- Possible causes are the pool running out of available space and crossing the high threshold, volumes being unavailable, or general I/O errors.

**Recommended action:**

- Look for other events logged at approximately the same time that indicate a pool space or volume failure.
- Follow the recommended actions for those events.

## 268 - Volume-copy completed

**268.1**

**Info**

A volume-copy operation completed successfully. (volume SN: <serial number>)

**Recommended action:**

- No action is required.

## 269 - Partner firmware update in progress

**269.1**

**Info**

Partner Firmware Update progress: <text> (info: p1: <numeric value>, p2: <numeric value>, p3: <numeric value>, p4: <numeric value>)

A partner firmware upgrade attempt aborted because of either general system health issue(s) or unwritable cache data that would be lost during a firmware update.

**Recommended action:**

- You must resolve this condition before the firmware update will proceed. Log into the system and run the CLI 'show system' command to identify unhealthy components and find recommendations for restoring system health. The 'check firmware-upgrade-health' command can be used to verify that the system is ready for firmware upgrade. For unwritten cache data, use the 'show unwritable-cache' command.

## 270 - IP data configuration error

**270.1**

**Warning**

Persistent IP data read/write error. <detailed error information> (error code: <error code>) (status: <text>) (host port: <channel index>)

Either there was a problem reading or writing the persistent IP data from the FRU ID SEEPROM, or invalid data was read from the FRU ID SEEPROM.

**Recommended action:**

- Check the IP settings (including iSCSI host-port IP settings for an iSCSI system), and update them if they are incorrect.

#### 270.2

**Warning**

`Persistent IP data read/write error. (status: <text>) (host port: <channel index>)`

Either there was a problem reading or writing the persistent IP data from the FRU ID SEEPROM, or invalid data was read from the FRU ID SEEPROM.

**Recommended action:**

- Check the IP settings (including iSCSI host-port IP settings for an iSCSI system), and update them if they are incorrect.

#### 270.3

**Warning**

`Persistent IP data read/write error. <detailed error information> (error code: <error code>) (status: <text>)`

Either there was a problem reading or writing the persistent IP data from the FRU ID SEEPROM, or invalid data was read from the FRU ID SEEPROM.

**Recommended action:**

- Check the IP settings (including iSCSI host-port IP settings for an iSCSI system), and update them if they are incorrect.

#### 270.4

**Warning**

`Persistent IP data read/write error. (status: <text>)`

Either there was a problem reading or writing the persistent IP data from the FRU ID SEEPROM, or invalid data was read from the FRU ID SEEPROM.

**Recommended action:**

- Check the IP settings (including iSCSI host-port IP settings for an iSCSI system), and update them if they are incorrect.

### 271 - MAC address changed

#### 271.1

**Info**

`The controller could not obtain its serial number from its FRU-ID SEEPROM. It is using the controller's serial number from its flash for its MAC address.`

The storage system could not get a valid serial number from the controller's FRU ID SEEPROM, either because it couldn't read the FRU ID data, or because the data in it isn't valid or hasn't been programmed. Therefore, the MAC address is derived by using the controller's serial number from flash. This event is only logged one time during bootup.

**Recommended action:**

- No action is required.

## 273 - PHY isolation

### 273.1

**Info**

`PHY fault isolation was enabled. (enclosure: <enclosure number>, module: A)`

PHY fault isolation has been enabled or disabled by a user for the indicated enclosure and controller module.

**Recommended action:**

- No action is required.

### 273.2

**Info**

`PHY fault isolation was enabled. (enclosure: <enclosure number>, module: B)`

PHY fault isolation has been enabled or disabled by a user for the indicated enclosure and controller module.

**Recommended action:**

- No action is required.

### 273.3

**Info**

`PHY fault isolation was disabled. (enclosure: <enclosure number>, module: A)`

PHY fault isolation has been enabled or disabled by a user for the indicated enclosure and controller module.

**Recommended action:**

- No action is required.

### 273.4

**Info**

`PHY fault isolation was disabled. (enclosure: <enclosure number>, module: B)`

PHY fault isolation has been enabled or disabled by a user for the indicated enclosure and controller module.

**Recommended action:**

- No action is required.

## 274 - PHY disabled

### 274.1

**Warning**

`A PHY was disabled. (enclosure: <enclosure number>, module (disabled path to this disk): <text>, drawer: <${drawer} number>, disk slot: <numeric value>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
  - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
  - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
  - If the problem recurs and the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.
- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.
  - If the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

### 274.2

**Warning**

`A PHY was disabled. (enclosure: <enclosure number>, module: <text>, drawer: <${drawer} number>, PHY: <numeric value>, PHY type: <text>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:

- Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
- If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
- If the problem recurs and the event message identifies a module, do the following:
  - If the indicated PHY type is Egress, replace the cable in the module's egress port.
  - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
  - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
- If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
- If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.
  - If the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

### 274.3

**Warning**

`A PHY was disabled. (enclosure: <enclosure number>, module (disabled path to this disk): <text>, disk slot: <numeric value>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
  - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
  - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
  - If the problem recurs and the event message identifies a module, do the following:

        - If the indicated PHY type is Egress, replace the cable in the module's egress port.
        - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
        - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
    - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
    - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.
- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
    - If the event message identifies a disk slot, reseat the disk in that slot.
    - If the problem persists after reseating the disk, replace the disk.
    - If the event message identifies a module, do the following:
        - If the indicated PHY type is Egress, replace the cable in the module's egress port.
        - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
        - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
    - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
    - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

### 274.4

**Warning**

`A PHY was disabled. (enclosure: <enclosure number>, module: <text>, PHY: <numeric value>, PHY type: <text>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
    - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
    - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
    - If the problem recurs and the event message identifies a module, do the following:
        - If the indicated PHY type is Egress, replace the cable in the module's egress port.
        - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
        - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.

- If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
- If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.
  - If the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

**274.5**

**Warning**

`A PHY was disabled. (enclosure: <enclosure number>, module (disabled path to this disk): <text>, baseplane: <Baseplane Number>, disk slot: <numeric value>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
  - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
  - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
  - If the problem recurs and the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.
  - If the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

**274.6**

**Warning**

`A PHY was disabled. (enclosure: <enclosure number>, module: <text>, baseplane: <Baseplane Number>, PHY: <numeric value>, PHY type: <text>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
  - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
  - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
  - If the problem recurs and the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.
- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.

- If the event message identifies a module, do the following:
  - If the indicated PHY type is Egress, replace the cable in the module's egress port.
  - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
  - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
- If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
- If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

**274.7**

**Warning**

`A PHY was disabled because of error counts. (enclosure: <enclosure number>, module (disabled path to this disk): <text>, drawer: <${drawer} number>, disk slot: <numeric value>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
  - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
  - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
  - If the problem recurs and the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.
- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.
  - If the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.

- For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
- If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
- If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

**274.8**

**Warning**

`A PHY was disabled because of error counts. (enclosure: <enclosure number>, module (disabled path to this disk): <text>, disk slot: <numeric value>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
  - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
  - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
  - If the problem recurs and the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.
- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.
  - If the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

**274.9**

**Warning**

`A PHY was disabled because of error counts. (enclosure: <enclosure number>, module (disabled path to this disk): <text>, baseplane: <Baseplane Number>, disk slot: <numeric value>, reason: <text>)`

The indicated PHY has been disabled, either automatically or by a user. Drive PHYs are automatically disabled for empty disk slots or if a problem is detected. The following reasons indicate a likely hardware fault:

- "Disabled because of error count interrupts"
- "Disabled because of excessive PHY change counts"
- "PHY is ready but did not pass COMINIT"

**Recommended action:**

- If none of the reasons listed under Additional Information is indicated, no action is required.
- If any of the reasons listed under Additional Information is indicated and the event occurs shortly after the storage system is powered up, do the following:
  - Shut down the Storage Controllers. Then turn off the power for the indicated enclosure, wait a few seconds, and turn it back on.
  - If the problem recurs and the event message identifies a disk slot, replace the disk in that slot.
  - If the problem recurs and the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.
- If any of the reasons listed under Additional Information is indicated and this event is logged shortly after a failover, user-initiated rescan, or restart, do the following:
  - If the event message identifies a disk slot, reseat the disk in that slot.
  - If the problem persists after reseating the disk, replace the disk.
  - If the event message identifies a module, do the following:
    - If the indicated PHY type is Egress, replace the cable in the module's egress port.
    - If the indicated PHY type is Ingress, replace the cable in the module's ingress port.
    - For other indicated PHY types or if replacing the cable does not fix the problem, replace the indicated module.
  - If the problem persists, check for other events that may indicate faulty hardware, such as an event indicating an over-temperature condition or power supply fault, and follow the recommended actions for those events.
  - If the problem persists, the fault may be in the enclosure midplane. Replace the chassis FRU.

## 275 - PHY enabled

**275.1**

**Info**

A PHY was enabled. (enclosure: <enclosure number>, module (enabled path to this disk): <text>, drawer: <${drawer} number>, disk slot: <numeric value>)

The indicated PHY has been enabled.

**Recommended action:**

- No action is required.

### 275.2

**Info**

A PHY was enabled. (enclosure: <enclosure number>, module: <text>, drawer: <${drawer} number>, PHY: <numeric value>, PHY type: <text>)

The indicated PHY has been enabled.

**Recommended action:**

- No action is required.

### 275.3

**Info**

A PHY was enabled. (enclosure: <enclosure number>, module (enabled path to this disk): <text>, disk slot: <numeric value>)

The indicated PHY has been enabled.

**Recommended action:**

- No action is required.

### 275.4

**Info**

A PHY was enabled. (enclosure: <enclosure number>, module: <text>, PHY: <numeric value>, PHY type: <text>)

The indicated PHY has been enabled.

**Recommended action:**

- No action is required.

### 275.5

**Info**

A PHY was enabled. (enclosure: <enclosure number>, module (enabled path to this disk): <text>, baseplane: <Baseplane Number>, disk slot: <numeric value>)

The indicated PHY has been enabled.

**Recommended action:**

- No action is required.

### 275.6

**Info**

A PHY was enabled. (enclosure: <enclosure number>, module: <text>, baseplane: <Baseplane Number>, PHY: <numeric value>, PHY type: <text>)

The indicated PHY has been enabled.

**Recommended action:**

- No action is required.

## 298 - Controller Date/Time invalid

**298.1**

**Warning**

`The controller date and time are invalid.`

This event will most commonly occur after a power loss if the real-time clock battery has failed. The time may have been set to a time that is up to 5 minutes before the power loss occurred, or it may have been reset to 1980-01-01 00:00:00.

**Recommended action:**

- Check the system date and time. If either is incorrect, set them to the correct date and time.
- Also look for event 246 and follow the recommended action for that event.

## 299 - Controller Date/Time recovered

**299.1**

**Info**

`The controller date and time were successfully recovered.`

This event will most commonly occur after an unexpected power loss.

**Recommended action:**

- No action is required, but if event 246 is also logged, follow the recommended action for that event.

## 300 - CPU frequency high

**300.1**

**Info**

`The CPU frequency was adjusted to high.`

**Recommended action:**

- No action is required.

## 301 - CPU frequency low

**301.1**

**Info**

`The CPU frequency was adjusted to low.`

None.

**Recommended action:**

- No action is required.

## 302 - DDR clock high

**302.1**

**Info**

`The DDR memory clock was adjusted to high.`

None.

**Recommended action:**

- No action is required.

## 303 - DDR clock low

**303.1**

**Info**

`The DDR memory clock was adjusted to low.`

None.

**Recommended action:**

- No action is required.

## 304 - I2C recoverable error

**304.1**

**Info**

`A recoverable I2C error occurred. (device: <name>, error count: <count>)`

The controller has detected I2C errors that may have been fully recovered.

**Recommended action:**

- No action is required.

## 305 - Serial number invalid

**305.1**

**Info**

`A serial number in SC flash was invalid. (type: controller module)`

A serial number in Storage Controller (SC) flash memory was found to be invalid when compared to the serial number in the controller-module or midplane FRU ID SEEPROM. The valid serial number has been recovered automatically.

**Recommended action:**

- No action is required.

**305.2**

**Info**

`A serial number in SC flash was invalid. (type: midplane)`

A serial number in Storage Controller (SC) flash memory was found to be invalid when compared to the serial number in the controller-module or midplane FRU ID SEEPROM. The valid serial number has been recovered automatically.

**Recommended action:**

- No action is required.

## 306 - Serial number updated

### 306.1

**Info**

`The serial number in SC flash was updated. (new SN: 0x<serial number>, old SN: 0x<serial number>)`

The controller-module serial number in Storage Controller (SC) flash memory was found to be invalid when compared to the serial number in the controller-module FRU ID SEEPROM. The valid serial number has been recovered automatically.

**Recommended action:**

- No action is required.

## 307 - Critical thermal shutdown

### 307.1

**Critical**

`A Storage Controller shutdown occurred because the CPU temperature was out of the normal range. (temperature: <temperature> C)`

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.2

**Critical**

`A Storage Controller shutdown occurred because the FPGA temperature was out of the normal range. (temperature: <temperature> C)`

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.3

**Critical**

A Storage Controller shutdown occurred because an on-board SAS2008 temperature was out of the normal range. (temperature: <temperature> C)

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.4

**Critical**

A Storage Controller shutdown occurred because a SAS backend initiator temperature was out of the normal range. (temperature: <temperature> C)

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.5

**Critical**

A Storage Controller shutdown occurred because a PCH (platform control hub) temperature was out of the normal range. (temperature: <temperature> C)

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.6

**Critical**

A Storage Controller shutdown occurred because a left host I/O controller (IOC) temperature was out of the normal range. (temperature: <temperature> C)

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.7

**Critical**

`A Storage Controller shutdown occurred because a right host I/O controller (IOC) temperature was out of the normal range. (temperature: <temperature> C)`

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.8

**Critical**

`A Storage Controller shutdown occurred because multiple disk temperatures were out of the normal range. (temperature: <temperature> C)`

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

### 307.9

**Critical**

`An unknown sensor warning occurred. (p1: <numeric value>, p2: <numeric value>)`

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

## 309 - IP Address backup configuration used

**309.1**

**Info**

`The startup IP address information was obtained from flash rather than the FRU-ID SEEPROM.`

Normally when the Management Controller (MC) is started, the IP data is obtained from the midplane FRU ID SEEPROM where it is persisted. If the system is unable to write it to the SEEPROM the last time it changed, a flag is set in flash memory. This flag is checked during startup, and if set, this event is logged and the IP data that is in flash memory is used. The only time that this would not be the correct IP data would be if the controller module was swapped and then whatever data is in the controller's flash memory is used.

**Recommended action:**

- No action is required.

## 310 - Enclosure initialization completed

**310.1**

**Info**

`Discovery and initialization of enclosure data was completed following a rescan.`

After a rescan, back-end discovery and initialization of data for at least one EMP (Enclosure Management Processor) has completed. This event is not logged again when processing completes for other EMPs in the system.

**Recommended action:**

- No action is required.

## 311 - iSCSI ping completed

**311.1**

**Info**

`An iSCSI ping completed. (number of attempts: <count>, number that succeeded: <count>)`

This event is logged when a user initiates a ping of a host via the iSCSI interface.

**Recommended action:**

- If the ping operation failed, check connectivity between the storage system and the remote host.

## 313 - Controller failure

**313.1**

**Error**

RAID controller <device identifier> failed, reason <detailed error information>. Product ID <identifier>, S/N <serial number>)

The indicated controller module has failed. This event can be ignored for a single-controller configuration.

**Recommended action:**

- If this is a dual-controller system, replace the failed controller module. The module's Fault/Service Required LED will be illuminated (not blinking).

## 314 - FRU problem

**314.1**

**Error**

There is a problem with a FRU. (FRU type: Controller module A, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.2**

**Error**

There is a problem with a FRU. (FRU type: Controller module B, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.3**

**Error**

There is a problem with a FRU. (FRU type: Expansion module A, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.4

**Error**

There is a problem with a FRU. (FRU type: Expansion module B, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.5

**Error**

There is a problem with a FRU. (FRU type: PSU, Left, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.6

**Error**

There is a problem with a FRU. (FRU type: PSU, Right, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.7

**Error**

There is a problem with a FRU. (FRU type: PSU, Left, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.8

**Error**

`There is a problem with a FRU. (FRU type: PSU, Right, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.9

**Error**

`There is a problem with a FRU. (FRU type: Midplane, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.10

**Error**

`There is a problem with a FRU. (FRU type: Disk, enclosure: <enclosure number>, slot: <slot number>, device ID: <numeric value>, vendor: <numeric value>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.11

**Error**

`There is a problem with a FRU. (FRU type: Fan module, Left, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.12**

**Error**

`There is a problem with a FRU. (FRU type: Fan module, Right, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.13**

**Error**

`There is a problem with a FRU. (FRU type: Controller A memory card, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.14**

**Error**

`There is a problem with a FRU. (FRU type: Controller B memory card, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.15**

**Error**

There is a problem with a FRU. (FRU type: Undefined, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.16**

**Error**

There is a problem with a FRU. (FRU type: Unknown, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.17**

**Error**

There is a problem with a FRU. (FRU type: Drawer, Left, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.18**

**Error**

There is a problem with a FRU. (FRU type: Drawer, Middle, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.19**

**Error**

There is a problem with a FRU. (FRU type: Drawer, Right, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.20**

**Error**

There is a problem with a FRU. (FRU type: Top drawer sideplane, Left, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.21**

**Error**

There is a problem with a FRU. (FRU type: Top drawer sideplane, Right, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.22**

**Error**

There is a problem with a FRU. (FRU type: Bottom drawer sideplane, Left, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

**314.23**

**Error**

There is a problem with a FRU. (FRU type: Bottom drawer sideplane, Right, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.24

**Error**

There is a problem with a FRU. (FRU type: Fan Module 0, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.25

**Error**

There is a problem with a FRU. (FRU type: Fan Module 1, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.26

**Error**

There is a problem with a FRU. (FRU type: Fan Module 2, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

### 314.27

**Error**

`There is a problem with a FRU. (FRU type: Fan Module 3, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

#### 314.28

**Error**

`There is a problem with a FRU. (FRU type: Fan Module 4, <Baseplane Enclosure>, product ID: <identifier>, SN: <serial number>, version: <identifier>, related event serial number: <serial number>...<numeric value>, related event code: <numeric value>)`

The indicated FRU has failed or is not operating correctly. This event follows some other FRU-specific event indicating a problem.

**Recommended action:**

- To determine whether the FRU needs to be replaced, see the topic about verifying component failure in your product's documentation.

## 315 - Enclosure incompatible

#### 315.1

**Critical**

`This IOM is incompatible with the enclosure in which it is inserted (enclosure: <enclosure number>, WWN: <World Wide Name>).`

None.

**Recommended action:**

- Replace this IOM with an IOM that is compatible with this enclosure.

## 317 - Disk channel hardware failure

#### 317.1

**Error**

`Disk channel hardware failure.`

A serious error has been detected on the Storage Controller's disk interface. The controller that logged this event will be killed by its partner.

**Recommended action:**

- Visually trace the cabling between the controller modules and expansion modules.
- If the cabling is OK, replace the controller module that logged this event.
- If the problem recurs, replace the expansion module that is connected to the controller module.

## 319 - Disk failed

**319.1**

**Warning**

`An available disk drive failed. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

None.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

## 322 - CHAP database version unknown

**322.1**

**Warning**

`The CHAP authentication database version is incompatible with installed firmware. (version in flash: <numeric value>, highest version supported by firmware: <numeric value>)`

The controller has an older Storage Controller (SC) version than the version used to create the CHAP authentication database in the controller's flash memory.

The CHAP database cannot be read or updated. However, new records can be added, which will replace the existing database with a new database using the latest known version number.

**Recommended action:**

- Upgrade the controller firmware to a version whose SC is compatible with the indicated database version.
- If no records were added, the database becomes accessible and remains intact.
- If records were added, the database becomes accessible but contains only the new records.

