



## **sas events**

### ONTAP EMS reference

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# sas events

## sas.8001 events

### sas.8001.firmware.fault

#### Severity

NOTICE

#### Description

This message occurs when the PM8001 serial-attached SCSI (SAS) host bus adapter reports an adapter firmware error.

#### Corrective Action

(None).

#### Syslog Message

Detected firmware error on serial-attached SCSI (SAS) adapter %s. Scratchpad registers: 0x%x, 0x%x, 0x%x, 0x%x.

#### Parameters

**adapterName** (STRING): Name of the associated serial-attached SCSI (SAS) host bus adapter.

**scratchpad0** (INTHEX): Contents of the host bus adapter scratchpad register 0.

**scratchpad1** (INTHEX): Contents of the host bus adapter scratchpad register 1.

**scratchpad2** (INTHEX): Contents of the host bus adapter scratchpad register 2.

**scratchpad3** (INTHEX): Contents of the host bus adapter scratchpad register 3.

# sas.8072 events

## sas.8072.firmware.fault

#### Severity

NOTICE

#### Description

This message occurs when the PM8072 serial-att (SAS) host bus adapter reports an adapter firmware error.

#### Corrective Action

(None).

#### Syslog Message

Detected firmware error on serial-attached SCSI (SAS) adapter %s. Scratchpad register: 0x%x.

#### Parameters

**adapterName** (STRING): Name of the associated serial-attached SCSI (SAS) host bus adapter.

**sscratchpad1** (INTHEX): Contents of the host bus adapter scratchpad register.

# **sas.adapter events**

## **sas.adapter.bad.WWN**

### **Severity**

ERROR

### **Description**

The base WWN associated with the SAS adapter is of invalid format. A correct WWN will be synthesized. The adapter will continue to function but this error indicates a manufacturing problem.

### **Corrective Action**

The controller should be replaced with a correctly programmed one.

### **Syslog Message**

The SAS WWN "%s" associated with adapter %s is bad. A valid one will be synthesized.

### **Parameters**

**WWN** (STRING): The bad WWN.

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.debug**

### **Severity**

INFORMATIONAL

### **Description**

The SAS adapter driver debug event.

### **Corrective Action**

(None).

### **Syslog Message**

(None).

### **Parameters**

**adapterName** (STRING): The name of the associated SAS host bus adapter.

**debug\_string** (STRING): The debug statement that occurred.

## **sas.adapter.failed**

### **Severity**

ERROR

### **Description**

The SAS adapter driver could not recover the adapter after resetting it multiple times. The adapter will be put offline.

### **Corrective Action**

If the adapter is in use check cabling and if connected to disk shelves check the seating of IOM cards and disks. If the problem keeps occurring try replacing the adapter. Finally if the issue is still not resolved please

contact NetApp technical support for assistance in diagnosing a SAS issue.

### Syslog Message

Failed to recover SAS %s after multiple resets. Offlining the adapter.

### Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.firmware.download**

### Severity

INFORMATIONAL

### Description

The firmware is being updated on the SAS adapter.

### Corrective Action

(None).

### Syslog Message

Updating firmware on SAS adapter %s from version %s to version %s.

### Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

**oldFirmwareVersion** (STRING): The version of the firmware currently on the adapter.

**newFirmwareVersion** (STRING): The version of the firmware being downloaded to the adapter.

## **sas.adapter.firmware.fault**

### Severity

NOTICE

### Description

A firmware fault was detected on the SAS adapter and it is being reset to recover.

### Corrective Action

(None).

### Syslog Message

Detected firmware fault 0x%x on SAS adapter %s.

### Parameters

**faultCode** (INTHEX): The firmware fault code.

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.firmware.update.failed**

### Severity

EMERGENCY

## Description

The firmware on the SAS adapter was unable to be updated.

## Corrective Action

The adapter should be replaced as soon as possible. The SAS adapter driver will attempt to continue using the adapter without updating the firmware image.

## Syslog Message

Unable to update firmware on SAS adapter %s.

## Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.not.ready**

### Severity

ERROR

## Description

The SAS adapter did not become ready after being reset.

## Corrective Action

The SAS adapter driver will automatically attempt to recover from this error. If the error keeps occurring the adapter may need to be replaced.

## Syslog Message

SAS adapter %s did not become ready.

## Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.offline**

### Severity

INFORMATIONAL

## Description

The SAS adapter is now offline.

## Corrective Action

(None).

## Syslog Message

SAS adapter %s is now offline.

## Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.offlining**

**Severity**

INFORMATIONAL

**Description**

The SAS adapter is going offline after all outstanding I/O requests have finished.

**Corrective Action**

(None).

**Syslog Message**

Offlining SAS adapter %s.

