



sas events

ONTAP 9.11.1 EMS reference

NetApp
December 15, 2022

Table of Contents

- sas events 1
 - sas.adapter events 1
 - sas.cable events 5
 - sas.config events 6
 - sas.cpr events 8
 - sas.device events 9
 - sas.initialization events 11
 - sas.link events 11
 - sas.reset events 12
 - sas.shelf events 13

sas events

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 (INHEX): 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 (INHEX): The status returned from the adapter.

adapterName (STRING): The name 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).

Copyright information

Copyright © 2022 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

Trademark information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.