## 352 - Expander controller exception

**352.1**

**Info**

`Expander Controller exception data is available.`

Expander Controller (EC) assert data or stack-dump data is available.

**Recommended action:**

- No action is required.

## 353 - Expander controller exception cleared

**353.1**

**Info**

`Expander Controller exception data was cleared.`

Expander Controller (EC) assert data and stack-dump data have been cleared.

**Recommended action:**

- No action is required.

## 354 - Host SAS topology changed

### 354.1

**Warning**

`Host SAS topology was changed. (host port: <channel index>, <count> out of <count> PHYs are up, link speed: <numeric value>)`

SAS topology has changed on a host port. At least one PHY has gone down. For example, the SAS cable connecting a controller host port to a host has been disconnected.

**Recommended action:**

- Check the cable connection between the indicated port and the host.
- Monitor the log to see if the problem persists.

### 354.2

**Info**

`Host SAS topology was changed. (host port: <channel index>, <count> out of <count> PHYs are up, link speed: <numeric value>)`

SAS topology has changed on a host port. At least one PHY has become active. For example, the SAS cable connecting a controller host port to a host has been connected.

**Recommended action:**

- No action is required.

## 355 - Debug button stuck on

### 355.1

**Warning**

`The faceplate's debug button was found to be stuck on during boot up.`

None.

**Recommended action:**

- If the button remains stuck, replace the controller module.

## 356 - Mfg board level test failed

### 356.1

**Warning**

`Manufacturing Board Level Test(s) failed. (<count> failures starting with test <name>, codes: <detailed error information>)`

This event can only result from tests that are run in the manufacturing environment.

**Recommended action:**

- Follow the manufacturing process.

## 357 - Mfg board level test not run

### 357.1

**Warning**

`Manufacturing Board Level Tests were not run; controller is suspended.`

This event can only result from tests that are run in the manufacturing environment.

**Recommended action:**

- Follow the manufacturing process.

## 358 - Disk channel PHY down

### 358.1

**Critical**

`<count> out of <count> PHYs are down for a disk channel. (channel: <channel index>)`

All PHYs are down for the indicated disk channel. The system is degraded and is not fault tolerant because all disks are in a single-ported state.

**Recommended action:**

- Turn off the power for the controller enclosure, wait a few seconds, and turn it back on.
- If event 359 has been logged for the indicated channel, indicating the condition no longer exists, no further action is required.
- If the condition persists, this indicates a hardware problem in one of the controller modules or in the controller enclosure midplane. For help identifying which FRU to replace, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

### 358.2

**Warning**

`<count> out of <count> PHYs are down for a disk channel. (channel: <channel index>)`

Some, but not all, PHYs are down for the indicated disk channel.

**Recommended action:**

- Monitor the log to see whether the condition persists.
- If event 359 has been logged for the indicated channel, indicating the condition no longer exists, no further action is required.
- If the condition persists, this indicates a hardware problem in one of the controller modules or in the controller enclosure midplane. For help identifying which FRU to replace, see "Resources for diagnosing and resolving problems" in the Event Descriptions Reference Guide.

## 359 - Disk channel PHY up

### 359.1

**Info**

`All PHYs that were down for a disk channel are now up (have recovered). (channel: <channel index>)`

None.

**Recommended action:**

- No action is required.

## 360 - Disk channel PHY speed changed

### 360.1

**Info**

The speed of a disk PHY was renegotiated. This is normal behavior. (enclosure: <enclosure number>, module: <numeric value>, drawer: <${drawer} number>, disk slot: <slot number>)

**Recommended action:**

- No action is required.

### 360.2

**Info**

The speed of a disk PHY was renegotiated. This is normal behavior. (enclosure: <enclosure number>, module: <numeric value>, disk slot: <slot number>)

**Recommended action:**

- No action is required.

### 360.3

**Info**

The speed of a disk PHY was renegotiated. This is normal behavior. (enclosure: <enclosure number>, module (disabled path to this disk): <numeric value>, baseplane: <Baseplane Number>, disk slot: <slot number>)

**Recommended action:**

- No action is required.

### 360.4

**Info**

The speed of a disk PHY was renegotiated. This is normal behavior. (enclosure: <enclosure number>, module: <numeric value>, baseplane: <Baseplane Number>, PHY: <numeric value>, PHY type: <text>)

**Recommended action:**

- No action is required.

## 361 - Scheduler event

### 361.1

**Critical**

Scheduler: <detailed error information> (schedule: <time>)

The scheduler experienced a problem with the indicated schedule.

**Recommended action:**

- Take appropriate action based on the indicated problem.

**361.2**

**Error**

`Scheduler: <detailed error information> (schedule: <time>)`

The scheduler experienced a problem with the indicated schedule.

**Recommended action:**

- Take appropriate action based on the indicated problem.

**361.3**

**Warning**

`Scheduler: <detailed error information> (schedule: <time>)`

The scheduler experienced a problem with the indicated schedule.

**Recommended action:**

- Take appropriate action based on the indicated problem.

**361.4**

**Info**

`Scheduler: <detailed error information> (schedule: <time>)`

A scheduled task was initiated.

**Recommended action:**

- No action is required.

## 362 - Task event

**362.1**

**Critical**

`Scheduler: <detailed error information> – <detailed error information> (task: <name>, task type: <text>)`

The scheduler experienced a problem with the indicated task.

**Recommended action:**

- Take appropriate action based on the indicated problem.

**362.2**

**Info**

`Scheduler: <detailed error information> – <detailed error information> (task: <name>, task type: <text>)`

None.

**Recommended action:**

- No action is required.

#### 362.3

**Error**

`Scheduler: <detailed error information> (task: <name>, task type: <text>)`

The scheduler experienced a problem with the indicated task.

**Recommended action:**

- Take appropriate action based on the indicated problem.

#### 362.4

**Info**

`Scheduler: <detailed error information> (task: <name>, task type: <text>)`

None.

**Recommended action:**

- No action is required.

### 363 - Firmware version check

#### 363.1

**Info**

`Firmware versions match those in the firmware bundle. (controller: <text>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- No action is required.

#### 363.2

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: Indeterminate)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. When firmware is updated, it is important that all components are successfully updated or the system may not work correctly. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

#### 363.3

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.3

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.4

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.5

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.6

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

#### 363.7

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

#### 363.8

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

#### 363.9

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

#### 363.10

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.11

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.12

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.13

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

### 363.14

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

#### 363.15

**Error**

`Firmware versions do not match those in the firmware bundle. (controller: <text>, mismatched components: <reason>)`

When the Management Controller (MC) is restarted, firmware versions that are currently installed are compared against those in the bundle that was most recently installed. If the versions match, this event is logged as Informational severity. Components checked include the CPLD, Generic Enclosure Management (GEM), Storage Controller (SC), Management Controller (MC), and others.

**Recommended action:**

- Reinstall the firmware bundle.

## 364 - Broadcast bus running gen 1

#### 364.1

**Info**

`The broadcast bus is running as generation 1.`

**Recommended action:**

- No action is required.

## 365 - Uncorrectable ECC error

#### 365.1

**Error**

`An uncorrectable ECC error occurred in Storage Controller CPU memory. (<detailed error information>)`

- An uncorrectable ECC error occurred in CPU memory more than once, indicating a probable hardware fault.

**Recommended action:**

- Replace the controller module that logged this event.

#### 365.2

**Warning**

`An uncorrectable ECC error occurred in Storage Controller CPU memory. (<detailed error information>)`

- This event is logged with Warning severity to provide information that may be useful to technical support, but no action is required now. It will be logged with Error severity if it is necessary to replace the controller module.

**Recommended action:**

- No action is required.

## 400 - Managed log threshold reached

### 400.1

**Info**

`Managed logs: A log region has reached the level at which it should be archived. (region: Crash 1, region code: <numeric value>)`

**Recommended action:**

- No action is required.

### 400.2

**Info**

`Managed logs: A log region has reached the level at which it should be archived. (region: Crash 2, region code: <numeric value>)`

**Recommended action:**

- No action is required.

### 400.3

**Info**

`Managed logs: A log region has reached the level at which it should be archived. (region: Crash 3, region code: <numeric value>)`

**Recommended action:**

- No action is required.

### 400.4

**Info**

`Managed logs: A log region has reached the level at which it should be archived. (region: Crash 4, region code: <numeric value>)`

**Recommended action:**

- No action is required.

### 400.5

**Info**

`Managed logs: A log region has reached the level at which it should be archived. (region: SC debug, region code: <numeric value>)`

**Recommended action:**

- No action is required.

#### 400.6

**Info**

Managed logs: A log region has reached the level at which it should be archived. (region: EC debug, region code: <numeric value>)

**Recommended action:**

- No action is required.

#### 400.7

**Info**

Managed logs: A log region has reached the level at which it should be archived. (region: SC dynalog, region code: <numeric value>)

**Recommended action:**

- No action is required.

#### 400.8

**Info**

Managed logs: A log region has reached the level at which it should be archived. (region: MC debug, region code: <numeric value>)

**Recommended action:**

- No action is required.

#### 400.9

**Info**

Managed logs: A log region has reached the level at which it should be archived. (region: Unknown region=<numeric value>, region code: <numeric value>)

**Recommended action:**

- No action is required.

### 401 - Managed log threshold warning

#### 401.1

**Warning**

Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: Crash 1, region code: <text>)

**Recommended action:**

- Transfer the log file to the log-collection system.

#### 401.2

**Warning**

Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: Crash 2, region code: <text>)

**Recommended action:**

- Transfer the log file to the log-collection system.

### 401.3

**Warning**

`Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: Crash 3, region code: <text>)`

**Recommended action:**

- Transfer the log file to the log-collection system.

### 401.4

**Warning**

`Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: Crash 4, region code: <text>)`

**Recommended action:**

- Transfer the log file to the log-collection system.

### 401.5

**Warning**

`Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: SC debug, region code: <text>)`

**Recommended action:**

- Transfer the log file to the log-collection system.

### 401.6

**Warning**

`Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: EC debug, region code: <text>)`

**Recommended action:**

- Transfer the log file to the log-collection system.

### 401.7

**Warning**

`Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: SC dynalog, region code: <text>)`

**Recommended action:**

- Transfer the log file to the log-collection system.

### 401.8

**Warning**

`Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: MC debug, region code: <text>)`

**Recommended action:**

- Transfer the log file to the log-collection system.

**401.9**

**Warning**

`Managed logs warning: A log region has reached its warning level and should be archived before log data is lost. (region: Unknown region=<text>, region code: <text>)`

**Recommended action:**

- Transfer the log file to the log-collection system.

## 402 - Managed log threshold wrapped

**402.1**

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: Crash 1, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

**402.2**

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: Crash 2, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

**402.3**

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: Crash 3, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

**402.4**

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: Crash 4, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

### 402.5

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: SC debug, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

### 402.6

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: EC debug, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

### 402.7

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: SC dynalog, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

### 402.8

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: MC debug, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

### 402.9

**Error**

`Managed logs wrapped: A log region has wrapped, and log data has been lost. (region: Unknown region=<text>, region code: <text>)`

**Recommended action:**

- Investigate why the log-collection system is not transferring the logs before they are overwritten. For example, you might have enabled managed logs without configuring a destination to send logs to.

## 412 - Disk group degraded

### 412.1

**Warning**

`A disk group is degraded. (disk group: <name>, SN: <serial number>)`

One disk in the indicated RAID-6 disk group failed. The disk group is online but has a status of FTDN (fault tolerant with a down disk).

If a dedicated spare or global spare of the proper type and size is present, that spare is used to automatically reconstruct the disk group. Events 9 and 37 are logged to indicate this. If no usable spare disk is present, but an available disk of the proper type and size is present and the dynamic spares feature is enabled, that disk is used to automatically reconstruct the disk group and event 37 is logged.

**Recommended action:**

- If event 37 was not logged, a spare of the proper type and size was not available for reconstruction. Replace the failed disk with one of the same type and the same or greater capacity and, if necessary, designate it as a spare. Confirm this by checking that events 9 and 37 are logged.
- Otherwise, reconstruction automatically started and event 37 was logged. Replace the failed disk and configure the replacement as a dedicated (linear only) or global spare for future use.
- For continued optimum I/O performance, the replacement disk should have the same or better performance.
- Confirm that all failed disks have been replaced and that there are sufficient spare disks configured for future use.

### 412.2

**Warning**

`A disk group is degraded. (disk group: <name>, SN: <serial number>)`

One disk in the indicated RAID-6 disk group failed. The disk group is online but has a status of FTDN (fault tolerant with a down disk).

If a global spare of the proper type and size is present, that spare is used to automatically reconstruct the disk group. Events 9 and 37 are logged to indicate this. If no usable spare disk is present, but an available disk of the proper type and size is present and the dynamic spares feature is enabled, that disk is used to automatically reconstruct the disk group and event 37 is logged.

**Recommended action:**

- If event 37 was not logged, a spare of the proper type and size was not available for reconstruction. Replace the failed disk with one of the same type and the same or greater capacity and, if necessary, designate it as a spare. Confirm this by checking that events 9 and 37 are logged.
- Otherwise, reconstruction automatically started and event 37 was logged. Replace the failed disk and configure the replacement as a global spare for future use.
- For continued optimum I/O performance, the replacement disk should have the same or better performance.
- Confirm that all failed disks have been replaced and that there are sufficient spare disks configured for future use.

### 412.3

**Warning**

An ADAPT disk group is degraded. (disk group: <name>, SN: <serial number>)

One disk in the indicated ADAPT disk group failed. The disk group is online but has a status of FTDN (fault tolerant with a down disk).

If the ADAPT disk group has spare space available, reconstruction will start automatically.

**Recommended action:**

- If event 37 was not logged, spare space was not available for reconstruction. Replace the failed disk with one of the same type and the same or greater size. Reconstruction should start and event 37 should be logged automatically./n- For continued optimum I/O performance, the replacement disk should have the same or better performance.
- Confirm that all failed disks have been replaced for future fault tolerance.

## 442 - UART diagnostic failure

### 442.1

**Warning**

The power-on self test (POST) diagnostics detected a hardware error in a UART chip or chips. The SC UART failed. (expected data: <text>, actual data: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 442.2

**Warning**

The power-on self test (POST) diagnostics detected a hardware error in a UART chip or chips. The MC UART failed. (expected data: <text>, actual data: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 442.3

**Warning**

The power-on self test (POST) diagnostics detected a hardware error in a UART chip or chips. Both UARTs failed. (expected data: <text>, actual data: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

### 442.4

**Warning**

The power-on self test (POST) diagnostics detected a hardware error in a UART chip or chips. (expected data: <text>, actual data: <text>)

**Recommended action:**

- Replace the controller module that logged this event.

## 443 - Enclosure firmware mismatch detected

### 443.1

**Warning**

`A firmware version mismatch was detected in an enclosure. The expansion modules should be updated to the latest version of firmware. (enclosure: <enclosure number>, WWN: <World Wide Name>)`

A firmware version mismatch has been detected in an enclosure. The enclosure should be updated to the latest supported version of firmware as soon as possible.

**Recommended action:**

- In the enclosure, all FRUs (expansion modules, fans, power supplies, midplane, backplane, and 7-segment LED) must be at a combined proper firmware recipe. The two expansion modules must be at equal firmware versions. Any replaced FRUs might have older firmware that does not match an internally defined recipe. Update the indicated enclosure to the latest firmware version to ensure all FRUs are at the proper firmware level.

### 443.2

**Warning**

`The firmware for the indicated enclosure is not supported in this configuration (enclosure: <enclosure number>, WWN: <World Wide Name>)`

The firmware for the indicated enclosure does not support this enclosure for use as an expansion chassis. Its firmware supports this enclosure only as a direct attached JBOD.

**Recommended action:**

- Replace the indicated enclosure. It is not supported.

## 454 - Drive-spin-down parameters changed

### 454.1

**Info**

`A user changed the drive-spin-down delay for a disk group. (disk group: <name>, new delay: <time> minutes)`

None.

**Recommended action:**

- No action is required.

## 455 - Host port speed reduced

### 455.1

**Warning**

`Host port <channel index> speed was reduced to <link speed> from <link speed> because of a hardware limitation such as an SFP that doesn't support the configured speed. (configured speed: <link speed>)`

The controller detected that the configured host-port link speed exceeded the capability of an FC SFP. The speed has been automatically reduced to the maximum value supported by all hardware components in the data path.

**Recommended action:**

- Replace the SFP in the indicated port with an SFP that supports a higher speed.

## 456 - Midplane OUI data not accessible

**456.1**

**Warning**

`Midplane OUI information was not accessible; using default OUI for IQN generation. This may prevent hosts from accessing the system.`

The system's IQN was generated from the default OUI because the controllers could not read the OUI from the midplane FRU ID data during startup. If the IQN is wrong for the system's branding, iSCSI hosts might be unable to access the system.

**Recommended action:**

- If event 270 with status code 0 is logged at approximately the same time, restart the Storage Controllers.

## 457 - Virtual pool created

**457.1**

**Info**

`A virtual pool was created. (pool SN: <serial number>) (number of disk groups: <count>)`

None.

**Recommended action:**

- No action is required.

## 458 - Disk group added

**458.1**

**Info**

`Virtual disk group(s) were added. (pool name: <name>, SN: <serial number>, disk group SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 459 - Remove disk group started

**459.1**

**Info**

`Removal of a virtual disk group was started. (pool: <name>, SN: <serial number>) (removed disk group SN: <serial number>)`

When this operation is complete, event 470 is logged.

**Recommended action:**

- No action is required.

## 460 - Disk group missing

### 460.1

**Error**

A virtual disk group is missing from a pool. (pool SN: <serial number>) (disk group: <name>, SN: <serial number>)

This may be caused by missing disk drives or unconnected or powered-off enclosures.

**Recommended action:**

- Ensure that all disks are installed and all enclosures are connected and powered on.

When the problem is resolved, event 461 is logged.

## 461 - Disk group recovered

### 461.1

**Info**

A virtual disk group that was missing from a pool was recovered. (pool SN: <serial number>) (disk group: <name>, SN: <serial number>)

This event indicates that a problem reported by event 460 is resolved.

**Recommended action:**

- No action is required.

## 462 - Virtual pool threshold exceeded

### 462.1

**Info**

A virtual pool exceeded its low page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- No action is required for the low and mid thresholds. However, you may want to determine if your storage usage is growing at a rate that will result in the high threshold being crossed in the near future. If this will occur, either take steps to reduce storage usage or purchase additional capacity.
- If the high threshold is crossed, you should promptly take steps to reduce storage usage or add capacity.

### 462.2

**Error**

A virtual pool exceeded its low page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is

overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

### 462.3

**Warning**

A virtual pool exceeded its low page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

### 462.4

**Info**

A virtual pool exceeded its mid page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- No action is required for the low and mid thresholds. However, you may want to determine if your storage usage is growing at a rate that will result in the high threshold being crossed in the near future. If this will occur, either take steps to reduce storage usage or purchase additional capacity.
- If the high threshold is crossed, you should promptly take steps to reduce storage usage or add capacity.

### 462.5

**Error**

A virtual pool exceeded its mid page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

### 462.6

**Warning**

A virtual pool exceeded its mid page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

#### 462.7

**Info**

A virtual pool exceeded its high page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- No action is required for the low and mid thresholds. However, you may want to determine if your storage usage is growing at a rate that will result in the high threshold being crossed in the near future. If this will occur, either take steps to reduce storage usage or purchase additional capacity.
- If the high threshold is crossed, you should promptly take steps to reduce storage usage or add capacity.

#### 462.8

**Error**

A virtual pool exceeded its high page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

#### 462.9

**Warning**

A virtual pool exceeded its high page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

**462.10**

**Info**

A virtual pool reached its page limit of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- No action is required for the low and mid thresholds. However, you may want to determine if your storage usage is growing at a rate that will result in the high threshold being crossed in the near future. If this will occur, either take steps to reduce storage usage or purchase additional capacity.
- If the high threshold is crossed, you should promptly take steps to reduce storage usage or add capacity.