**Parameters**

**adapterName** (STRING): The name of the associated SAS host bus adapter.

**sas.adapter.online****Severity**

INFORMATIONAL

**Description**

The SAS adapter is now online.

**Corrective Action**

(None).

**Syslog Message**

SAS adapter %s is now online.

**Parameters**

**adapterName** (STRING): The name of the associated SAS host bus adapter.

**sas.adapter.online.failed****Severity**

ERROR

**Description**

The SAS adapter failed to come online.

**Corrective Action**

If the adapter is in use check cabling and if connected to disk shelves check the seating of IOM cards.

**Syslog Message**

SAS adapter %s failed to come online.

**Parameters**

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.onlining**

### **Severity**

INFORMATIONAL

### **Description**

The SAS adapter is in the process of going online.

### **Corrective Action**

(None).

### **Syslog Message**

Onlining SAS adapter %s.

### **Parameters**

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.unexpected.status**

### **Severity**

NOTICE

### **Description**

The SAS adapter returned an unexpected status and will be reset to recover.

### **Corrective Action**

(None).

### **Syslog Message**

Unexpected status 0x%x received from SAS adapter %s.

### **Parameters**

**status** (INTHEX): The status returned from the adapter.

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## **sas.adapter.wwn.update.fail**

### **Severity**

ERROR

### **Description**

This message occurs when the WWN, a unique world wide name that identifies the adapter, fails to update.  
This message only applies to internal lab systems.

### **Corrective Action**

Contact your administrator.

### **Syslog Message**

SAS adapter "%s" fails to update WWN "%s".

## Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter.

**WWN** (STRING): WWN of the associated SAS host bus adapter.

## sas.adapter.wwn.updated

### Severity

NOTICE

### Description

This message occurs when an SAS host bus adapter's worldwide name (WWN) is updated successfully.

The WWN is a unique name that identifies the serial-attached SCSI (SAS) host bus adapter.

### Corrective Action

(None).

### Syslog Message

SAS adapter "%s" WWN updated from "%s" to "%s"

## Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter.

**OldWWN** (STRING): Old WWN of the associated SAS host bus adapter.

**WWN** (STRING): New WWN of the associated SAS host bus adapter.

## sas.cable events

## sas.cable.degraded

### Severity

ERROR

### Description

This message occurs when the cable attached to SAS (Serial Attached SCSI) adapter port is functioning in a degraded mode.

### Corrective Action

This condition implies one or more of the lanes in a 4-wide cable is functioning at a less-than-optimal speed, or is not functioning and has been disabled. The port will continue functioning but in a degraded, lower-performing mode. The cable should be replaced at some point in the future.

### Syslog Message

Cable attached to SAS port "%s" is functioning in a degraded mode.

## Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## sas.cable.linkratelow

### Severity

NOTICE

## Description

This message occurs when the expander or cable attached to the SAS (serial-attached SCSI) host bus adapter port is functioning at a speed lower than its specification. This could happen because the HBA is connected to an IOM that supports a lower speed, or because of a speed degradation due to a faulty component, or because of a lower common shelf stack speed.

## Corrective Action

(None).

## Syslog Message

Expander or cable attached to SAS port %s is operating at %s, which is lower than expected.

## Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter.

**currentSpeed** (STRING): Current link rate for SAS host bus adapter, cable, and IOM expander.

## **sas.cable.unqualified**

### Severity

EMERGENCY

## Description

This message occurs when a Serial Attached SCSI (SAS) cable attached to a controller port has not been qualified by NetApp. Unqualified cables might exhibit unpredictable behavior or experience higher error rates than qualified cables.

## Corrective Action

Replace the cable with one qualified by NetApp

## Syslog Message

Cable attached to SAS port %s has not been qualified by NetApp

## Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter port.

## **sas.config events**

### **sas.config.bad**

#### Severity

ERROR

## Description

This message occurs when the SAS (Serial Attached SCSI) adapter is connected to a misconfigured SAS domain. Most likely a shelf in-port is attached to another in-port, or a shelf out-port is attached to another out-port. The SAS domain is effectively inoperative and attached SAS adapters will be taken offline. When the misconfiguration is corrected, the affected adapters can be brought back online.

## Corrective Action

Correct the inter-shelf cabling configuration as defined in the applicable hardware documentation, and then bring the affected adapters back online.

## Syslog Message

Adapter "%s" is connected to misconfigured SAS domain and being taken offline.

## Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

## sas.config.badtransition

### Severity

ERROR

### Description

This message occurs when a SAS (Serial Attached SCSI) adapter is connected to a misconfigured SAS domain. A shelf with a 12 Gigabit-per-second (12 Gb/s) data rate might have been attached to a 3 or 6 Gb/s homogeneous stack or vice-versa. An external homogeneous stack does not allow for any transitions between 12 Gb/s and other data rates. The only exception is when an adapter is attached to an embedded internal shelf. A single transition between an internal shelf and the first external shelf attached to it is allowed. The message will appear the first time a transition is detected on a reboot or storage discovery operation.