**462.11**

**Error**

A virtual pool reached its page limit of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

**462.12**

**Warning**

A virtual pool reached its page limit of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

**462.13**

**Info**

A virtual pool exceeded its unknown page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- No action is required for the low and mid thresholds. However, you may want to determine if your storage usage is growing at a rate that will result in the high threshold being crossed in the near future. If this will occur, either take steps to reduce storage usage or purchase additional capacity.
- If the high threshold is crossed, you should promptly take steps to reduce storage usage or add capacity.

#### 462.14

**Error**

A virtual pool exceeded its unknown page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

#### 462.15

**Warning**

A virtual pool exceeded its unknown page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

There are three thresholds, two of which are user-settable. The third and highest setting is set automatically by the controller and cannot be changed. This event is logged with Warning severity if the high threshold is exceeded and the virtual pool is overcommitted. Overcommitted means that the total committed size of all virtual volumes exceeds the physical space in the virtual pool. If the storage usage drops below a threshold, event 463 is logged.

**Recommended action:**

- You should immediately take steps to reduce storage usage or add capacity.

## 463 - Virtual pool threshold cleared

#### 463.1

**Info**

A virtual pool has dropped below its low page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

This event indicates that a condition reported by event 462 is no longer applicable.

**Recommended action:**

- No action is required.

#### 463.2

**Info**

A virtual pool has dropped below its mid page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

This event indicates that a condition reported by event 462 is no longer applicable.

**Recommended action:**

- No action is required.

#### 463.3

**Info**

A virtual pool has dropped below its high page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

This event indicates that a condition reported by event 462 is no longer applicable.

**Recommended action:**

- No action is required.

#### 463.4

**Info**

A virtual pool has dropped below its page limit of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

This event indicates that a condition reported by event 462 is no longer applicable.

**Recommended action:**

- No action is required.

#### 463.5

**Info**

A virtual pool has dropped below its unknown page threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (amount used: <count> of <count> pages, or <numeric value>%)

This event indicates that a condition reported by event 462 is no longer applicable.

**Recommended action:**

- No action is required.

### 464 - Unsupported SFP detected

#### 464.1

**Warning**

An unsupported SFP was detected. The SFP is not compatible with this system. You must use an SFP that is qualified for use in this system. (host port: <channel index>, cable technology code: <numeric value>, 10G compliance code: <numeric value>)

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

#### 464.2

**Warning**

The installed SFP does not match the configured protocol of this port. (host port: <channel index>, cable technology code: <numeric value>, 10G compliance code: <numeric value>)

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

**464.3**

**Warning**

An unsupported or faulty SFP was detected. (host port: <channel index>, cable technology code: <numeric value>, 10G compliance code: <numeric value>)

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

**464.4**

**Warning**

An unsupported iSCSI cable or SFP was detected. (host port: <channel index>, cable technology code: <numeric value>, 10G compliance code: <numeric value>)

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

**464.5**

**Warning**

An unsupported SFP was detected. The SFP is not compatible with this system. You must use an SFP that is qualified for use in this system. (host port: <channel index>)

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

**464.6**

**Warning**

The installed SFP does not match the configured protocol of this port. (host port: <channel index>)

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

**464.7**

**Warning**

An unsupported or faulty SFP was detected. (host port: <channel index>)

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

#### 464.8

**Warning**

`An unsupported Fibre Channel cable or SFP was detected. (host port: <channel index>, speed: <link speed>)`

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

#### 464.10

**Warning**

`An unsupported SAS cable was detected. (host port: <channel index>)`

A user inserted an unsupported cable or SFP into the indicated controller host port.

**Recommended action:**

- Replace the cable or SFP with a supported type.

### 465 - Unsupported SFP removed

#### 465.1

**Info**

`An unsupported cable or SFP was removed from an iSCSI port. (host port: <channel index>)`

A user removed an unsupported cable or SFP from the indicated controller host port.

**Recommended action:**

- No action is required.

#### 465.2

**Info**

`An unsupported cable or SFP was removed from a Fibre Channel port. (host port: <channel index>)`

A user removed an unsupported cable or SFP from the indicated controller host port.

**Recommended action:**

- No action is required.

#### 465.4

**Info**

`An unsupported cable was removed from a SAS port. (host port: <channel index>)`

A user removed an unsupported cable or SFP from the indicated controller host port.

**Recommended action:**

- No action is required.

## 466 - Virtual pool deleted

**466.1**

**Info**

A virtual pool was deleted. (pool: <name>, SN: <serial number>) (number of disk groups: <count>)

None.

**Recommended action:**

- No action is required.

**466.2**

**Error**

Failed to delete virtual pool. (pool: <name>, SN: <serial number>) (number of disk groups: <count>)

None.

**Recommended action:**

- No action is required.

## 467 - Disk group addition completed

**467.1**

**Info**

Addition of a virtual disk group completed successfully. (pool: <name>, SN: <serial number>) (disk group SN: <serial number>, disk group number <count> of <count>)

None.

**Recommended action:**

- No action is required.

## 468 - FPGA temperature threshold

**468.1**

**Info**

The FPGA temperature returned to the normal range so the PCIe bus speed was restored. The data transfer rate (MB/s) was restored to 100%. (threshold temperature: <temperature> C, current temperature: <temperature> C, number of occurrences: <count>)

This event indicates that a problem reported by event 469 is resolved.

**Recommended action:**

- No action is required.

## 469 - FPGA temperature threshold

**469.1**

**Warning**

The FPGA temperature exceeded the normal range so the PCIe bus speed was reduced. The data transfer rate (MB/s) was reduced. (threshold temperature: <temperature> C, current temperature: <temperature> C, number of occurrences: <count>)

The storage system is operational but I/O performance is reduced.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

When the problem is resolved, event 468 is logged.

## 470 - Disk group removal completed

### 470.1

**Info**

Removal of a virtual disk group completed successfully. (pool: <name>, SN: <serial number>) (removed disk group SN: <serial number>, number of disk groups remaining: <numeric value>)

None.

**Recommended action:**

- No action is required.

### 470.2

**Warning**

Removal of a virtual disk group completed successfully. (pool: <name>, SN: <serial number>) (removed disk group SN: <serial number>, number of disk groups remaining: <numeric value>)

Removal of disk groups can fail for several reasons, and the specific reason for this failure is included with the event. Removal most often fails because there is no longer room in the remaining pool space to move data pages off of the disks in the disk group.

**Recommended action:**

- Resolve the issue specified by the error messaging included with this event and re-issue the request to remove the disk group.

### 470.3

**Info**

Removal of a virtual disk group completed with a failure. <detailed error information> (pool: <name>, SN: <serial number>) (disk group SN: <serial number>, number of disk groups remaining: <numeric value>)

None.

**Recommended action:**

- No action is required.

**470.4**

**Warning**

`Removal of a virtual disk group completed with a failure. <detailed error information> (pool: <name>, SN: <serial number>) (disk group SN: <serial number>, number of disk groups remaining: <numeric value>)`

Removal of disk groups can fail for several reasons, and the specific reason for this failure is included with the event. Removal most often fails because there is no longer room in the remaining pool space to move data pages off of the disks in the disk group.

**Recommended action:**

- Resolve the issue specified by the error messaging included with this event and re-issue the request to remove the disk group.

## 473 - Volume threshold exceeded

**473.1**

**Info**

`A volume is using more than its threshold percentage of its virtual pool. (pool: <pool name>, SN: <serial number>) (volume: <volume name>, SN: <serial number>) (used percentage: <numeric value>%, threshold percentage: <numeric value>%) (pages used: <count>, total pages: <count>)`

This is an indication that the storage usage crossed the user-specified threshold for this volume. If the storage usage drops below the threshold, event 474 is logged.

**Recommended action:**

- No action is required. How this information is utilized is left to the discretion of the user.

## 474 - Volume threshold cleared

**474.1**

**Info**

`A volume is no longer using more than its threshold percentage of its virtual pool. (pool: <pool name>, SN: <serial number>) (volume: <volume name>, SN: <serial number>) (used percentage: <numeric value>%, allowed percentage: <numeric value>%) (pages used: <count>, total pages: <count>)`

This event indicates that the condition reported by event 473 is no longer applicable.

**Recommended action:**

- No action is required.

## 476 - CPU temperature exceeded safe range

**476.1**

**Warning**

The CPU temperature exceeded the safe range so the CPU entered its self-protection state. IOPS were reduced. (percent of full IOPS: <numeric value>%, current temperature: <temperature> C, number of occurrences: <count>)

The storage system is operational but I/O performance is reduced.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the controller module that logged the error.

When the problem is resolved, event 478 is logged.

## 477 - CPU temperature exceeded normal

**477.1**

**Info**

The CPU temperature exceeded the normal range so the CPU speed was reduced. IOPS were reduced. (percent of full IOPS: <numeric value>%, current temperature: <temperature> C, number of occurrences: <count>)

The storage system is operational but I/O performance is reduced.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation documentation.
- Check for any obstructions to the airflow.
- If the enclosure has drawers, check that they are closed.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, no further action is required.

When the problem is resolved, event 478 is logged.

## 478 - CPU temperature returned to normal

**478.1**

**Info**

The CPU temperature returned to the normal range so the CPU speed was restored. IOPS were restored to 100%. (current temperature: <temperature> C, number of occurrences: <count>)

This event indicates that a problem reported by event 476 or 477 is resolved.

**Recommended action:**

- No action is required.

## 479 - Flash flush/restore failure

**479.1**

**Error**

`The controller that logged this event was unable to restore write-back cache data from its memory card. The partner controller will perform the operation.`

This most likely indicates a memory card failure, but it could be caused by some other problem with the controller module. The Storage Controller that logged this event will be killed by its partner controller, which will use its own copy of the data to perform the flush or restore operation.

**Recommended action:**

- If this is the first time this event has been logged, restart the killed Storage Controller.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

**479.2**

**Error**

`The controller that logged this event was unable to restore write-back cache data from its memory card.`

This most likely indicates a memory card failure, but it could be caused by some other problem with the controller module. The Storage Controller that logged this event will be killed by its partner controller, which will use its own copy of the data to perform the flush or restore operation.

**Recommended action:**

- If this is the first time this event has been logged, restart the killed Storage Controller.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

**479.3**

**Error**

`The controller that logged this event was unable to flush write-back cache data to its memory card. The partner controller will perform the operation.`

This most likely indicates a memory card failure, but it could be caused by some other problem with the controller module. The Storage Controller that logged this event will be killed by its partner controller, which will use its own copy of the data to perform the flush or restore operation.

**Recommended action:**

- If this is the first time this event has been logged, restart the killed Storage Controller.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

**479.4**

**Error**

`The controller that logged this event was unable to flush write-back cache data to its memory card.`

This most likely indicates a memory card failure, but it could be caused by some other problem with the controller module. The Storage Controller that logged this event will be killed by its partner controller, which will use its own copy of the data to perform the flush or restore operation.

**Recommended action:**

- If this is the first time this event has been logged, restart the killed Storage Controller.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

## 480 - iSCSI IP address conflict detected

**480.1**

**Error**

`An IP address conflict was detected for an iSCSI port of the storage system. (address: <IP address>, port: <port number>)`

An IP address conflict was detected for the indicated iSCSI port of the storage system. The indicated IP address is already in use.

**Recommended action:**

- Contact your data-network administrator to help resolve the IP address conflict.

## 481 - Flash hardware detected error

**481.1**

**Error**

`The periodic monitor of the memory card detected an error. The controller was put in write-through mode, which reduces I/O performance. (p1: <numeric value>)`

None.

**Recommended action:**

- Restart the Storage Controller that logged this event.
- If this event is logged again, shut down the Storage Controller and replace the controller module.

## 482 - PCIe bus degraded

**482.1**

**Warning**

`One of the internal PCIe buses is running with fewer lanes than it should. This reduces I/O performance. (bus: <numeric value>, expected lanes: <count>, actual lanes: <count>)`

This event is the result of a hardware problem that has caused the controller to use fewer lanes. The system works with fewer lanes, but I/O performance is degraded.

**Recommended action:**

- Replace the controller module that logged this event.

## 483 - Invalid expansion module connection

**483.1**

**Error**

An invalid expansion-module connection was detected. An egress port is connected to an egress port, or an ingress port is connected to an incorrect egress port. (channel: <channel index>)

None.

**Recommended action:**

- Visually trace the cabling between enclosures and correct the cabling.

## 484 - No global spares

### 484.1

**Warning**

All global spares were deleted. Only disk groups that have dedicated spares will start reconstruction automatically.

This situation puts data at increased risk because it will require user action to configure a disk as a dedicated or global spare before reconstruction can begin on the indicated disk group if a disk in that disk group fails in the future.

If the last global spare has been deleted or used for reconstruction, ALL disk groups that do not have at least one dedicated or global spare are at increased risk. Note that even though there may be global spares still available, they cannot be used for reconstruction of a disk group if that disk group uses larger-capacity disks or a different type of disk. Therefore, this event may be logged even when there are unused global spares. If the dynamic spares feature is enabled, this event will be logged even if there is an available disk that may be used for reconstruction.

**Recommended action:**

- Configure disks as dedicated spares or global spares.
  - For a dedicated spare, the disk must be of the same type as the other disks in the linear disk group and at least as large as the smallest-capacity disk in the linear disk group, and it should have the same or better performance.
  - For a global spare, it is best to choose a disk that is as big as or bigger than the largest disk of its type in the system and of equal or greater performance. If the system contains a mix of disk types (SSD, enterprise SAS, or midline SAS), there should be at least one global spare of each type (unless dedicated spares are used to protect every disk group of a given type, which will only apply to a linear storage configuration).

### 484.2

**Warning**

There is no dedicated or global spare that can be used for reconstructing this disk group. If a disk in the disk group fails, reconstruction cannot start automatically. (disk group: <name>, SN: <serial number>)

This situation puts data at increased risk because it will require user action to configure a disk as a dedicated or global spare before reconstruction can begin on the indicated disk group if a disk in that disk group fails in the future.

If the last global spare has been deleted or used for reconstruction, ALL disk groups that do not have at least one dedicated or global spare are at increased risk. Note that even though there may be global spares still available, they cannot be used for reconstruction of a disk group if that disk group uses larger-capacity disks or a different type of disk. Therefore, this event may be logged even when there are unused global spares. If the dynamic spares feature is enabled, this event will be logged even if there is an available disk that may be used for reconstruction.

**Recommended action:**

- Configure disks as dedicated spares or global spares.
  - For a dedicated spare, the disk must be of the same type as the other disks in the linear disk group and at least as large as the smallest-capacity disk in the linear disk group, and it should have the same or better performance.
  - For a global spare, it is best to choose a disk that is as big as or bigger than the largest disk of its type in the system and of equal or greater performance. If the system contains a mix of disk types (SSD, enterprise SAS, or midline SAS), there should be at least one global spare of each type (unless dedicated spares are used to protect every disk group of a given type, which will only apply to a linear storage configuration).

### 484.3

**Warning**

`All global spares were deleted. Only disk groups that have dedicated spares will start reconstruction automatically.`

This situation puts data at increased risk because it will require user action to configure a disk as global spare before reconstruction can begin on the indicated disk group if a disk in that disk group fails in the future.

If the last global spare has been deleted or used for reconstruction, ALL disk groups that do not have at least one global spare are at increased risk. Note that even though there may be global spares still available, they cannot be used for reconstruction of a disk group if that disk group uses larger-capacity disks or a different type of disk. Therefore, this event may be logged even when there are unused global spares. If the dynamic spares feature is enabled, this event will be logged even if there is an available disk that may be used for reconstruction.

**Recommended action:**

- Configure disks as global spares.
- For a global spare, it is best to choose a disk that is as big as or bigger than the largest disk of its type in the system and of equal or greater performance. If the system contains a mix of disk types (SSD, enterprise SAS, or midline SAS), there should be at least one global spare of each type.

### 484.4

**Warning**

`There is no global spare that can be used for reconstructing this disk group. If a disk in the disk group fails, reconstruction cannot start automatically. (disk group: <name>, SN: <serial number>)`

This situation puts data at increased risk because it will require user action to configure a disk as global spare before reconstruction can begin on the indicated disk group if a disk in that disk group fails in the future.

If the last global spare has been deleted or used for reconstruction, ALL disk groups that do not have at least one global spare are at increased risk. Note that even though there may be global spares still available, they cannot be used for reconstruction of a disk group if that disk group uses larger-capacity disks or a different type of disk. Therefore, this event may be logged even when there are unused global spares. If the dynamic spares feature is enabled, this event will be logged even if there is an available disk that may be used for reconstruction.

**Recommended action:**

- Configure disks as global spares.
- For a global spare, it is best to choose a disk that is as big as or bigger than the largest disk of its type in the system and of equal or greater performance. If the system contains a mix of disk types (SSD, enterprise SAS, or midline SAS), there should be at least one global spare of each type.

## 485 - Disk group signature mismatch

### 485.1

**Warning**

A disk group was quarantined to prevent writing invalid data that may exist in the controller that logged this event. (disk group: <name>, SN: <serial number>)

This event is logged to report that the indicated disk group has been put in the quarantined offline state (status of QTOF) to prevent loss of data. The controller that logged this event has detected (via information saved in the disk group metadata) that it may contain outdated data that should not be written to the disk group. Data may be lost if you do not follow the recommended actions carefully. This situation is typically caused by removing a controller module without shutting it down first, then inserting a different controller module in its place. To avoid having this problem occur in the future, always shut down the Storage Controller in a controller module before removing it. This situation may also be caused by failure of the memory card, as indicated by event 204.

**Recommended action:**

- If event 204 is logged, follow the recommended actions for event 204.
- If event 204 is NOT logged, perform the following recommended actions:
  - If event 486 is not logged at approximately the same time as event 485, reinsert the removed controller module, shut it down, then remove it again.
  - If events 485 and 486 are both logged at approximately the same time, wait at least 5 minutes for the automatic recovery process to complete. Then sign in and confirm that both controller modules are operational. (You can determine if the controllers are operational with the CLI 'show controllers' command or with the WBI.) In most cases, the system will come back up and no further action is required. If both controller modules do not become operational in 5 minutes, data may have been lost. If both controllers are not operational, follow this recovery process:
    - Remove the controller module that first logged event 486.
    - Turn off the power for the controller enclosure, wait a few seconds, then turn it back on.
    - Wait for the controller module to restart, then sign in again.
    - Check the status of the disk groups. If any of the disk groups have a status of quarantined offline (QTOF), dequarantine those disk groups.
    - Reinsert the previously removed controller module. It should now restart successfully.

## 486 - Failover recovery initiated

### 486.1

**Warning**

A recovery process was initiated to prevent writing invalid data that may exist in the controller that logged this event.

The controller that logged this event has detected (via information saved in the disk group metadata) that it may contain outdated data that should not be written to the disk groups. The controller will log this event, restart the partner controller, wait 10 seconds, then kill itself. The partner controller will then unkill this controller and mirror the correct cache data to it. This procedure will, in most cases, allow all data to be correctly written without any loss of data and without writing any outdated data.

**Recommended action:**

- Wait at least 5 minutes for the automatic recovery process to complete. Then sign in and confirm that both controller modules are operational. (You can determine if the controllers are operational with the CLI 'show redundancy-mode' command.) In most cases, the system will come back up and no action is required.
- If both controller modules do not become operational in 5 minutes, see the recommended actions for event 485, which will be logged at approximately the same time.

## 487 - Historical performance statistic reset

**487.1**

**Info**

`Historical performance statistics were reset.`

None.

**Recommended action:**

- No action is required.

## 488 - Volume group create started

**488.1**

**Info**

`Creation of a volume group started. (group SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 489 - Volume group create completed

**489.1**

**Info**

`Creation of a volume group completed. (group SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 490 - Volume group create failed

**490.1**

**Info**

`Creation of a volume group failed. (group SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 491 - Local volume group create started

### 491.1

**Info**

Creation of a volume group started. (group SN: <serial number>, group Name: <name>, number of volumes: <count>)

**Recommended action:**

- No action is required.

### 491.2

**Info**

Creation of a volume group of internal virtual replication volumes started.

**Recommended action:**

- No action is required.

## 492 - Local volume group removed

### 492.1

**Info**

The volumes in a volume group were ungrouped. (group SN: <serial number>, group Name: <name>, number of volumes: <volume name>)

None.

**Recommended action:**

- No action is required.

## 493 - Local volume group modified

### 493.1

**Info**

A volume group was modified. (group SN: <serial number>, group Name: <name>, number of volumes: <count>)

None.

**Recommended action:**

- No action is required.

## 495 - Disk alternate path selected

### 495.1

**Warning**

The algorithm for best-path routing selected the alternate path to a disk because the I/O error count on the primary path reached its threshold. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

The controller that logs this event indicates which channel (path) has the problem. For example, if the B controller logs the problem, the problem is in the chain of cables and expansion modules connected to the B controller module.

**Recommended action:**

- If this event is consistently logged for only one disk in an enclosure, perform the following actions:
  - Replace the disk.
  - If that does not resolve the problem, the fault is probably in the enclosure midplane. Replace the chassis FRU for the indicated enclosure.
- If this event is logged for more than one disk in an enclosure or disks in multiple enclosures, perform the following actions:
  - Check for disconnected SAS cables in the bad path. If no cables are disconnected, replace the cable connecting to the ingress port in the most-upstream enclosure with reported failures. If that does not resolve the problem, replace other cables in the bad path, one at a time until the problem is resolved.
  - If that does not resolve the problem, replace the expansion modules that are in the bad path. Begin with the most-upstream module that is in an enclosure with reported failures. If that does not resolve the problem, replace other expansion modules (and the controller module) upstream of the affected enclosure(s), one at a time until the problem is resolved.
  - If that still does not resolve the problem, the fault is probably in one of the enclosure midplanes. Replace the chassis FRU of the most-upstream enclosure with reported failures. If that does not resolve the problem and there is more than one enclosure with reported failures, replace the chassis FRU of the other enclosures with reported failures until the problem is resolved.

## 496 - Unsupported disk type

### 496.1

**Warning**

`An unsupported disk vendor was found. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

None.

**Recommended action:**

- Replace the disk with a supported type.

### 496.2

**Warning**

`An unsupported disk type was found. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

The disk vendor is not supported by this system.

**Recommended action:**

- Replace the disk with a disk that is supported by your system vendor.

## 501 - Enclosure not compatible

### 501.1

**Error**

Detected an unsupported enclosure. (enclosure: <enclosure number>, WWN: <World Wide Name>, midplane type: <name>, EMP revision: <numeric value>)

The Expander Controller firmware detected an incompatibility with the midplane type. As a preventive measure, disk access was disabled in the enclosure.

**Recommended action:**

- Replace the unsupported enclosure with a supported one.

## 502 - SSD threshold exceeded

**502.1**

**Warning**

An SSD is nearing its end of life. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (percent of life left: <numeric value>%)

This event will be logged again as the device approaches and reaches its end of life.

**Recommended action:**

- Be sure you have a spare SSD of the same type and capacity available.
- If a spare is available, it is recommended to replace the SSD now.

**502.2**

**Info**

An SSD is nearing its end of life. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (percent of life left: <numeric value>%)

This event will be logged again with a severity of Warning as the SSD further approaches its end of life.

**Recommended action:**

- Obtain a replacement SSD of the same type and capacity if you do not already have one available.

## 503 - Bad enclosure PHY

**503.1**

**Info**

The Intelligent BackEnd Error Monitor (IBEEM) has discovered that continuous errors are being reported for the indicated PHY. (channel: <channel index>, enclosure: <enclosure number>, PHY: <slot number>, type: <name>)

IBEEM logged this event after monitoring the PHY for 30 minutes.

**Recommended action:**

- No action is required.

## 504 - Debug access changed

**504.1**

**Info**

Service debug access to the system has been enabled by a user.

Allowing service debug access may have security implications. After the diagnosis is complete you may want to disallow such access.

**Recommended action:**

- No action is required.

**504.2**

**Info**

Service debug access to the system has been disabled by a user.

Allowing service debug access may have security implications. After the diagnosis is complete you may want to disallow such access.

**Recommended action:**

- No action is required.

## 505 - Virtual pool too small

**505.1**

**Warning**

A virtual pool was created that is smaller than 500 GB, which can lead to unpredictable behavior. (pool: <pool name>, SN: <serial number>)

The storage system may not perform correctly.

**Recommended action:**

- Add disk groups to the virtual pool to increase the size of the pool.

## 506 - Disk group addition started

**506.1**

**Info**

Addition of a disk group was started. (pool: <pool name>, SN: <serial number>) (disk group SN: <serial number>, number of disk groups before addition: <count>, expected number of disk groups after addition: <count>)

When this operation is complete, event 467 is logged.

**Recommended action:**

- No action is required.

## 507 - Link speed mismatch

**507.1**

**Info**

The link speed of a disk does not match the link speed that the enclosure is capable of. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (enclosure speed: <link speed>, disk speed: <link speed>)

This event is logged when the auto-negotiated link speed is less than the maximum speed that the enclosure supports. The disk is functional, but I/O performance is reduced. This event may be logged for one disk channel or for both disk channels.

**Recommended action:**

- If the disk is a member of a non-fault-tolerant disk group (RAID 0 or non-RAID), move the data to a different disk group.
- Replace the disk with one of the same type (SSD, enterprise SAS, or midline SAS) and the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

## 508 - Virtual pool offline

### 508.1

**Error**

`A virtual pool went offline. All of its disk groups have recovered. (pool: <pool name>, SN: <serial number>)`

This condition can be caused by an improper power-cycle sequence

**Recommended action:**

- Restart the Storage Controller to bring the virtual pool online.
- If the virtual pool remains offline, contact technical support.

### 508.2

**Error**

`A virtual pool went offline. All of its volumes also went offline. (pool: <pool name>, SN: <serial number>)`

All data in the virtual pool has been lost. This condition can be caused by corrupt or inaccessible virtual pool metadata.

**Recommended action:**

- Check for other events that indicate faults in the system and follow the recommended actions for those events.
- Restart the Storage Controller that logged this event.
- If the virtual pool remains offline, contact technical support.

## 509 - Metadata volume offline

### 509.1

**Error**

`The metadata volume for a virtual pool went offline. Volume mappings and persistent reservations are inaccessible or lost. (pool: <pool name>, SN: <serial number>)`

None.

**Recommended action:**

- Check for other events that indicate faults in the system and follow the recommended actions for those events.
- Create new mappings for the volumes. Persistent reservations will be restored by host systems automatically.

## 510 - FDE Lock key was set

### 510.1

**Info**

A user requested that the Full Disk Encryption lock key be set for the system. (lock key ID: <identifier>)

None.

**Recommended action:**

- Be sure to record the lock key passphrase and the new lock ID.

**510.2**

**Info**

A user set the Full Disk Encryption lock key for the system. (lock key ID: <identifier>, storage type: <description>, FDE key type: <description>, last drive secure time: <text> )

None.

**Recommended action:**

- Be sure to record the lock key passphrase or security key and the new lock ID.

## 511 - FDE import key was set

**511.1**

**Info**

A user requested that the Full Disk Encryption import lock key be set for the system. (import key ID: <identifier>)

This is normally used to import into the system an FDE disk that was locked by another system.

**Recommended action:**

- Ensure that the imported disk(s) are integrated into the system.

## 512 - FDE system secured

**512.1**

**Info**

A user requested that the storage system be secured using Full Disk Encryption.

Full Disk Encryption is now enabled. Disks removed from this system will not be readable unless they are imported into another system.

**Recommended action:**

- No action is required.

**512.2**

**Info**

A user has secured the storage system using Full Disk Encryption. (lock key ID: <identifier>, storage type: <description>, FDE key type: <description>, last drive secure time: <text> )

Enhanced FDE is now enabled. Disks removed from this system will not be readable unless they are imported into another system.

**Recommended action:**

- No action is required.

## 513 - FDE system repurposed

**513.1**

**Info**

A user requested that the storage system be repurposed with respect to Full Disk Encryption.

All disks have been repurposed and set to their initial factory states. FDE is no longer enabled on the system.

**Recommended action:**

- No action is required.

## 514 - FDE system keys cleared

**514.1**

**Info**

A user requested that the storage system's Full Disk Encryption lock and import keys be cleared.

I/O operations may continue as long as the system is not restarted.

**Recommended action:**

- If the system is restarted and access to data is intended, the lock key must be reinstated.

## 515 - FDE disk repurposed

**515.1**

**Info**

A user requested that a Full Disk Encryption disk be repurposed. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

The disk was reset to its original factory state.

**Recommended action:**

- No action is required.

## 516 - FDE disk unavailable

**516.1**

**Error**

A disk was placed into the Full Disk Encryption unavailable state. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (reason: <detailed error information>, recommended action: <text>, FDE-capable: <text>, FDE disk state: <description>)

The related event message 518, which indicates that a disk operation failed, may provide additional information.

**Recommended action:**

- See the recommended action specified in the event message.

## 517 - FDE disk not unavailable

**517.1**

**Info**

A disk that was formerly in the Full Disk Encryption unavailable state is no longer unavailable. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (FDE-capable: <text>, FDE disk state <description>)

The disk has returned to normal operations.

**Recommended action:**

- No action is required.

## 518 - FDE disk operation failed

**518.1**

**Error**

An operation failed for a Full Disk Encryption disk. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (FDE request: <description>, FDE disk operation: <text>, FDE disk failure: <detailed error information>)

This event provides detail about the operation that failed.

**Recommended action:**

- The disk may need to be removed, imported, repurposed, or replaced.

## 519 - FDE system degraded

**519.1**

**Error**

The system changed to the Full Disk Encryption degraded state. (FDE state: <description>, number of unavailable disks: <count>)

Typically a disk-related condition has occurred.

**Recommended action:**

- One or more disks may need to be removed, imported, repurposed, or replaced.

## 520 - FDE system not degraded

**520.1**

**Info**

The system that was in the Full Disk Encryption degraded state is no longer degraded. (FDE state: <description>)

The system has returned to normal operations.

**Recommended action:**

- No action is required.

## 521 - FDE system memory error

**521.1**

**Error**

An error occurred accessing the midplane SEEPROM to store or fetch Full Disk Encryption keys. (status: <detailed error information>)

The midplane's memory is used to store the FDE lock key.

**Recommended action:**

- The midplane may need to be replaced if the error persists.

## 522 - Disk group scrub error

**522.1**

**Warning**

A scrub-disk-group job encountered an error. (disk group: <name>, SN: <serial number>) (disk group LBA: <logical block address>)

The event message always includes the disk group name and the logical block address of the error within that disk group. If the block with an error falls within the LBA range used by a volume, the event message also includes the volume name and the LBA within that volume.

**Recommended action:**

Examine event 207 that was logged previously to this event. Follow the recommended actions for that event.

**522.2**

**Warning**

A scrub-disk-group job encountered an error. (disk group: <name>, SN: <serial number>, volume: <serial number>) (disk group LBA: <logical block address>, volume LBA: <logical block address>)

The event message always includes the disk group name and the logical block address of the error within that disk group. If the block with an error falls within the LBA range used by a volume, the event message also includes the volume name and the LBA within that volume.

**Recommended action:**

Examine event 207 that was logged previously to this event. Follow the recommended actions for that event.

## 523 - Disk group scrub info

**523.1**

**Info**

Details associated with a scrub-disk-group job. (related event ID: <name>...<identifier>, related event code: <identifier>, disk group start LBA: <logical block address>, disk group end LBA: <logical block address>, type: <text>)

**Recommended action:**

Follow the recommended actions for the associated event.

**523.2**

**Info**

Details associated with a scrub-disk-group job. (related event ID: <name>...<identifier>, related event code: <identifier>, disk group start LBA: <logical block address>, disk group end LBA: <logical block address>, volume: <volume name>, volume start LBA: <logical block address>, volume end LBA: <logical block address>, type: <text>)

**Recommended action:**

Follow the recommended actions for the associated event.

## 524 - Disk temperature critical threshold

**524.1**

**Error**

A disk temperature sensor reached a critical threshold. (disk: channel: <channel index>, ID: <identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>) (measured temperature: <temperature> C) (threshold temperature: <temperature> C)

A sensor monitored a temperature or voltage in the critical range. When the problem is resolved, event 47 is logged for the component that logged event 524.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

**524.2**

**Error**

An unknown sensor reached a critical threshold. (p1: <numeric value>, p2: <numeric value>)

A sensor monitored a temperature or voltage in the critical range. When the problem is resolved, event 47 is logged for the component that logged event 524.

If the event refers to a disk sensor, disk behavior may be unpredictable in this temperature range.

Check the event log to determine if more than one disk has reported this event.

- If multiple disks report this condition there could be a problem in the environment.
- If one disk reports this condition, there could be a problem in the environment or the disk has failed.

**Recommended action:**

- Check that the storage system's fans are running.
- Check that the ambient temperature is not too warm. The controller enclosure operating range is 5°C to 40°C (41°F to 104°F). The expansion enclosure operating range is 5°C to 40°C (41°F to 104°F).
- Check for any obstructions to the airflow.
- Check that there is a module or blank plate in every module slot in the enclosure.
- If none of the above explanations apply, replace the disk or controller module that logged the error.

## 525 - Drawer shutdown

**525.1**

**Info**

`A drawer has been stopped. (enclosure: <enclosure number>, drawer: <${drawer} number>, enclosure WWN: <World Wide Name>)`

The drawer has powered down and may be safely removed. A rescan must complete before the updated drawer information will be available.

**Recommended action:**

- Restart the drawer using the 'start drawer' command, or remove the drawer for replacement.

## 526 - Drawer restarted

**526.1**

**Info**

`A drawer has been restarted. (enclosure: <enclosure number>, drawer: <${drawer} number>, enclosure WWN: <World Wide Name>)`

The drawer has powered up. Disks in the drawer may take a few minutes to spin up. A rescan must complete before the updated drawer information will be available.

**Recommended action:**

- No action is required.

## 527 - EC firmware incompatible

**527.1**

**Error**

`Expander Controller (EC) firmware is incompatible with the enclosure. (enclosure: <enclosure number>, enclosure WWN: <World Wide Name>)`

As a preventative measure, the Expander Controller (EC) disabled all PHYs and reported the short enclosure status page in the supported diagnostic list.

**Recommended action:**

- Upgrade the controller module to the latest supported bundle version.

## 528 - EC firmware incompatible

**528.1**

**Error**

Expander Controller (EC) firmware detected that the partner Expander Controller (EC) firmware is incompatible with the enclosure. (enclosure: <enclosure number>, enclosure WWN: <World Wide Name>)

As a preventative measure, the Expander Controller (EC) disabled all PHYs and reported the short enclosure status page in the supported diagnostic list.

**Recommended action:**

- Upgrade the partner controller module to the latest supported bundle revision.

## 529 - EC incompatible

**529.1**

**Error**

The local Expander Controller (EC) is incompatible with the enclosure. (enclosure: <enclosure number>, enclosure WWN: <World Wide Name>)

As a preventative measure, the Expander Controller (EC) disabled all PHYs and reported the short enclosure status page in the supported diagnostic list.

**Recommended action:**

- Replace the controller module with one that is compatible with the enclosure.

## 530 - Partner EC in reset loop

**530.1**

**Error**

The local Expander Controller (EC) detected a level of incompatibility with the partner Expander Controller (EC). This incompatibility could be due to unsupported hardware or firmware. (enclosure: <enclosure number>, enclosure WWN: <World Wide Name>)

As a preventative measure, the local Expander Controller (EC) is holding the partner Expander Controller (EC) in a reset loop.

**Recommended action:**

- Remove the partner controller module from the enclosure. Boot the partner controller module in single-controller mode in a separate enclosure (without the controller module that reported this event). Load the latest compatible bundle version. If the version fails to load, replace the partner controller module.

## 531 - Controller stall detected

**531.1**

**Error**

The indicated controller module detected <text>. To recover from this condition, this controller module will be killed by the partner controller module.

None.

**Recommended action:**

Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

**531.2**

**Warning**

The indicated controller module detected <text>. To recover from this condition, this controller module will be killed by the partner controller module.

None.

**Recommended action:**

- No action is required.

**531.3**

**Info**

The indicated controller module detected <text>. To recover from this condition, this controller module will be killed by the partner controller module.

None.

**Recommended action:**

- No action is required.

**531.4**

**Error**

The indicated controller module has reached the limit for consecutive automatic attempts to recover from a stall. The controller module will not attempt further automatic recovery and must be manually recovered. The controller module now has a <text> stall.

None.

**Recommended action:**

Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

**531.5**

**Warning**

The indicated controller module has reached the limit for consecutive automatic attempts to recover from a stall. The controller module will not attempt further automatic recovery and must be manually recovered. The controller module now has a <text> stall.

None.

**Recommended action:**

- No action is required.

**531.6**

**Info**

The indicated controller module has reached the limit for consecutive automatic attempts to recover from a stall. The controller module will not attempt further automatic recovery and must be manually recovered. The controller module now has a <text> stall.

None.

**Recommended action:**

- No action is required.

**531.7**

**Error**

The indicated controller module has detected a <text> stall and will perform the following series of corrective actions: kill the partner controller module; output information for subsequent analysis by technical support; and restart both controller modules.

None.

**Recommended action:**

Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

**531.8**

**Warning**

The indicated controller module has detected a <text> stall and will perform the following series of corrective actions: kill the partner controller module; output information for subsequent analysis by technical support; and restart both controller modules.

None.

**Recommended action:**

- No action is required.

**531.9**

**Info**

The indicated controller module has detected a <text> stall and will perform the following series of corrective actions: kill the partner controller module; output information for subsequent analysis by technical support; and restart both controller modules.

None.

**Recommended action:**

- No action is required.

**531.10**

**Error**

The controller module detected a stall. (p1: <numeric value>, p2: <numeric value>)

None.

**Recommended action:**

Download the debug logs from your storage system and contact technical support. A service technician can use the debug logs to determine the problem.

**531.11**

**Warning**

The controller module detected a stall. (p1: <numeric value>, p2: <numeric value>)

None.

**Recommended action:**

- No action is required.

**531.12**

**Info**

The controller module detected a stall. (p1: <numeric value>, p2: <numeric value>)

None.

**Recommended action:**

- No action is required.

## 533 - Management Controller POST

**533.1**

**Info**

Component <text> is present and operational.

None.

**Recommended action:**

- No action is required.

**533.2**

**Error**

Component <text> is present and operational.

None.

**Recommended action:**

If the event indicates the test failed, replace the controller module that logged this event.

**533.3**

**Info**

Component <text> is unavailable. (failure reason: <numeric value>, <numeric value>)

None.

**Recommended action:**

- No action is required.

**533.4**

**Error**

Component <text> is unavailable. (failure reason: <numeric value>, <numeric value>)

None.

**Recommended action:**

If the event indicates the test failed, replace the controller module that logged this event.

## 539 - Disk group recovered

**539.1**

**Info**

For the indicated disk group, which was corrupted, the 'recreate' step of the disk group recovery was not successful. (disk group: <name>, SN: <serial number>) (A controller had an internal error, error code: <error code>))

None.

**Recommended action:**

- Verify that expected volumes have been recovered.

#### 539.3

**Warning**

For the indicated disk group, which was corrupted, the 'recreate' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>) (RAID<numeric value>, number of disks: <numeric value>, <numeric value> disks present)

None.

**Recommended action:**

- Verify that expected volumes have been recovered.

#### 539.5

**Warning**

For the indicated disk group, which was corrupted, the 'recreate' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>) (RAID6, number of disks: <numeric value>, chunk size: <numeric value>KB, <numeric value> disks present)

None.

**Recommended action:**

- Verify that expected volumes have been recovered.