### Corrective Action

Correct the inter-shelf cabling configuration as defined in the applicable hardware documentation. Ensure that the shelf stack is homogeneous. 3 Gb/s and 6 Gb/s shelves are considered homogeneous.

## Syslog Message

Unsupported speed transition by expander WWN: %s at level %d in SAS stack on adapter port %s.

## Parameters

**expanderWWN** (STRING): WWN of the expander that caused the illegal transition.

**expanderLevel** (INT): Level of the expander in the stack causing the transition. It is the physical depth of the shelf in the SAS stack where the error occurs, counting outwards from the adapter port.

**adapterName** (STRING): Name of the associated SAS host bus adapter port.

## sas.config.invalid

### Severity

ERROR

### Description

This message occurs when the SAS (Serial Attached SCSI) adapter is connected to a SAS domain that contains more than the supported number of disk shelves or enclosures. The SAS domain is functional, but some disk shelves/enclosures might not be visible to the system.

### Corrective Action

Remove disk shelves or enclosures attached to the applicable SAS adapter in question, until the supported limit is reached. (4 for FAS2040 and FAS2050 systems, 10 for all other systems)

## Syslog Message

Adapter "%s" is connected to more than the supported number of disk shelves or enclosures.

## Parameters

**adapterName** (STRING): The name of the associated SAS adapter.

## **sas.config.mixed.detected**

### Severity

ERROR

### Description

This message occurs when a SAS (Serial Attached SCSI) disk shelf contains a mixture of SAS drives, SATA drives or Bridged SAS drives. Mixing drive types within a disk shelf is not supported.

### Corrective Action

Ensure that each SAS disk shelf is populated with drives of only one type.

### Syslog Message

SAS shelf "%s" attached to adapter "%s" contains a mixture of drive types. Mixed configurations are not supported.

## Parameters

**shelfID** (STRING): ID or serial number of the disk shelf where a mixture of drive types was detected.

**adapterName** (STRING): Name of the associated SAS host bus adapter.

## **sas.cpr events**

## **sas.cpr.failed**

### Severity

EMERGENCY

### Description

This message occurs when the CPR (Core PCIe Resilience) infrastructure determines that the SAS controller hardware cannot be recovered, and the associated SAS ports will be taken offline.

### Corrective Action

Replace the SAS controller.

### Syslog Message

CPR recovery failed on SAS HBA %s.

## Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter (HBA).

## **sas.cpr.recoveryThreshold**

### Severity

EMERGENCY

### Description

This message occurs when the SAS driver determines that CPR (Core PCIe Resilience) recovery of the

SAS controller hardware has exceeded thresholds, and the associated SAS ports will be taken offline.

#### Corrective Action

Replace the SAS controller.

#### Syslog Message

CPR recovery threshold has been exceeded on SAS HBA %s.

#### Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter (HBA).

## **sas.cpr.recoveryTimeout**

#### Severity

ALERT

#### Description

This message occurs when the SAS driver determines that CPR (Core PCIe Resilience) recovery of the SAS controller hardware has timed out, and the associated SAS ports will be taken offline.

#### Corrective Action

Replace the SAS controller.

#### Syslog Message

CPR recovery timed out on SAS HBA %s.

#### Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter (HBA).

## **sas.device events**

### **sas.device.bad.vmdisk.header**

#### Severity

ERROR

#### Description

This message occurs when a disk's vmdisk header is bad. The disk is unusable by the system.

#### Corrective Action

Remove the disk from the system and either write a new vmdisk header to the disk or zero the disk.

#### Syslog Message

SAS adapter %s reports the device at port identifier %d has an invalid vmdisk header: %s.

#### Parameters

**adapterName** (STRING): Name of the associated SAS host bus adapter.

**devicePortId** (INT): Identifier of the SAS port device.

**errorString** (STRING): Identifies what is wrong with the vmdisk header.

## **sas.device.invalid.wwn**

### **Severity**

ERROR

### **Description**

The SAS device responded with an invalid World-Wide Name.

### **Corrective Action**

Power-cycling the device may allow it to recover from this problem.

### **Syslog Message**

SAS adapter %s reports the device at port identifier 0x%x has an invalid World-Wide Name.

### **Parameters**

**adapterName** (STRING): The name of the associated SAS host bus adapter.

**devicePortId** (INTHEX): The SAS port identifier of the device.

## **sas.device.timeout**

### **Severity**

ERROR

### **Description**

All outstanding commands to the specified device have not completed within the allotted time. As part of the standard error handling sequence managed by the Data ONTAP SAS driver, all commands to the device will be aborted and reissued.