#### 539.7

**Warning**

For the indicated disk group, which was corrupted, the 'recreate' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>) (non-RAID, number of disks: <numeric value>, <numeric value> disks present)

None.

**Recommended action:**

- Verify that expected volumes have been recovered.

#### 539.9

**Warning**

For the indicated disk group, which was corrupted, the 'recreate' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>) (RAID10, number of disks: <numeric value>, chunk size: <numeric value>KB, <numeric value> disks present)

None.

**Recommended action:**

- Verify that expected volumes have been recovered.

#### 539.13

**Warning**

For the indicated disk group, which was corrupted, the 'recreate' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>) (RAID50, number of disks: <number

of low levels>x<number of drives per low level>, chunk size: <numeric value>KB, <numeric value> disks present)

None.

**Recommended action:**

- Verify that expected volumes have been recovered.

**539.15**

**Warning**

For the indicated disk group, which was corrupted, the 'recreate' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>) (unknown RAID type, number of disks: <numeric value>, chunk size: <numeric value>KB, <numeric value> disks present)

None.

**Recommended action:**

- Verify that expected volumes have been recovered.

## 540 - Volume recovered

**540.1**

**Info**

The indicated volume, which was corrupted, has been recovered. (disk group: <name>, volume: <volume name>, SN: <serial number>)

None.

**Recommended action:**

- After verifying volume recovery, complete disk group recovery by running the 'recover disk-group complete' command.

## 541 - Disk group recovered

**541.1**

**Info**

For the indicated disk group, which was corrupted, the 'complete' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>).

**Recommended action:**

- No action is required.

**541.2**

**Info**

For the indicated disk group, which was corrupted, the 'complete' step of the disk group recovery succeeded. (disk group: <name>, SN: <serial number>). Reconstruct was started.

**Recommended action:**

- No action is required.

## 542 - Data block fenced

### 542.1

**Critical**

A data block was fenced by the controller due to lost data. (disk group: <name>, SN: <serial number>, LBA: <logical block address>)

Event 543 will also be logged to describe volume information for the fenced data block.

**Recommended action:**

- Perform recovery procedures, which may include restoring from backups.

### 542.2

**Critical**

A data block was fenced by the controller due to lost data. (disk group: <name>, SN: <serial number>, LBA: <logical block address>) (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>, LBA: <logical block address>)

Event 543 will also be logged to describe volume information for the fenced data block.

**Recommended action:**

- Perform recovery procedures, which may include restoring from backups.

## 543 - Volume data block fenced

### 543.1

**Critical**

A data block in a volume was fenced by the controller due to lost data. (volume: <volume name>, SN: <serial number>, LBA: <logical block address>) (disk group: <name>, SN: <serial number>) related event ID:<numeric value>...<numeric value>)

This event describes volume information for a fenced data block. It is logged in conjunction with event 542, which describes disk group and disk information for the data block.

**Recommended action:**

- Perform recovery procedures, which may include restoring from backups.

## 545 - Using legacy midplane

### 545.1

**Warning**

A controller with a newer generation PCIe bus is connected to a midplane with an older generation PCIe bus resulting in degraded performance. (expected generation: <count>, actual generation: <count>)

None.

**Recommended action:**

- To achieve better performance, replace the enclosure's legacy chassis FRU with the latest version of the FRU.

### 545.2

**Info**

A controller with a newer generation PCIe bus is connected to a midplane with an older generation PCIe bus resulting in degraded performance. (expected generation: <count>, actual generation: <count>)

None.

**Recommended action:**

- To achieve better performance, replace the enclosure's legacy chassis FRU with the latest version of the FRU.

## 546 - Incompatible controller

**546.1**

**Error**

Controller module <name> is not compatible with the host port configuration of this system.

None.

**Recommended action:**

- Replace the killed controller module with a controller module that has the same host port configuration as the surviving controller module.

## 548 - Reconstruct disk group failed

**548.1**

**Warning**

Disk group full reconstruction failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

**548.2**

**Warning**

Disk group quick rebuild failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the

data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

### 548.3

**Warning**

`Disk group preemptive reconstruction failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

### 548.4

**Warning**

`Disk group preemptive quick reconstruction failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

### 548.8

**Warning**

`Preemptive quick reconstruction of degraded capacity within an ADAPT disk group failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

### 548.9

**Warning**

`Full reconstruction of critical capacity within an ADAPT disk group failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

### 548.10

**Warning**

`Quick rebuild of critical capacity within an ADAPT disk group failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

### 548.11

**Warning**

`Preemptive reconstruction of critical capacity within an ADAPT disk group failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

### 548.12

**Warning**

`Preemptive quick reconstrution of critical capacity within an ADAPT disk group failed. <detailed error information> (disk group: <name>, SN: <serial number>) (error code: <error code>)`

When a disk fails, reconstruction is performed using a spare disk. In this case, the reconstruction operation failed because unreadable data (uncorrectable media error) exists in at least one other disk in the disk group. Because of this, a portion of the data cannot be reconstructed.

**Recommended action:**

- If you do not have a backup copy of the data in the disk group, make a backup.
- Note the configuration of the disk group, such as its size and host mappings.
- Look for another event logged at approximately the same time that indicates a disk failure, such as event 8, 55, 58, or 412. Follow the recommended actions for that event.
- Remove the disk group.
- Re-add the disk group.
- Restore the data from a backup to a new disk group.

## 549 - Recovered internal processor fault

### 549.1

**Critical**

`Recovery from internal processor fault detected on controller.`

None.

**Recommended action:**

- On the first occurrence of this event, no action is required. If this event occurs a second time, replace the controller module.

## 550 - Unreliable disk read path

### 550.1

**Critical**

`Unreliable disk read path detected. Error Path ID: <identifier> (error code: <error code>) (disk group: <name>, SN: <serial number>)`

The read data path between the Storage Controller and the disk drives was detected to be unreliable. The Storage Controller took action to correct this.

**Recommended action:**

- Replace the controller.

### 550.2

**Critical**

`Unreliable disk read path detected. Error Path ID: <identifier> (error code: <error code>) (<name>)`

The read data path between the Storage Controller and the disk drives was detected to be unreliable. The Storage Controller took action to correct this.

**Recommended action:**

- Replace the controller.

## 551 - Power supply status changed

### 551.1

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a power supply. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) power supply <numeric value>, power supply status: <text>`

An EMP reported one of the following for a power supply unit (PSU):

- The PSU is unable to communicate with the EMP.
- The PSU in an enclosure does not have power supplied to it or has a hardware failure.
- The PSU is running with corrupted firmware.

**Recommended action:**

- If the EMP is unable to communicate with the indicated PSU.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the PSU. Ensure the partner PSU is not degraded. If the partner PSU is degraded, contact technical support.
  - If the partner PSU is not degraded, remove and reinsert the indicated PSU.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If one of the PSUs in an enclosure does not have power supplied to it or has a hardware failure.
  - Check that the indicated PSU is fully seated in its slot and that the PSU's latches, if any, are locked.
  - Check that each PSU has its switch turned on (if equipped with a switch).
  - Check that each power cable is firmly plugged into both the PSU and a functional electrical outlet.
  - If none of the above resolves the issue, the indicated PSU has probably failed and should be replaced.
- If a PSU is running with corrupted firmware:
  - The indicated PSU has failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**551.2**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a power supply. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) power supply <numeric value>, power supply status: <text>`

An EMP reported that a power supply unit (PSU) has been uninstalled.

**Recommended action:**

- Check that the indicated PSU is in the indicated enclosure.
- If the PSU is not in the enclosure, install a PSU immediately.
- If the PSU is in the enclosure, ensure that the power supply is fully seated in its slot and that its latch is locked.
- If none of the above resolves the issue, the indicated FRU has failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**551.3**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a power supply. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) power supply <numeric value>, power supply status: <text>`

A SES alert for a power supply in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**551.4**

**Error**

An Enclosure Management Processor (EMP) reported an alert condition on a power supply. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) power supply <numeric value>, power supply status: <text>

An EMP reported that the installed power supply units (PSUs) do not match.

**Recommended action:**

- Ensure that the power supplies are the same model or compatible models.

## 552 - Cooling element status changed

**552.1**

**Error**

An Enclosure Management Processor (EMP) reported an alert condition on a fan. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) fan <numeric value>...<text>, fan status: <text>

An EMP reported an alert condition.

- A hardware failure has been detected and all fans in the indicated FRU have failed.
- The fan is unable to communicate with the EMP.

**Recommended action:**

- If a hardware failure has been detected and all fans in the indicated FRU have failed.
  - Inspect the system health information to determine which FRU contains the affected fans. Event 551 or 558 should give further information on the containing FRUs.
  - Replace the containing FRUs.
- The fan is unable to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - If the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**552.2**

**Warning**

An Enclosure Management Processor (EMP) reported an alert condition on a fan. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) fan <numeric value>...<text>, fan status: <text>

An EMP reported one of the following:

- A fan in the indicated FRU has been uninstalled.
- A fan in the indicated FRU has failed and fan redundancy for the FRU has been lost.

**Recommended action:**

- If a fan in the indicated FRU has been uninstalled.
  - Check that the indicated FRU is in the indicated enclosure.
    - If the FRU is not in the enclosure, install the appropriate FRU immediately.
    - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latch is locked.
  - If none of the above resolves the issue, the indicated FRU has failed and should be replaced.
- If a fan in the indicated FRU has failed and fan redundancy for the FRU has been lost:
  - The indicated FRU has failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**552.3**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a fan. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) fan <numeric value>...<text>, fan status: <text>`

A SES alert for a fan in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

## 553 - Temperature sensor status changed

**553.1**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) temperature sensor for <text>, sensor status: <text>, temperature: <temperature> C`

A temperature sensor reported an alert condition.

- A temperature sensor is outside critical temperature threshold in the indicated FRU.
- The temperature sensor is not able to communicate with the EMP.

**Recommended action:**

- If temperature sensor is outside critical temperature threshold in the indicated FRU.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - Check that all fans in the enclosure are running.
  - Check that there is a module or blank plate in every module slot in the enclosure.
  - If none of the above resolve the issue, the indicated FRU has probably failed and should be replaced.
- The temperature sensor is not able to communicate with the EMP.

- Wait for at least 10 minutes and check if the error resolves.
- If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
- If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
- For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
- If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
- If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.2**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) temperature sensor for <text>, sensor status: <text>, temperature: <temperature> C`

A temperature sensor is not within normal operating temperature thresholds but is within safe operating limits; or, a temperature sensor has been uninstalled.

**Recommended action:**

- If a temperature sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
- If a temperature sensor has been uninstalled:
  - Check that the indicated FRU is in the indicated enclosure.
- If the FRU is not in the enclosure, install the FRU immediately.
- If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.3**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) temperature sensor for <text>, sensor status: <text>, temperature: <temperature> C`

A SES alert for a temperature sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**553.4**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>,`

drawer: <${drawer} number>) temperature sensor for <text>, sensor status: <text>, temperature: <temperature> C

A temperature sensor reported an alert condition.

- A temperature sensor is outside critical temperature threshold in the indicated FRU.
- The temperature sensor is not able to communicate with the EMP.

**Recommended action:**

- If temperature sensor is outside critical temperature threshold in the indicated FRU.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - Check that all fans in the enclosure are running.
  - Check that there is a module or blank plate in every module slot in the enclosure.
  - If none of the above resolve the issue, the indicated FRU has probably failed and should be replaced.
- The temperature sensor is not able to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.5**

**Warning**

An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) temperature sensor for <text>, sensor status: <text>, temperature: <temperature> C

A temperature sensor is not within normal operating temperature thresholds but is within safe operating limits; or, a temperature sensor has been uninstalled.

**Recommended action:**

- If a temperature sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
- If a temperature sensor has been uninstalled:

- Check that the indicated FRU is in the indicated enclosure.

- If the FRU is not in the enclosure, install the FRU immediately.
- If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.6**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) temperature sensor for <text>, sensor status: <text>, temperature: <temperature> C`

A SES alert for a temperature sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**553.7**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) temperature sensor for <text>, sensor status: <text>`

A temperature sensor reported an alert condition.

- A temperature sensor is outside critical temperature threshold in the indicated FRU.
- The temperature sensor is not able to communicate with the EMP.

**Recommended action:**

- If temperature sensor is outside critical temperature threshold in the indicated FRU.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - Check that all fans in the enclosure are running.
  - Check that there is a module or blank plate in every module slot in the enclosure.
  - If none of the above resolve the issue, the indicated FRU has probably failed and should be replaced.
- The temperature sensor is not able to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.

- If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
- If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.8**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) temperature sensor for <text>, sensor status: <text>`

A temperature sensor is not within normal operating temperature thresholds but is within safe operating limits; or, a temperature sensor has been uninstalled.

**Recommended action:**

- If a temperature sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
- If a temperature sensor has been uninstalled:
  - Check that the indicated FRU is in the indicated enclosure.
- If the FRU is not in the enclosure, install the FRU immediately.
- If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.9**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) temperature sensor for <text>, sensor status: <text>`

A SES alert for a temperature sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**553.10**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) temperature sensor for <text>, sensor status: <text>`

A temperature sensor reported an alert condition.

- A temperature sensor is outside critical temperature threshold in the indicated FRU.
- The temperature sensor is not able to communicate with the EMP.

**Recommended action:**

- If temperature sensor is outside critical temperature threshold in the indicated FRU.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - Check that all fans in the enclosure are running.
  - Check that there is a module or blank plate in every module slot in the enclosure.
  - If none of the above resolve the issue, the indicated FRU has probably failed and should be replaced.
- The temperature sensor is not able to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.11**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) temperature sensor for <text>, sensor status: <text>`

A temperature sensor is not within normal operating temperature thresholds but is within safe operating limits; or, a temperature sensor has been uninstalled.

**Recommended action:**

- If a temperature sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that the ambient temperature is not too warm. For the normal operating range, see your product's installation guide.
  - Check for any obstructions to the airflow.
- If a temperature sensor has been uninstalled:
  - Check that the indicated FRU is in the indicated enclosure.
- If the FRU is not in the enclosure, install the FRU immediately.
- If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**553.12**

**Resolved**

An Enclosure Management Processor (EMP) reported an alert condition on a temperature sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) temperature sensor for <text>, sensor status: <text>

A SES alert for a temperature sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

## 554 - Voltage sensor status changed

**554.1**

**Error**

An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) voltage sensor for <text>, sensor status: <text>, voltage: <voltage> V

A voltage sensor reported an alert condition.

- A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - A voltage sensor is not able to communicate with the EMP.

**Recommended action:**

- If A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If the voltage sensor is not able to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.2**

**Warning**

An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) voltage sensor for <text>, sensor status: <text>, voltage: <voltage> V

A voltage sensor is not within the normal operating range but is within safe operating limits; or, a voltage sensor has been removed.

**Recommended action:**

- If a voltage sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a voltage sensor has been removed:
  - Check that the indicated FRU is in the indicated enclosure.
    - If the FRU is not in the enclosure, install the FRU immediately.
    - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.3**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) voltage sensor for <text>, sensor status: <text>, voltage: <voltage> V`

A SES alert for a voltage sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**554.4**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) voltage sensor for <text>, sensor status: <text>, voltage: <voltage> V`

A voltage sensor reported an alert condition.

- A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - A voltage sensor is not able to communicate with the EMP.

**Recommended action:**

- If A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If the voltage sensor is not able to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.

- If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
- If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.5**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) voltage sensor for <text>, sensor status: <text>, voltage: <voltage> V`

A voltage sensor is not within the normal operating range but is within safe operating limits; or, a voltage sensor has been removed.

**Recommended action:**

- If a voltage sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a voltage sensor has been removed:
  - Check that the indicated FRU is in the indicated enclosure.
    - If the FRU is not in the enclosure, install the FRU immediately.
    - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.6**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) voltage sensor for <text>, sensor status: <text>, voltage: <voltage> V`

A SES alert for a voltage sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**554.7**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) voltage sensor for <text>, sensor status: <text>`

A voltage sensor reported an alert condition.

- A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - A voltage sensor is not able to communicate with the EMP.

**Recommended action:**

- If A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If the voltage sensor is not able to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.8**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) voltage sensor for <text>, sensor status: <text>`

A voltage sensor is not within the normal operating range but is within safe operating limits; or, a voltage sensor has been removed.

**Recommended action:**

- If a voltage sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a voltage sensor has been removed:
  - Check that the indicated FRU is in the indicated enclosure.
    - If the FRU is not in the enclosure, install the FRU immediately.
    - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.9**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) voltage sensor for <text>, sensor status: <text>`

A SES alert for a voltage sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**554.10**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) voltage sensor for <text>, sensor status: <text>`

A voltage sensor reported an alert condition.

- A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - A voltage sensor is not able to communicate with the EMP.

**Recommended action:**

- If A voltage sensor is outside a critical voltage threshold in the indicated FRU.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If the voltage sensor is not able to communicate with the EMP.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.11**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) voltage sensor for <text>, sensor status: <text>`

A voltage sensor is not within the normal operating range but is within safe operating limits; or, a voltage sensor has been removed.

**Recommended action:**

- If a voltage sensor has exceeded the normal operating range but is within safe operating limits.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a voltage sensor has been removed:

- Check that the indicated FRU is in the indicated enclosure.
  - If the FRU is not in the enclosure, install the FRU immediately.
  - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches are locked.
- If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**554.12**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on a voltage sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) voltage sensor for <text>, sensor status: <text>`

A SES alert for a voltage sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

## 555 - Expander status changed

**555.1**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on an expander. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) I/O module <numeric value>, status: <text>`

An expander in a controller module, expansion module, or drawer is mated but is not responding; or, an expander in an expansion module has been removed.

**Recommended action:**

- Check that the indicated FRU is in the indicated enclosure.
  - If the FRU is not in the enclosure, install the appropriate FRU immediately.
  - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.
- If none of the above resolves the issue, the indicated FRU has failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**555.2**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on an expander. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) I/O module <numeric value>, status: <text>`

The local Expander Controller firmware has detected a level of incompatibility with the partner Expander Controller firmware or hardware. As a preventive measure, the local Expander Controller may disable all the PHYs.

**Recommended action:**

- Check that both the Expander Controllers have the correct firmware revision.

If both Expander Controllers have different firmware versions, upgrade the partner controller module to the appropriate firmware that is compatible with the enclosure.

If this does not resolve the problem, replace the partner controller module.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**555.3**

**Resolved**

`An Enclosure Management Processor (EMP) reported an alert condition on an expander. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) I/O module <numeric value>, status: <text>`

A SES alert for an expander in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**555.4**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on an expander. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) drawer slice <numeric value>, status: <text>`

An expander in a controller module, expansion module, or drawer is mated but is not responding; or, an expander in an expansion module has been removed.

**Recommended action:**

- Check that the indicated FRU is in the indicated enclosure.
  - If the FRU is not in the enclosure, install the appropriate FRU immediately.
  - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.
- If none of the above resolves the issue, the indicated FRU has failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**555.5**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on an expander. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) drawer slice <numeric value>, status: <text>`

The local Expander Controller firmware has detected a level of incompatibility with the partner Expander Controller firmware or hardware. As a preventive measure, the local Expander Controller may disable all the PHYs.

**Recommended action:**

- Check that both the Expander Controllers have the correct firmware revision.

If both Expander Controllers have different firmware versions, upgrade the partner controller module to the appropriate firmware that is compatible with the enclosure.

If this does not resolve the problem, replace the partner controller module.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**555.6**

**Resolved**

An Enclosure Management Processor (EMP) reported an alert condition on an expander. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) drawer slice <numeric value>, status: <text>

A SES alert for an expander in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

## 556 - SAS expander status changed

### 556.1

**Resolved**

A previous Warning or Error condition on a drawer expander has been resolved. (enclosure <enclosure number>, drawer: <${drawer} number>, path: <name>, expander: <numeric value> )

A SES alert for an expander in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

### 556.2

**Resolved**

A previous Warning or Error condition on a root expander has been resolved. (enclosure <enclosure number>, path: <name> )

A SES alert for an expander in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

### 556.3

**Error**

An alert condition was detected on a drawer expander element. (enclosure <enclosure number>, drawer: <${drawer} number>, path: <name>, expander: <numeric value>, errorCode: <error code>)

None.

**Recommended action:**

- This indicates a potential problem, but can also occur under the conditions of an expander restart or firmware update. In these cases, the problem should resolve itself within a few minutes. If the problem does not resolve, or is occurring under unexpected conditions, then you might need to replace the module that contains the indicated expander.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

### 556.4

**Error**

An alert condition was detected on an root expander element. (enclosure <enclosure number>, path: <name>, errorCode: <error code>)

None.

**Recommended action:**

- This indicates a potential problem, but can also occur under the conditions of an expander restart or firmware update. In these cases, the problem should resolve itself within a few minutes. If the problem does not resolve, or is occurring under unexpected conditions, then you might need to replace the module that contains the indicated expander.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**556.5**

**Warning**

`A drawer expander element was uninstalled. (enclosure <enclosure number>, drawer: <${drawer} number>, path: <name>, expander: <numeric value>)`

None.

**Recommended action:**

- This indicates a potential problem, but can also occur under the conditions of a controller, IOM, or sideplane expander restart, or firmware update. In these cases, the problem should resolve itself within a few minutes. If the problem does not resolve, or is occurring under unexpected conditions, then you might need to replace the module that contains the indicated expander.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**556.6**

**Warning**

`A root expander element was uninstalled. (enclosure <enclosure number>, path: <name>)`

None.

**Recommended action:**

- This indicates a potential problem, but can also occur under the conditions of a controller, IOM, or sideplane expander restart, or firmware update. In these cases, the problem should resolve itself within a few minutes. If the problem does not resolve, or is occurring under unexpected conditions, then you might need to replace the module that contains the indicated expander.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**556.7**

**Warning**

`A drawer expander experienced a communication fault. (enclosure <enclosure number>, drawer: <${drawer} number>, path: <name>, expander: <numeric value>, errorCode: <error code>)`

None.

**Recommended action:**

- This indicates a potential problem, but can also occur under the conditions of a controller, IOM, or sideplane expander restart, or firmware update. In these cases, the problem should resolve itself within a few minutes. If the problem does not resolve, or is occurring under unexpected conditions, then you might need to replace the module that contains the indicated expander.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**556.8**

**Warning**

A root expander experienced a communication fault. (enclosure <enclosure number>, path: <name>, errorCode: <error code> )

None.

**Recommended action:**

- This indicates a potential problem, but can also occur under the conditions of a controller, IOM, or sideplane expander restart, or firmware update. In these cases, the problem should resolve itself within a few minutes. If the problem does not resolve, or is occurring under unexpected conditions, then you might need to replace the module that contains the indicated expander.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

## 557 - Current sensor status changed

**557.1**

**Error**

An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) current sensor for <text>, sensor status: <text>, current: <numeric value> A

- The EMP is unable to communicate with the indicated current sensor.
- The current sensor is outside critical threshold values.

**Recommended action:**

- If the EMP is unable to communicate with the indicated current sensor.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If the current sensor is outside critical threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.2**

**Warning**

An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) current sensor for <text>, sensor status: <text>, current: <numeric value> A

- A current sensor is outside the defined warning threshold values.
- A current sensor has been uninstalled.

**Recommended action:**

- If a current sensor has exceeded the defined warning threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a current sensor has been uninstalled.
  - Check that the indicated FRU is in the indicated enclosure.
  - If the FRU is not in the enclosure, install the FRU immediately.
  - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replace.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.3**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) current sensor for <text>, sensor status: <text>, current: <numeric value> A`

A SES alert for a current sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**557.4**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) current sensor for <text>, sensor status: <text>, current: <numeric value> A`

- The EMP is unable to communicate with the indicated current sensor.
- The current sensor is outside critical threshold values.

**Recommended action:**

- If the EMP is unable to communicate with the indicated current sensor.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.

- If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
- If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

- If the current sensor is outside critical threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.5**

**Warning**

`An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) current sensor for <text>, sensor status: <text>, current: <numeric value> A`

- A current sensor is outside the defined warning threshold values.
- A current sensor has been uninstalled.

**Recommended action:**

- If a current sensor has exceeded the defined warning threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a current sensor has been uninstalled.
  - Check that the indicated FRU is in the indicated enclosure.
  - If the FRU is not in the enclosure, install the FRU immediately.
  - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replace.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.6**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) current sensor for <text>, sensor status: <text>, current: <numeric value> A`

A SES alert for a current sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**557.7**

**Error**

An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) current sensor for <text>, sensor status: <text>

- The EMP is unable to communicate with the indicated current sensor.
- The current sensor is outside critical threshold values.

**Recommended action:**

- If the EMP is unable to communicate with the indicated current sensor.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If the current sensor is outside critical threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.8**

**Warning**

An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) current sensor for <text>, sensor status: <text>

- A current sensor is outside the defined warning threshold values.
- A current sensor has been uninstalled.

**Recommended action:**

- If a current sensor has exceeded the defined warning threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a current sensor has been uninstalled.
  - Check that the indicated FRU is in the indicated enclosure.
  - If the FRU is not in the enclosure, install the FRU immediately.
  - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replace.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.9**

**Error**

An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>) current sensor for <text>, sensor status: <text>

A SES alert for a current sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

**557.10**

**Error**

An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) current sensor for <text>, sensor status: <text>

- The EMP is unable to communicate with the indicated current sensor.
- The current sensor is outside critical threshold values.

**Recommended action:**

- If the EMP is unable to communicate with the indicated current sensor.
  - Wait for at least 10 minutes and check if the error resolves.
  - If the error persists, check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, note down the FRU. Ensure the partner FRU is not degraded. If the partner FRU is degraded, contact technical support.
  - For all FRU types except the enclosure, if the partner FRU is not degraded, remove and reinsert the indicated FRU.
  - If the indicated FRU is the enclosure, set up a preventive maintenance window and power cycle the enclosure at that time.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If the current sensor is outside critical threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.11**

**Warning**

An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) current sensor for <text>, sensor status: <text>

- A current sensor is outside the defined warning threshold values.
- A current sensor has been uninstalled.

**Recommended action:**

- If a current sensor has exceeded the defined warning threshold values.
  - Check that all modules in the enclosure are fully seated in their slots and that their latches, if any are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replaced.
- If a current sensor has been uninstalled.
  - Check that the indicated FRU is in the indicated enclosure.
  - If the FRU is not in the enclosure, install the FRU immediately.
  - If the FRU is in the enclosure, ensure that the FRU is fully seated in its slot and that its latches, if any, are locked.
  - If this does not resolve the issue, the indicated FRU has probably failed and should be replace.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**557.12**

**Error**

`An Enclosure Management Processor (EMP) reported an alert condition on a current sensor. Type: <detailed error information>. (enclosure: <enclosure number>, WWN: <World Wide Name>, drawer: <${drawer} number>) current sensor for <text>, sensor status: <text>`

A SES alert for a current sensor in the indicated enclosure has been resolved.

**Recommended action:**

- No action is required.

## 562 - Virtual pool statistics reset

**562.1**

**Info**

`The statistics for the specified virtual pool have been reset. (pool: <pool name>, SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 563 - A drive power cycle request received

**563.1**

**Info**

`A disk has been restarted. (enclosure: <enclosure number>, slot: <slot number>)`

None.

**Recommended action:**

- No action is required.

## 565 - PCIe bus degraded

**565.1**

**Warning**

At least one of the internal PCIe buses is degraded. The hardware bus is unable to use optimal speeds.

This event is the result of a hardware problem that has caused the controller to run slower than expected. The system works, but I/O performance is degraded.

**Recommended action:**

- Restart the controller that logged the event. If the problem persists, replace the controller module.

**565.2**

**Resolved**

PCIe buses are all now operating at optimal speed.

This event is the result of resolving a previously reported hardware problem that has caused the controller to run slower than expected.

**Recommended action:**

- No action is required.

## 566 - Internal DDR port busy

**566.1**

**Info**

One of the internal DDR ports has been busy for at least 5 minutes. (port: <numeric value>, read activity count: <count>, busy status count: <count>, maximum busy percentage: <numeric value>%)

This event is the result of a speed compensation while handling short data blocks. The system is operational but I/O performance is degraded.

**Recommended action:**

- No action is required.

## 568 - Mixed sector format disks in disk group

**568.1**

**Info**

A disk group now contains mixed sector format disks. (SN: <serial number>, disk group: <name>)

This event is the result of the user selecting disks with sector formats that do not match or a global spare replacement with a different sector format than the disk group. This could result in degraded performance for some workloads.

**Recommended action:**

- No action is required.

## 569 - A SAS host cable change detected

**569.1**

**Warning**

A SAS host cable mismatch has been detected for port <name>. The indicated alternate PHYs <name> have been disabled.

For example, a fan-out cable is connected to a controller module host port but the port is configured to use standard SAS cables, or vice versa.

**Recommended action:**

- To use the connected cable, use the CLI 'set host-parameters' command to configure ports to use the proper cable type.
- Otherwise, replace the cable with the type of cable that the port is configured to use.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**569.2**

**Resolved**

A previously detected SAS host cable mismatch has been resolved for port <numeric value>.

The proper cable type has been connected.

**Recommended action:**

- No action is required.

## 571 - Snapshot space exceeded a threshold

**571.1**

**Error**

Allocated snapshot space exceeded the low threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

If the snapshot space limit policy is set to delete snapshots, the system will begin to delete snapshots according to the snapshot retention priority setting until the snapshot space usage drops below the configured limit. Otherwise, the system will begin to use general pool space for snapshots until snapshots are manually deleted. If the storage usage drops below a threshold, event 572 is logged.

**Recommended action:**

- If the snapshot space limit policy is set to notify only, you should immediately take steps to reduce snapshot space usage or add storage capacity.
- If the snapshot space policy is set to delete, the system will reduce snapshot space automatically, or log event 573 if no snapshots can be deleted.

**571.2**

**Warning**

Allocated snapshot space exceeded the low threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The high threshold setting indicates that the pool is nearly out of snapshot space. The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.3**

**Info**

Allocated snapshot space exceeded the low threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.4**

**Error**

Allocated snapshot space exceeded the middle threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

If the snapshot space limit policy is set to delete snapshots, the system will begin to delete snapshots according to the snapshot retention priority setting until the snapshot space usage drops below the configured limit. Otherwise, the system will begin to use general pool space for snapshots until snapshots are manually deleted. If the storage usage drops below a threshold, event 572 is logged.

**Recommended action:**

- If the snapshot space limit policy is set to notify only, you should immediately take steps to reduce snapshot space usage or add storage capacity.
- If the snapshot space policy is set to delete, the system will reduce snapshot space automatically, or log event 573 if no snapshots can be deleted.

**571.5**

**Warning**

Allocated snapshot space exceeded the middle threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The high threshold setting indicates that the pool is nearly out of snapshot space. The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.6**

**Info**

Allocated snapshot space exceeded the middle threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.7**

**Error**

Allocated snapshot space exceeded the high threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

If the snapshot space limit policy is set to delete snapshots, the system will begin to delete snapshots according to the snapshot retention priority setting until the snapshot space usage drops below the configured limit. Otherwise, the system will begin to use general pool space for snapshots until snapshots are manually deleted. If the storage usage drops below a threshold, event 572 is logged.

**Recommended action:**

- If the snapshot space limit policy is set to notify only, you should immediately take steps to reduce snapshot space usage or add storage capacity.
- If the snapshot space policy is set to delete, the system will reduce snapshot space automatically, or log event 573 if no snapshots can be deleted.

**571.8**

**Warning**

Allocated snapshot space exceeded the high threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The high threshold setting indicates that the pool is nearly out of snapshot space. The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.9**

**Info**

Allocated snapshot space exceeded the high threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.10**

**Error**

Allocated snapshot space exceeded the configured limit. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

If the snapshot space limit policy is set to delete snapshots, the system will begin to delete snapshots according to the snapshot retention priority setting until the snapshot space usage drops below the configured limit. Otherwise, the system will begin to use general pool space for snapshots until snapshots are manually deleted. If the storage usage drops below a threshold, event 572 is logged.

**Recommended action:**

- If the snapshot space limit policy is set to notify only, you should immediately take steps to reduce snapshot space usage or add storage capacity.
- If the snapshot space policy is set to delete, the system will reduce snapshot space automatically, or log event 573 if no snapshots can be deleted.

**571.11**

**Warning**

`Allocated snapshot space exceeded the configured limit. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)`

The high threshold setting indicates that the pool is nearly out of snapshot space. The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.12**

**Info**

`Allocated snapshot space exceeded the configured limit. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)`

The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.13**

**Error**

`Allocated snapshot space exceeded an unknown threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)`

If the snapshot space limit policy is set to delete snapshots, the system will begin to delete snapshots according to the snapshot retention priority setting until the snapshot space usage drops below the configured limit. Otherwise, the system will begin to use general pool space for snapshots until snapshots are manually deleted. If the storage usage drops below a threshold, event 572 is logged.

**Recommended action:**

- If the snapshot space limit policy is set to notify only, you should immediately take steps to reduce snapshot space usage or add storage capacity.
- If the snapshot space policy is set to delete, the system will reduce snapshot space automatically, or log event 573 if no snapshots can be deleted.

**571.14**

**Warning**

Allocated snapshot space exceeded an unknown threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The high threshold setting indicates that the pool is nearly out of snapshot space. The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

**571.15**

**Info**

Allocated snapshot space exceeded an unknown threshold of <numeric value>%. (pool: <pool name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

The threshold settings are intended to indicate that the pool is using a significant portion of configured snapshot space and should be monitored. If the storage usage drops below any threshold, event 572 is logged.

**Recommended action:**

Reduce the snapshot space usage by deleting snapshots that are no longer needed.

## 572 - Snapshot space dropped below threshold

**572.1**

**Info**

Allocated snapshot space dropped below the low threshold of <numeric value>%. (pool: <name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

This event indicates that a condition reported by event 571 is no longer applicable.

**Recommended action:**

- No action is required.

**572.2**

**Info**

Allocated snapshot space dropped below the middle threshold of <numeric value>%. (pool: <name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

This event indicates that a condition reported by event 571 is no longer applicable.

**Recommended action:**

- No action is required.

**572.3**

**Info**

Allocated snapshot space dropped below the high threshold of <numeric value>%. (pool: <name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)

This event indicates that a condition reported by event 571 is no longer applicable.

**Recommended action:**

- No action is required.

#### 572.4

**Info**

`Allocated snapshot space dropped below the configured limit. (pool: <name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)`

This event indicates that a condition reported by event 571 is no longer applicable.

**Recommended action:**

- No action is required.

#### 572.5

**Info**

`Allocated snapshot space dropped below an unknown threshold of <numeric value>%. (pool: <name>, SN: <serial number>) (snapshot space used: <numeric value> of <numeric value> pages, or <numeric value>% of the snapshot space)`

This event indicates that a condition reported by event 571 is no longer applicable.

**Recommended action:**

- No action is required.

### 573 - Snapshot space cannot be reduced

#### 573.1

**Warning**

`Allocated snapshot space for a virtual pool cannot be reduced because no snapshots are deletable. (pool: <pool name>, SN: <serial number>) (snapshot space used: <count> of <count> pages)`

Snapshots cannot be automatically deleted if their retention priority is set to never-delete. Snapshots must also be at the leaf end of a snapshot tree in order to be considered deletable. This event is logged when no snapshots in the pool pass these constraints.

**Recommended action:**

- Manually delete snapshots to reduce allocated snapshot space.

### 574 - Peer connection created

#### 574.1

**Info**

`A peer connection was created. (name: <name>, SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 575 - Peer connection deleted

### 575.1

**Info**

A peer connection was deleted. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 576 - Replication set created

### 576.1

**Info**

A replication set was created. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

### 576.2

**Error**

A replication set failed to be created. <detailed error information> (name: <name>)

None.

**Recommended action:**

- No action is required.

## 577 - Replication set deleted

### 577.1

**Info**

A replication set was deleted. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

### 577.2

**Error**

A replication set failed to be deleted. <detailed error information> (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 578 - Replication job started

### 578.1

**Info**

A replication was started. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

### 578.2

**Info**

A replication was started. (source snapshot: <name>, SN: <serial number>; replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

### 578.3

**Info**

A Failback Restore replication was started. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

### 578.4

**Info**

A Failback Restore replication was started. (source snapshot: <name>, SN: <serial number>; replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

### 578.5

**Info**

A replication failed to start. <detailed error information> (replication set name: <name>, SN: <serial number>)

The replication was unsuccessful due to the condition specified within the event. Reasons for replication failure include but are not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- Resolve the issue specified by the error message included with this event.

#### 578.6

**Info**

A replication failed to start. <detailed error information> (source snapshot: <name>, SN: <serial number>; replication set name: <name>, SN: <serial number>)

The replication was unsuccessful due to the condition specified within the event. Reasons for replication failure include but are not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- Resolve the issue specified by the error message included with this event.

#### 578.7

**Info**

A Failback Restore replication failed to start. <detailed error information> (replication set name: <name>, SN: <serial number>)

The replication was unsuccessful due to the condition specified within the event. Reasons for replication failure include but are not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- Resolve the issue specified by the error message included with this event.

#### 578.8

**Info**

A Failback Restore replication failed to start. <detailed error information> (source snapshot: <name>, SN: <serial number>; replication set name: <name>, SN: <serial number>)

The replication was unsuccessful due to the condition specified within the event. Reasons for replication failure include but are not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- Resolve the issue specified by the error message included with this event.

### 579 - Replication job completed

#### 579.1

**Info**

A replication completed successfully. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

#### 579.2

**Warning**

A replication completed with a failure. <error code> (replication set name: <name>, SN: <serial number>)

The replication was unsuccessful due to the condition specified within the event. Reasons for replication failure include but are not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- Resolve the issue specified by the error message included with this event.

#### 579.3

**Info**

`During the Failback Restore operation, a replication completed successfully. (replication set name: <name>, SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

#### 579.4

**Warning**

`During the Failback Restore operation, a replication completed with a failure. <error code> (replication set name: <name>, SN: <serial number>)`

The replication was unsuccessful due to the condition specified within the event. Reasons for replication failure include but are not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- Resolve the issue specified by the error message included with this event.

### 580 - Replication job cancelled

#### 580.1

**Info**

`A replication was aborted. (replication set name: <name>, SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

### 581 - Replication job suspended

#### 581.1

**Info**

`A replication was suspended by the user. (replication set name: <name>, SN: <serial number>)`

None.

**Recommended action:**

- No action is required.

#### 581.2

**Warning**

A replication was suspended by the user. (replication set name: <name>, SN: <serial number>)

The system will suspend the replication internally if it detects an error condition in the replication set and replications cannot continue for any reason. This includes but is not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- The replication will automatically resume once the condition described in this event is cleared.

**581.3**

**Info**

A replication was suspended internally by the system. <error code> (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

**581.4**

**Warning**

A replication was suspended internally by the system. <error code> (replication set name: <name>, SN: <serial number>)

The system will suspend the replication internally if it detects an error condition in the replication set and replications cannot continue for any reason. This includes but is not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- The replication will automatically resume once the condition described in this event is cleared.

## 582 - Another replication request queued

**582.1**

**Info**

A replication has been queued and will run after the current replication completes. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

**582.2**

**Warning**

A previously queued replication was discarded and a new replication has been queued. It will run after the current replication completes. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 583 - Replication set reversed

**583.1**

**Info**

The replication direction for a replication set was reversed. Secondary is now primary. Primary is now secondary (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

**583.2**

**Error**

The replication set was not reversed due to a failure. Command failed. (error code: <error code>, name: <name>, SN: <serial number>)

None.

**Recommended action:**

- If an issue with the peer connection was reported, check that appropriate interface cables are connected to the host ports defined in the peer connection.
- If the appropriate cables are connected, check the cables and any network switches for problems.
- Otherwise, check the peer connection for invalid configuration.