### **Corrective Action**

Device level timeouts are a common indication of a SAS link stability problem. In some cases the link is operating normally and the specified device is having trouble processing I/O requests in a timely manner. In such cases the specified device should be evaluated for possible replacement. Quite often the problem results from the partial failure of a component involved in the SAS transport. Common things to check include complete seating of drive carriers in enclosure bays, properly secured cable connections, IOM seating, and crimped or otherwise damaged cables.

### **Syslog Message**

Adapter %s encountered a device timeout on %s device %s.

### **Parameters**

**adapterName** (STRING): The name of the associated SAS host bus adapter.

**deviceType** (STRING): The device type.

**deviceName** (STRING): The name of the SAS device.

## **sas.initialization events**

### **sas.initialization.failed**

### **Severity**

ERROR

## Description

The SAS adapter failed to initialize the link and appears to be unattached/disconnected.

## Corrective Action

If the adapter is in use check cabling and if connected to disk shelves check the seating of IOM cards.

## Syslog Message

Initialization failed on SAS adapter %s.

## Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

# sas.link events

## sas.link.error

### Severity

ERROR

## Description

The SAS adapter was unable to recover the link and is going offline.

## Corrective Action

If the adapter is in use check cabling and if connected to disk shelves check the seating of IOM cards and disks. If this does not resolve the issue please contact NetApp technical support for assistance in diagnosing a SAS issue.

## Syslog Message

Could not recover link on SAS adapter %s after %d seconds. Offlining the adapter.

## Parameters

**adapterName** (STRING): The name of the associated SAS host bus adapter.

**downTime** (INT): The amount of time that the link was down.

# sas.reset events

## sas.reset.exp.discovery.resp

### Severity

NOTICE

## Description

This message occurs when SAS adapter driver resets the expander because of failure status of discovery response.

## Corrective Action

If this message is infrequent, no action is needed. Otherwise, contact NetApp technical support.

## Syslog Message

SAS adapter [%s]: Incorrect status in discovery response, resetting expander: %s

## Parameters

**adapterName** (STRING): Name of the associated SAS adapter.

**expanderName** (STRING): Name of the expander being reset.

## sas.reset.exp.open.dest

### Severity

NOTICE

### Description

This message occurs when SAS adapter driver resets the expander because open frames are receiving excessive no/bad destination status.

### Corrective Action

If this message is infrequent, no action is needed. Otherwise, contact NetApp technical support.

## Syslog Message

SAS adapter [%s]: Excessive open no/bad destination status, resetting expander: %s

## Parameters

**adapterName** (STRING): Name of the associated SAS adapter.

**expanderName** (STRING): Name of the expander being reset.

## sas.reset.exp.open.to

### Severity

NOTICE

### Description

This message occurs when SAS adapter driver resets the expander because of excessive open timeouts.

### Corrective Action

If this message is infrequent, no action is needed. Otherwise, contact NetApp technical support.

## Syslog Message

SAS adapter [%s]: Excessive open timeouts occurred, resetting expander: %s

## Parameters

**adapterName** (STRING): Name of the associated SAS adapter.

**expanderName** (STRING): Name of the expander being reset.

## sas.reset.exp.smp

### Severity

NOTICE

## Description

This message occurs when SAS adapter driver resets the expander because of excessive SMP failures.

## Corrective Action

If this message is infrequent, no action is needed. Otherwise, contact NetApp technical support.

## Syslog Message

SAS adapter [%s]: Excessive SMP failures occurred, resetting expander: %s

## Parameters

**adapterName** (STRING): Name of the associated SAS adapter.

**expanderName** (STRING): Name of the expander being reset.

# sas.shelf events

## sas.shelf.conflict

### Severity

ERROR

### Description

This message occurs when the system detects that two or more SAS (serial attached SCSI) disk shelves have the same shelf ID. The SAS domain is functional, but references to disk shelves will be based on disk shelf serial numbers, not disk shelf IDs.

### Corrective Action

Reassign disk shelf IDs so that no conflict exists.

## Syslog Message

At least two SAS disk shelves have the same disk shelf ID.

## Parameters

(None).

# sas.unsupported events

## sas.unsupported.port

### Severity

ALERT

### Description

This message occurs when ONTAP detects that a cable is attached to an I/O module port that is permanently disabled and does not support attachment.

### Corrective Action

Remove the cable from the unsupported port on the I/O module.

## Syslog Message

Port 0b2 on shelf ID %lld.%s, cable detected on unsupported port.

## Parameters

**shelfID** (LONGINT): Shelf ID of the shelf reporting the error.

**element** (STRING): I/O module designator (A or B).

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