**583.3**

**Info**

During the Failback Restore operation, the replication direction for a replication set was reversed. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

**583.4**

**Error**

During the Failback Restore operation, the replication direction for a replication set was not reversed due to a failure. Command failed. (error code: <error code>, name: <name>, SN: <serial number>)

None.

**Recommended action:**

- If an issue with the peer connection was reported, check that appropriate interface cables are connected to the host ports defined in the peer connection.

- If the appropriate cables are connected, check the cables and any network switches for problems.
- Otherwise, check the peer connection for invalid configuration.

## 584 - Peer connection modified

### 584.1

**Info**

A peer connection was modified. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 585 - Replication set modified

### 585.1

**Info**

A replication set was modified. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 586 - Replication job resumed

### 586.1

**Info**

A replication was resumed. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

### 586.2

**Error**

A replication failed to resume. <detailed error information> (name: <name>, SN: <serial number>)

Resuming the replication was unsuccessful due to the condition specified within the event. Reasons for replication failure include but are not limited to shutdown of the secondary system, a loss of communication across the peer connection (which may be due to CHAP configuration changes), or a pool out-of-space condition.

**Recommended action:**

- Resolve the issue specified by the error message included with this event.

## 587 - Pending replication removed from queue

### 587.1

**Info**

A pending replication was removed from the queue. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 588 - Replication set failed over

**588.1**

**Info**

A replication set was failed over. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

**588.2**

**Warning**

During the Failback Restore operation, a replication set was failed over. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 589 - Replication set restored

**589.1**

**Info**

A replication set completed the Failback No Restore operation. (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

**589.2**

**Info**

A replication set failed to complete the Failback No Restore operation. <detailed error information> (replication set name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 590 - A disk group has been quarantined

### 590.1

**Error**

`A disk group has been quarantined because of a flush restore failure. (SN: <serial number>, disk group: <name>)`

This condition resulted from a controller flush/restore failure.

**Recommended action:**

- To restore the disk group, use the CLI 'dequarantine' command to dequarantine the disk group. If more than one disk group is quarantined you must individually dequarantine each disk group, whether it is fault tolerant or not. When dequarantine is complete, the disk group will return to the state it was in before being quarantined. For example, if the disk group was reconstructing before being quarantined, the disk group will resume reconstructing where it stopped.
- For a linear disk group, if you want to find where parity is incorrect, use the CLI 'scrub vdisk' command with the 'fix' parameter disabled. This step is optional and not required to fix data integrity issues.
- For a fault tolerant disk group, run either 'scrub disk-groups' for a virtual disk group or 'scrub vdisk' with the 'fix' parameter enabled for a linear disk group. This step will make the parity consistent with the existing user data, and is required to fix data integrity issues.
- For a reconstructing disk group, let reconstruction finish, then run either 'scrub disk-groups' for a virtual disk group or 'scrub vdisk' with the 'fix' parameter enabled for a linear disk group. This step will make the parity consistent with the existing user data, and is required to fix data integrity issues.
- Restore the data to the disk group from a backup copy.

### 590.2

**Error**

`A disk group has been quarantined because of a flush restore failure. (SN: <serial number>, disk group: <name>)`

This condition resulted from a controller flush/restore failure.

**Recommended action:**

- To restore the disk group, use the CLI 'dequarantine' command to dequarantine the disk group. If more than one disk group is quarantined you must individually dequarantine each disk group, whether it is fault tolerant or not. When dequarantine is complete, the disk group will return to the state it was in before being quarantined. For example, if the disk group was reconstructing before being quarantined, the disk group will resume reconstructing where it stopped.
- For a fault tolerant disk group, run 'scrub disk-groups' for a virtual disk group. This step will make the parity consistent with the existing user data, and is required to fix data integrity issues.
- For a reconstructing disk group, let reconstruction finish, then run 'scrub disk-groups' for a virtual disk group. This step will make the parity consistent with the existing user data, and is required to fix data integrity issues.
- Restore the data to the disk group from a backup copy.

## 593 - PCIe bus speed changed

### 593.1

**Warning**

A PCIe bus has transitioned to a different speed. (PCIe link: <name>, old speed: Gen <numeric value>, new speed: Gen <numeric value>)

None.

**Recommended action:**

- No action is required.

## 594 - Drive is missing

**594.1**

**Info**

A disk that was part of a disk group is missing and the disk group is quarantined. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

The indicated disk in the indicated disk group is missing and the disk group is quarantined. While the disk group is quarantined, in linear storage any attempt to access its volumes from a host will fail. In virtual storage, all volumes in the pool will be forced read-only. If all of the disks become accessible, the disk group will be dequarantined automatically with a resulting status of FTOL. If not all of the disks become accessible but enough become accessible to allow reading from and writing to the disk group, it will be dequarantined automatically with a resulting status of FTDN or CRIT. If a spare disk is available, reconstruction will begin automatically. When the disk group has been removed from quarantine, event 173 is logged. For a more detailed discussion of dequarantine, see the WBI or CLI documentation.

Caution: Avoid using the manual dequarantine operation as a recovery method when event 172 is logged because this causes data recovery to be more difficult or impossible.

Caution: If you clear unwritten cache data while a disk group is quarantined or offline, that data will be permanently lost.

**Recommended action:**

- If event 173 has subsequently been logged for the indicated disk group, no action is required. The disk group has already been removed from quarantine.
- Otherwise, perform the following actions:
  - Check that all enclosures are powered on.
  - Check that all disks and I/O modules in every enclosure are fully seated in their slots and that their latches are locked.
  - Reseat any disks in the quarantined disk group that are reported as missing or failed in the user interface. (Do NOT remove and reinsert disks that are not members of the disk group that is quarantined.)
  - Check that the SAS expansion cables are connected between each enclosure in the storage system and that they are fully seated. (Do NOT remove and reinsert the cables because this can cause problems with additional disk groups.)
  - Check that no disks have been removed from the system unintentionally.
  - Check for other events that indicate faults in the system and follow the recommended actions for those events. But, if the event indicates a failed disk and the recommended action is to replace the disk, do NOT replace the disk at this time because it may be needed later for data recovery.
  - If the disk group is still quarantined after performing the above steps, shut down both controllers and then power down the entire storage system. Power it back up, beginning with any disk enclosures (expansion enclosures), then the controller enclosure.
  - If the disk group is still quarantined after performing the above steps, contact technical support.

**594.2**

**Info**

`A disk that was part of a disk group is missing and the disk group is quarantined. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

The indicated disk in the indicated disk group is missing and the disk group is quarantined. While the disk group is quarantined, in virtual storage, all volumes in the pool will be forced read-only. If all of the disks become accessible, the disk group will be dequarantined automatically with a resulting status of FTOL. If not all of the disks become accessible but enough become accessible to allow reading from and writing to the disk group, it will be dequarantined automatically with a resulting status of FTDN or CRIT. If a spare disk is available, reconstruction will begin automatically. When the disk group has been removed from quarantine, event 173 is logged. For a more detailed discussion of dequarantine, see the WBI or CLI documentation.

Caution: Avoid using the manual dequarantine operation as a recovery method when event 172 is logged because this causes data recovery to be more difficult or impossible.

Caution: If you clear unwritten cache data while a disk group is quarantined or offline, that data will be permanently lost.

**Recommended action:**

- If event 173 has subsequently been logged for the indicated disk group, no action is required. The disk group has already been removed from quarantine.
- Otherwise, perform the following actions:
  - Check that all enclosures are powered on.
  - Check that all disks and I/O modules in every enclosure are fully seated in their slots and that their latches are locked.
  - Reseat any disks in the quarantined disk group that are reported as missing or failed in the user interface. (Do NOT remove and reinsert disks that are not members of the disk group that is quarantined.)
  - Check that the SAS expansion cables are connected between each enclosure in the storage system and that they are fully seated. (Do NOT remove and reinsert the cables because this can cause problems with additional disk groups.)
  - Check that no disks have been removed from the system unintentionally.
  - Check for other events that indicate faults in the system and follow the recommended actions for those events. But, if the event indicates a failed disk and the recommended action is to replace the disk, do NOT replace the disk at this time because it may be needed later for data recovery.
  - If the disk group is still quarantined after performing the above steps, shut down both controllers and then power down the entire storage system. Power it back up, beginning with any disk enclosures (expansion enclosures), then the controller enclosure.
  - If the disk group is still quarantined after performing the above steps, contact technical support.

## 595 - Logged controller serial numbers

**595.1**

**Info**

`Controller serial numbers have been logged. (controller A: <serial number>, controller B: <serial number>)`

None.

**Recommended action:**

- No action is required.

## 596 - Enclosure fault protection broken

### 596.1

**Warning**

Enclosure fault protection has been compromised for the indicated disk group. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

To replace the failed disk, the system was unable to find a spare that met requirements to minimize the risk of data loss in the event of enclosure failure, so the system had to select a spare that did not meet the requirements. For a RAID-6 disk group, this means that more than two member disks are in the same enclosure. For other RAID levels, this means that more than one member disk is in the same enclosure.

**Recommended action:**

- Replace the indicated failed disk in the indicated enclosure to restore enclosure fault protection.

## 597 - Drawer fault protection broken

### 597.1

**Warning**

Drawer fault protection has been compromised for the indicated disk group. (disk group: <name>, SN: <serial number>) (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

To replace the failed disk, the system was unable to find a spare that met requirements to minimize the risk of data loss in the event of drawer failure, so the system had to select a spare that did not meet the requirements. For a RAID-6 disk group, this means that more than two member disks are in the same drawer. For other RAID levels, this means that more than one member disk is in the same drawer.

**Recommended action:**

- Replace the indicated failed disk in the indicated enclosure to restore drawer fault protection.

## 598 - Disk statistics collected

### 598.1

**Info**

Drive statistics captured for evaluation of thresholds. ( enclosure: <enclosure number>, slot: <slot number>, drive SN: <serial number>, passive magnitude: <numeric value>, active magnitude <numeric value>, drive status: <text>)

None.

**Recommended action:**

No action needed.

## 599 - Enclosure power element alert

### 599.1

**Info**

The firmware has yet to retrieve Enclosure Power control status (enclosure: <enclosure number>, WWN: <World Wide Name>). The other <text> is not installed.

The Enclosure Power element provides enclosure level power control.

**Recommended action:**

- No action is required.

**599.2**

**Info**

`The firmware has yet to retrieve Enclosure Power control status (enclosure: <enclosure number>, WWN: <World Wide Name>, errorCode: <error code>).`

The Enclosure Power element provides enclosure level power control.

**Recommended action:**

- Contact technical support.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**599.3**

**Info**

`A previous Warning or Error condition for the Enclosure Power element has been resolved (enclosure: <enclosure number>, WWN: <World Wide Name>).`

The Enclosure Power element provides enclosure level power control.

**Recommended action:**

- No action is required.

**599.4**

**Info**

`An alert has been detected for the Enclosure Power element (enclosure: <enclosure number>, WWN: <World Wide Name>, errorCode: <error code>).`

None.

**Recommended action:**

- No action is required.

## 602 - Midplane Interconnect element alert

**602.1**

**Warning**

`An alert condition was detected on a Midplane Interconnect element (enclosure: <enclosure number>, WWN: <World Wide Name>, errorCode: <error code>).`

The Midplane Interconnect element reports status associated with the interface between the SBB I/O module and the midplane. This is typically some form of communication problem on the midplane interconnect.

**Recommended action:**

- Contact technical support. Provide logs to technical support personnel for analysis.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**602.2**

**Resolved**

A previous Warning or Error condition for the Midplane Interconnect element has been resolved (enclosure: <enclosure number>, WWN: <World Wide Name>).

The Midplane Interconnect element reports status associated with the interface between the SBB I/O module and the midplane.

**Recommended action:**

- No action is required.

## 603 - SAS Connector element alert

**603.1**

**Warning**

An alert condition for a SAS Connector element has been detected (enclosure: <enclosure number>, WWN: <World Wide Name>, errorCode: <error code>).

The SAS Connector element report status information for both external and internal SAS port connectors.

**Recommended action:**

- Contact technical support.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

**603.2**

**Info**

An alert condition for a SAS Connector element has been detected (enclosure: <enclosure number>, WWN: <World Wide Name>, errorCode: <error code>).

The SAS Connector element report status information for both external and internal SAS port connectors.

**Recommended action:**

- No action is required.

## 604 - Replication snapshot failure

**604.1**

**Warning**

A replication snapshot was created. (volume name: <name>, SN: <serial number>).

A replication-set has been configured to retain snapshots of the volume. An error is possible if the snapshot fails.

**Recommended action:**

- Monitor the health of the local system, the replication-set, the volume, and the peer-connection. A full storage pool may be the cause of this fault.
  - Check the peer-connection system health and state.
  - Ensure that the Maximum Licensable Snapshots limit (shown by the CLI 'show license' command) was not exceeded.

**604.2**

**Warning**

A replication snapshot failed to be created. <Error> (volume name: <name>, SN: <serial number>).

A replication-set has been configured to retain snapshots of the volume. An error is possible if the snapshot fails.

**Recommended action:**

- Monitor the health of the local system, the replication-set, the volume, and the peer-connection. A full storage pool may be the cause of this fault.
  - Check the peer-connection system health and state.
  - Ensure that the Maximum Licensable Snapshots limit (shown by the CLI 'show license' command) was not exceeded.

## 605 - Inactive processing core

**605.1**

**Warning**

One or more controller processing cores is not active.

The controller module has multiple processing cores. The system has enough active cores to operate but performance is degraded.

**Recommended action:**

- Attempt to restart all the processing cores as follows:
  - Shut down the controller module that logged this event.
  - Remove the controller module, wait 30 seconds, and then reinsert the controller module.
- If this event is logged again, contact technical support.

## 606 - Supercapacitor charging failure

**606.1**

**Error**

A controller contains unwritten cache data for a volume, and its supercapacitor has failed to charge. (controller: <name>)

Due to the supercapacitor failure, if the controller loses power, it will not have backup power to flush the unwritten data from cache to memory card.

**Recommended action:**

- Verify that the cache-write policy is write-through for all volumes.
- Contact technical support for information about replacing the controller module.

## 607 - Power cycle other controller

**607.1**

**Warning**

The local controller is rebooting the other controller in an Active-Active configuration.

None.

**Recommended action:**

- No action is required.

## 608 - Backend cable miscabled

**608.1**

**Error**

A back-end cable has been miscabled where both controllers are connected. Undefined error type. (error type: <description>)

None.

**Recommended action:**

- One of the cables is incorrectly connected to a controller egress port forming a loop in the SAS topology.

Check back-end cabling from each controller egress port to determine the incorrect connection.

**608.2**

**Error**

A back-end cable has been miscabled, causing controller egress ports to be connected to each other.

None.

**Recommended action:**

- Check back-end cabling and make sure that SAS cables are connected to the correct ports for the port specified. One of the cables is incorrectly connected to a controller egress port forming a loop in the SAS topology.

**608.3**

**Error**

A back-end cable has been miscabled, creating a loop in EBODs.

None.

**Recommended action:**

- Check back-end cabling and make sure that SAS cables are connected to the correct ports for the port specified. One of the cables is incorrectly connected to an EBOD port forming a loop in the SAS topology.

**608.4**

**Error**

A back-end cable has been miscabled. A cable is connected to the middle port but that port is not supported.

None.

**Recommended action:**

- Check back-end cabling and make sure that SAS cables are connected to the correct ports for the port specified. Move the cable from the middle port of the IOM to the left or right port, as appropriate.

## 609 - Drawer open

**609.1**

**Resolved**

A previous Informational or Error condition for the door lock element has been resolved. (enclosure <enclosure number>, drawer: <${drawer} number>)

The door lock element reports status associated with the enclosure drawer.

**Recommended action:**

- No action is required.

**609.2**

**Info**

An alert condition was detected on a door lock element. (enclosure <enclosure number>, drawer: <${drawer} number>, errorCode: <error code>)

The door lock element reports status associated with the enclosure drawer. The drawer sensor is reporting uninstalled.

**Recommended action:**

- No action is required.

**609.3**

**Error**

An alert condition was detected on a door lock element. (enclosure <enclosure number>, drawer: <${drawer} number>, errorCode: <error code>)

The door lock element reports status associated with the enclosure drawer. The drawer has been reporting as open for a long period of time. This may reduce cooling, potentially causing the enclosure to overheat.

**Recommended action:**

- Check that the drawer is fully closed and latched.

When the problem is resolved, an event with the same code will be logged with Resolved severity.

## 610 - Sideplane element alert

**610.1**

**Resolved**

A previous Warning or Error condition for the sideplane element has been resolved. (enclosure <enclosure number>, sideplane: <numeric value>)

None.

**Recommended action:**

- No action is required.

**610.2**

**Error**

An alert condition was detected on a sideplane element. (enclosure <enclosure number>, <location>, errorCode: <error code>, sideplane additional status: <numeric value>)

None.

**Recommended action:**

- Check the drawer that the indicated sideplane is in fully closed and latched.
- If this does not resolve the issue, contact technical support. The enclosure must be replaced.

**610.3**

**Warning**

`A sideplane element was uninstalled. (enclosure <enclosure number>, sideplane: <numeric value>, errorCode: <error code>)`

None.

**Recommended action:**

- The sideplane associated with the drawer must be installed. Contact technical support.

## 611 - Email Notification Event

**611.1**

**Info**

`Email notification sent successfully.`

None.

**Recommended action:**

- Please verify the configured parameters and ask the recipients to confirm that they received the message.

**611.2**

**Error**

`Email notification sent successfully.`

None.

**Recommended action:**

- Please verify the configured parameters and ask the recipients to confirm that they received the message.

**611.3**

**Info**

`Email notification failed. This could be due to an unreachable SMTP server or a difference between the sender and SMTP server domains. Please contact your IT administrator to verify SMTP server and domain details.`

None.

**Recommended action:**

- Please verify the configured parameters and ask the recipients to confirm that they received the message.

**611.4**

**Error**

`Email notification failed. This could be due to an unreachable SMTP server or a difference between the sender and SMTP server domains. Please contact your IT administrator to verify SMTP server and domain details.`

None.

**Recommended action:**

- Please verify the configured parameters and ask the recipients to confirm that they received the message.

**611.5**

**Info**

`Email notification failed due to improper configuration. Please verify the sender, sender-password, domain parameters, and server settings.`

None.

**Recommended action:**

- Please verify the configured parameters and ask the recipients to confirm that they received the message.

**611.6**

**Error**

`Email notification failed due to improper configuration. Please verify the sender, sender-password, domain parameters, and server settings.`

None.

**Recommended action:**

- Please verify the configured parameters and ask the recipients to confirm that they received the message.

## 612 - Connector element alert

**612.1**

**Info**

`An alert condition was detected on an internal chassis SAS connector. (enclosure <enclosure number>, element index: <numeric value>)`

The event message specifies the location of the internal SAS connector in the chassis.

**Recommended action:**

- No action is required.

**612.2**

**Warning**

`An alert condition was detected on an internal chassis SAS connector. (enclosure <enclosure number>, <location>)`

The SAS data path is degraded for the indicated sideplane. I/O performance may be reduced.

**Recommended action:**

- No action is required.

## 613 - IOM element alert

**613.1**

**Resolved**

A previous Warning or Error condition for the IOM has been resolved. (enclosure <enclosure number>, IOM: <name>)

None.

**Recommended action:**

- No action is required.

**613.2**

**Warning**

An alert condition was detected on an IOM. (enclosure <enclosure number>, IOM: <name>, errorCode: <error code>)

None.

**Recommended action:**

- If uninstalled, install the indicated IOM or disk expander otherwise attempt to reseat it.
- If this does not resolve the issue, replace the IOM or disk expander.

**613.3**

**Warning**

An IOM was uninstalled. (enclosure <enclosure number>, IOM: <name>)

None.

**Recommended action:**

- If uninstalled, install the indicated IOM or disk expander otherwise attempt to reseat it.
- If this does not resolve the issue, replace the IOM or disk expander.

**613.4**

**Resolved**

A previous Warning or Error condition for the disk expander has been resolved. (enclosure <enclosure number>, disk expander: <name>)

None.

**Recommended action:**

- No action is required.

**613.5**

**Warning**

An alert condition was detected on a disk expander. (enclosure <enclosure number>, disk expander: <name>, errorCode: <error code>)

None.

**Recommended action:**

- If uninstalled, install the indicated IOM or disk expander otherwise attempt to reseat it.
- If this does not resolve the issue, replace the IOM or disk expander.

**613.6**

**Warning**

A disk expander was uninstalled. (enclosure <enclosure number>, disk expander: <name>)

None.

**Recommended action:**

- If uninstalled, install the indicated IOM or disk expander otherwise attempt to reseat it.
- If this does not resolve the issue, replace the IOM or disk expander.

#### 613.7

**Error**

An alert condition was detected on an IOM. (enclosure <enclosure number>, IOM: <name>, errorCode: <error code>)

None.

**Recommended action:**

- Either install the indicated IOM or disk expander or attempt to reseat it.
- If this does not resolve the issue, replace the IOM or disk expander.

#### 613.8

**Error**

An alert condition was detected on a disk expander. (enclosure <enclosure number>, disk expander: <name>, errorCode: <error code>)

None.

**Recommended action:**

- Either install the indicated IOM or disk expander or attempt to reseat it.
- If this does not resolve the issue, replace the IOM or disk expander.

### 615 - Rebalance array start

#### 615.1

**Info**

An ADAPT disk group has started a rebalance operation because spare capacity is unevenly distributed across disks in the disk group. (name: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

#### 615.2

**Info**

An ADAPT disk group has started a rebalance operation because the disk group has been expanded. (name: <name>, SN: <serial number>).

None.

**Recommended action:**

- No action is required.

## 616 - Rebalance array complete

### 616.1

**Info**

An ADAPT disk group has successfully completed a rebalance operation. (name: <name>, SN: <serial number>).

None.

**Recommended action:**

- No action is required.

### 616.2

**Warning**

An ADAPT disk group did not complete a rebalance operation because of a disk failure. (name: <name>, SN: <serial number>).

None.

**Recommended action:**

- No action is required.

## 617 - Spare capacity goal is not met

### 617.1

**Warning**

The spare capacity available in the ADAPT disk group is not sufficient to meet the configured spare capacity (disk group: <name>, SN: <serial number>) (target spare capacity(GiB): <numeric value>, actual spare capacity(GiB): <count>).

This event indicates that the available space in the system is insufficient to provide the level of full fault tolerance that is specified by the target spare capacity. Spare capacity availability can be influenced by operations that require available space in the system, such as reconstructing data from a failed disk.

**Recommended action:**

- Add disks to the disk group, or replace any disks that may have failed. The system will automatically increase the spare capacity to meet the requirements placed on the system by the target spare capacity.

## 618 - Spare capacity goal is met

### 618.1

**Resolved**

The spare capacity available in the ADAPT disk group meets the configured spare capacity. (disk group: <name>, SN: <serial number>) (target spare capacity(GiB): <numeric value>, actual spare capacity(GiB): <count>).

None.

**Recommended action:**

- No action is required.

## 619 - BR link error fault injection

### 619.1

**Info**

The controller has been injected with a fault to introduce a BR link error.

None.

**Recommended action:**

- No action is required.

## 620 - Expander zoning error

### 620.1

**Error**

A connected expander has zoning enabled, which may limit disk access. (enclosure: <enclosure number>, WWN: <World Wide Name>)

Disk access will change depending on the port used to connect to the expander.

**Recommended action:**

- Load a valid firmware bundle to disable zoning.

### 620.2

**Resolved**

A connected expander has zoning enabled, which may limit disk access. (enclosure: <enclosure number>, WWN: <World Wide Name>)

Expander zoning has been disabled for the indicated enclosure.

**Recommended action:**

- No action is required.

## 621 - Degraded ADAPT rebalance started

### 621.1

**Info**

An ADAPT disk group has started a REFT (rebalance fault tolerant) operation because the disk group has both fault tolerant and critical stripe zones. (disk group: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 622 - Degraded ADAPT rebalance completed

### 622.1

**Info**

An ADAPT disk group has successfully completed a REFT (rebalance fault tolerant) operation. (disk group: <name>, SN: <serial number>)

None.

**Recommended action:**

- No action is required.

## 623 - Management controller parameters set

**623.1**

**Info**

Management Controller configuration parameters were set.

One or more configuration parameters associated with the Management Controller (MC) have been changed, such as configuration for SNMP, email notification, and system strings (system name, system location, etc.).

**Recommended action:**

- No action is required.

## 626 - Unsupported TPID

**626.1**

**Info**

Detected an unsupported enclosure (midplane Type ID) (enclosure <enclosure number>, unsupported TPID <numeric value>).

None.

**Recommended action:**

- Replace the unsupported enclosure with a supported one.

## 628 - Firmware mismatch

**628.1**

**Error**

Detected a firmware mismatch between the controller enclosure and an expansion enclosure (enclosure <enclosure number>).

The firmware mismatch may be caused by attaching an enclosure configured as a server-attached JBOD instead of as an expansion enclosure, or by installing a new IOM FRU with incompatible firmware.

**Recommended action:**

- Upgrade the expansion enclosure's firmware to the appropriate level for connecting it to the controller enclosure
- If you receive this event when no new enclosures or IOMs have been added, please contact support.

## 630 - Disk remanufacture started

**630.1**

**Info**

A disk has started a remanufacture operation. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

The system will rework the disk so that it can be reused. The operation will result in reduced capacity. Do not replace the disk until the remanufacture operation is complete. This can take a long time, and completion will be indicated by event 631.

**Recommended action:**

- No action is required.

## 631 - Disk remanufacture complete

**631.1**

**Info**

A disk remanufacture operation completed successfully. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

The disk is available to be placed into a disk group, but will have decreased capacity because a head has been removed from service.

**Recommended action:**

- No action is required.

**631.2**

**Warning**

A disk remanufacture operation failed. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)

The disk should be replaced.

**Recommended action:**

- Replace the disk with a compatible disk with the same or greater capacity. For continued optimum I/O performance, the replacement disk should have performance that is the same as or better than the one it is replacing.

## 632 - Flush/restore failure

**632.1**

**Error**

A flush restore failure occurred. (disk group SN: <serial number>)

An integrity check failed on data restored from cache.

**Recommended action:**

- Allow time for the partner controller to recover the data and unkill the controller.

## 635 - IOC PHY setting changed

**635.1**

**Warning**

An I/O controller (IOC) PHY setting was changed by a user. (link speed: <link speed>, state: <State>, port: <port number>, lane: <Lane>)

None.

**Recommended action:**

- No action is required.

## 636 - Killed by other controller

**636.1**

**Error**

`The other controller killed this controller for an unknown reason. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 637 - Killed because of heartbeat loss

**637.1**

**Error**

`The other controller killed this controller because it stopped responding via the inter-controller heartbeat. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 638 - Illegal memory access

**638.1**

**Error**

`This is an illegal access to memory by the CPU. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 639 - Access violation

**639.1**

**Error**

`Access violation in the software. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 640 - Divide by zero

**640.1**

**Error**

`The software attempted to divide by 0. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 641 - Assert or OSM debug

**641.1**

**Error**

`Detected an Assert or OSM debug error. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 642 - PCI fault error

**642.1**

**Error**

`Detected a PCI fault error. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 643 - NMI fault error

**643.1**

**Error**

`Detected a non-maskable interrupt fault error. <detailed error information>`

The system will automatically recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 644 - Firmware upload

**644.1**

**Info**

`Successfully uploaded firmware to the system. (target partition ID: <Partition ID>)`

None.

**Recommended action:**

- No action is required.

**644.2**

**Warning**

`Unable to upload firmware to the system. (target partition ID: <Partition ID>, status: <numeric value>)`

The firmware bundle is using an outdated format.

**Recommended action:**

Verify that you are using the correct firmware bundle. Only valid firmware bundles will be accepted.

**644.3**

**Error**

`Unable to upload firmware to the system. (target partition ID: <Partition ID>, status: <numeric value>)`

The encryption or bundle signature is invalid.

**Recommended action:**

Verify that you are using the correct firmware bundle. Only valid firmware bundles will be accepted.

## 645 - Invalid FRU data

**645.1**

**Critical**

`Could not retrieve valid FRU data. (type: OEM ID)`

None.

**Recommended action:**

Contact technical support. Provide logs to technical support personnel for analysis.

**645.2**

**Critical**

`Could not retrieve valid FRU data. (type: config selector)`

None.

**Recommended action:**

Contact technical support. Provide logs to technical support personnel for analysis.

**645.3**

**Critical**

`Could not retrieve valid FRU data. (type: midplane SN)`

None.

**Recommended action:**

Contact technical support. Provide logs to technical support personnel for analysis.

**645.4**

**Critical**

`Could not retrieve valid FRU data. (type: FDE information)`

None.

**Recommended action:**

Contact technical support. Provide logs to technical support personnel for analysis.

**645.5**

**Critical**

`Could not retrieve valid FRU data. (type: unknown)`

None.

**Recommended action:**

Contact technical support. Provide logs to technical support personnel for analysis.

## 647 - Controller crash due to CAPI hang

**647.1**

**Error**

`This Storage Controller is restarting due to an internal error.`

This Storage Controller experienced a management-interface hang and will restart to recover.

**Recommended action:**

- Please collect logs and contact technical support for further action.

## 651 - FDE disk erased

**651.1**

**Warning**

`An FDE disk has been erased. (disk: channel: <channel index>, ID: <device identifier>, SN: <serial number>, enclosure: <enclosure number>, slot: <slot number>)`

None.

**Recommended action:**

- No action is required.

## 652 - HW component error

**652.1**

**Error**

`Detected an error in a hardware component <Hardware Component>`

None.

**Recommended action:**

- Contact technical support. Provide logs to technical support personnel for analysis.

## 653 - PSU HW mismatch

**653.1**

**Error**

`Detected a power supply hardware mismatch <PSU Mismatch>.`

Enclosure power supplies must be the same model or compatible models.

**Recommended action:**

- Contact technical support. Provide logs to technical support personnel for analysis.

## 654 - Pool recovery

### 654.1

**Info**

A virtual pool recovery command was issued. (recovery type: <Recovery Type>, rebooting: <Recovery Reboot>, fix: <Recovery Fix>) (pool: <pool name>, SN: <serial number>)

Consult technical support before using this command. Depending on the errors and recovery method, the pool may be repaired or brought online in a damaged state.

**Recommended action:**

- Please collect logs and contact technical support to determine if further actions are needed.

### 654.2

**Info**

A virtual pool recovery command was issued. (recovery type: <Recovery Type>, rebooting: <Recovery Reboot>, fix: <Recovery Fix>) (pool: <pool name>, SN: <serial number>) (pool: <pool name>, SN: <serial number>)

Consult technical support before using this command. Depending on the errors and recovery method, the pool may be repaired or brought online in a damaged state.

**Recommended action:**

- Please collect logs and contact technical support to determine if further actions are needed.

## 658 - System health for firmware upgrade

### 658.1

**Info**

The system health is sufficient to support firmware upgrade.

None.

**Recommended action:**

- No action is required.

### 658.2

**Warning**

The system health is degraded and cannot support firmware upgrade. (number of pre-firmware upgrade tests failed: <number of pre-firmware upgrade tests failed>, pre-firmware upgrade failed tests: <number of pre-firmware upgrade tests failed> )

None.

**Recommended action:**

- Run the CLI command 'show system' and follow the recommended actions to fix the issues.

## 660 - Link speed capability

### 660.1

**Warning**

The SAS host topology has changed and the link speed is higher than the reported cable capability. (link speed: <link speed> Gb/s, cable speed: <cable speed> Gb/s)

None.

**Recommended action:**

- Replace the SAS cable with one that is qualified for use in this system.

## 661 - System certificate store change

### 661.1

**Info**

Certificate <Cert Name> has been activated for service <Secure Service Name>.

None.

**Recommended action:**

- No action is required.

### 661.2

**Info**

Removed user certificate and activated system-generated certificate <Cert Name> for service <Secure Service Name>.

None.

**Recommended action:**

- No action is required.

### 661.3

**Error**

Error activating default system-generated certificate <Cert Name> for service <Secure Service Name> (errorcode: <Cert Event Extra Data>).

None.

**Recommended action:**

- Activate a valid system certificate for service Secure Service Name to function as expected.

### 661.4

**Error**

No system-generated certificate found for service <Secure Service Name>.

None.

**Recommended action:**

- Activate a system certificate for service Secure Service Name to function as expected.

### 661.5

**Warning**

Removed default system-generated certificate <Cert Name> for service <Secure Service Name>.

None.

**Recommended action:**

- If a certificate for the controller is active, then no action is required. Otherwise, use the CLI 'regenerate certificate' command to regenerate the default system-generated certificate.

#### 661.6

**Info**

The default system-generated certificate <Cert Name> was successfully regenerated for service <Secure Service Name>.

None.

**Recommended action:**

- No action is required.

#### 661.7

**Warning**

During bootup, the system could not validate the customer-supplied certificate <Cert Name> and switched to using the system-generated certificate for the service <Secure Service Name>.

None.

**Recommended action:**

- To use a customer-supplied certificate, upload and activate a valid certificate along with its associated trust certificates.

### 663 - Host link error

#### 663.1

**Error**

The host link PHY error count is greater than the error threshold. (port: <port number>, type: <type>)

None.

**Recommended action:**

- No action is required.

#### 663.2

**Warning**

The host link PHY error count is greater than the warning threshold. (port: <port number>, type: <type>)

None.

**Recommended action:**

- No action is required.

#### 663.3

**Resolved**

The host link PHY error count has been resolved. (port: <port number>, type: <type>)

None.

**Recommended action:**

- No action is required.

## 664 - Volume Usage Changed

**664.1**

**Info**

The usage type of a volume has changed. (volume: <volume name>, SN: <serial number>, old usage type: <type>, new usage type: <type>)

None.

**Recommended action:**

- No action is required.

## 665 - Quarantine data access recovery started

**665.1**

**Info**

An ADAPT disk group has started a QDAR (quarantine data access recovery) operation to recover from being offline due to disk failures. (disk group: <name>, SN: <serial number>)

None.

**Recommended action:**

Do not remove or replace disks while the recovery is taking place.

## 666 - Quarantine data access recovery completed

**666.1**

**Info**

An ADAPT disk group has completed a QDAR (quarantine data access recovery) operation. (disk group: <name>, SN: <serial number>, status: <status>)

None.

**Recommended action:**

Verify the data and rewrite the bad LBA range from a backup.

## 667 - Scrub disk group in progress

**667.1**

**Error**

A scrub-disk-group job in-progress (<numeric value>% completed). Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)

This event is logged as Error severity when more than 100 parity or mirror mismatches are found and corrected during a scrub or when 1 to 99 parity or mirror mismatches are found and corrected during each of 10 separate scrubs of the same disk group.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**667.2**

**Warning**

`A scrub-disk-group job in-progress (<numeric value>% completed). Errors were found. (number of parity or mirror mismatches found: <numeric value>, number of media errors found: <numeric value>) (disk group: <name>, SN: <serial number>)`

This event is logged as Warning severity when 1 to 99 parity or mirror mismatches are found and corrected during a scrub.

For non-fault-tolerant RAID levels (RAID 0 and non-RAID), media errors may indicate loss of data.

**Recommended action:**

- Resolve any non-disk hardware problems, such as a cooling problem or a faulty controller module, expansion module, or power supply.
- Check whether any disks in the disk group have logged SMART events or unrecoverable read errors.
  - If so, and the disk group is a non-fault-tolerant RAID level (RAID 0 or non-RAID), copy the data to a different disk group and replace the faulty disks.
  - If so, and the disk group is a fault-tolerant RAID level, check the current state of the disk group. If it is not FTOL then back up the data as data may be at risk. If it is FTOL then replace the indicated disk. If more than one disk in the same disk group has logged a SMART event, back up the data and replace each disk one at a time. In virtual storage it may be possible to remove the affected disk group, which will drain its data to another disk group, and then re-add the disk group.

**667.3**

**Info**

`A scrub-disk-group job in-progress (<numeric value>% completed). No errors were found. (disk group: <name>, SN: <serial number>)`

This event is logged as Informational severity when neither parity nor mirror mismatches are found during a scrub.

**Recommended action:**

- No action is required.

## 669 - Firmware update blocked

**669.1**

**Error**

Firmware update was blocked. (reason: <reason>)

None.

**Recommended action:**

- Verify that the correct firmware is being used.
- Contact technical support and provide logs for analysis.

## 670 - Shutdown hardware flush error

### 670.1

**Error**

A hardware flush error occurred during controller shutdown. (reason: <reason>, status: <status>)

None.

**Recommended action:**

- Contact technical support. Provide logs to technical support personnel for analysis.

## 671 - Volume delete started

### 671.1

**Info**

Volume delete operation has started. (deleted volume SN: <serial number>, volume: <volume name>, pool: <name>, delete type: <delete type>)

None.

**Recommended action:**

Do not remove or replace disks while the volume is being deleted.

## 672 - Supercapacitor status

### 672.1

**Error**

The supercapacitor failed during calibration or verification. (p1: <numeric value>, p2: <numeric value>, p3: <numeric value>, p4: <numeric value>)

None.

**Recommended action:**

- Retry calibrating the supercapacitor.

### 672.2

**Info**

The supercapacitor was successfully calibrated and verified. (p1: <numeric value>, p2: <numeric value>, p3: <numeric value>, p4: <numeric value>)

None.

**Recommended action:**

- No action is required.

## 673 - SCSI ID changed

**673.1**

**Warning**

`The system detected a change in the SCSI <type> ID. (Old: <identifier>, New: <identifier>)`

**Recommended action:**

- No action is required.

## 674 - A MAS Agent has terminated

**674.1**

**Error**

`MAS Agent has terminated`

**Recommended action:**

- Download the MAS Agent logs from your storage system and contact technical support.

## 675 - MAS Service failure

**675.1**

**Info**

`MAS Service (<numeric value>) failure (<numeric value>) related to MC API communication failure.`

**Recommended action:**

- No action is required.

**675.2**

**Info**

`MAS Service (<numeric value>) failure (<numeric value>) related to proxy server communication failure.`

**Recommended action:**

- No action is required.

**675.3**

**Info**

`MAS Service (<numeric value>) failure (<numeric value>) related to cloud service communication failure.`

**Recommended action:**

- No action is required.

**675.4**

**Info**

MAS Service (<numeric value>) failure (<numeric value>) related to filesystem error(s).

**Recommended action:**

- No action is required.

**675.5**

**Info**

MAS Service (<numeric value>) unknown failure (<numeric value>).

**Recommended action:**

- No action is required.

## 677 - System timezone changed

**677.1**

**Info**

Timezone was changed to <name>.

None.

**Recommended action:**

- No action is required.

## 678 - DST Changed

**678.1**

**Info**

Daylight saving time setting has changed. (value: <State>)

None.

**Recommended action:**

- No action is required.

## 690 - Supercapacitor capacitance measurement started

**690.1**

**Info**

Supercapacitor capacitance measurement has started.

None.

**Recommended action:**

- No action is required.

## 691 - Supercapacitor capacitance measurement complete

**691.1**

**Info**

The supercapacitor's capacitance measurement completed successfully. (Capacitance: <Capacitance>)

None.

**Recommended action:**

- No action is required.

## 692 - Supercapacitor recharge complete

**692.1**

**Info**

The supercapacitor has finished recharging. (Pack voltage: <voltage>)

None.

**Recommended action:**

- No action is required.

## 693 - Defragmentation operation complete

**693.1**

**Info**

The defragmentation operation has completed.

None.

**Recommended action:**

- No action is required.