



shm events

ONTAP EMS reference

NetApp
November 22, 2024

Table of Contents

- shm events 1
 - shm.bypassed events 1
 - shm.disk events 2
 - shm.fab events 2
 - shm.failurebytes events 3
 - shm.nvme events 3
 - shm.pulllogwarning events 4
 - shm.reformat events 4
 - shm.ssd events 5
 - shm.threshold events 6

shm events

shm.bypassed events

shm.bypassed.disk.fail

Deprecated

Deprecated as of Data ONTAP 9.3 because bypass code has been removed.

Severity

ERROR

Description

This message occurs when the system recommends that a disk be failed because it has been bypassed.

Corrective Action

(None).

Syslog Message

shm: Disk %s has been recommended for failure due to being bypassed by the shelf.

Parameters

diskName (STRING): Name of the disk.

shm.bypassed.disk.fail.disabled

Deprecated

Deprecated as of Data ONTAP 9.3 because bypass code has been removed.

Severity

ALERT

Description

This message occurs when three or more disks have been bypassed on a port.

Corrective Action

(None).

Syslog Message

shm: Disk bypass check has been disabled due to multiple bypassed disks on host bus adapter %s, shelf %d.

Parameters

hba (STRING): Name of the host bus adapter.

shelf (INT): Shelf ID.

shm.bypassed.disk.fail.enabled

Severity

NOTICE

Description

This message occurs when the bypass disabled state is cleared.

Corrective Action

(None).

Syslog Message

shm: Disk bypass check has been enabled for host bus adapter %s.

Parameters

hba (STRING): Name of the host bus adapter.

shm.disk events

shm.disk.lostWriteError

Severity

ERROR

Description

This message occurs when the system detects a lost write error.

Corrective Action

(None).

Syslog Message

shm: Disk %s has detected and recovered from a lost write error; the system will fail the disk if possible.

Parameters

diskName (STRING): Name of the disk.

shm.fab events

shm.fab.writeError

Severity

NOTICE

Description

This message occurs when an error is received while writing the failure bytes.

Corrective Action

(None).

Syslog Message

shm: Unable to write failure bytes to disk %s due to error %x.

Parameters

diskName (STRING): Name of the disk.
error_code (INTECH): Error code returned.

shm.fab.writeSenseError

Severity

NOTICE

Description

This message occurs when an error is received while writing the failure bytes.

Corrective Action

(None).

Syslog Message

shm: Unable to write failure bytes to disk %s due to error %x/%x/%x/%x.

Parameters

diskName (STRING): Name of the disk.
sense_key (INTECH): Actual sense key.
sense_code (INTECH): Actual sense code.
qualifier (INTECH): Actual sense code qualifier.
fru_failed (INTECH): Actual FRU code.

shm.failurebytes events

shm.failureBytes.fullError

Severity

NOTICE

Description

This message occurs when writing the failure byte area returns an error due to being full.

Corrective Action

(None).

Syslog Message

shm: Disk %s failure area has reached capacity; to clear, reload drive firmware.

Parameters

diskName (STRING): Name of the disk.

shm.nvme events

shm.NVME.critical.warning

Severity

ERROR

Description

This message occurs when the NVMe drive returns a critical warning to the health monitor.

Corrective Action

(None).

Syslog Message

Disk %s returned a critical warning 0x%x and will be recommended for failure.

Parameters

disk_name (STRING): Name of the disk.

warning_code (INTHEX): Warning code returned.

shm.pulllogwarning events

shm.pullLogWarning

Severity

NOTICE

Description

This message occurs when the disk dongle requests the system to retrieve the error log.

Corrective Action

(None).

Syslog Message

shm: Disk %s has returned %d warnings and the log will be saved.

Parameters

diskName (STRING): Name of the disk.

count (INT): Count of warnings received.

shm.reformat events

shm.reformat.diskError

Severity

ERROR

Description

This message occurs when the system tries to reformat a disk, but an error is returned.

Corrective Action

(None).

Syslog Message

shm: Unable to format disk %s as it is not supported.

Parameters

diskName (STRING): Name of the disk.

shm.reformat.partnerDisk

Severity

NOTICE

Description

This message occurs when the system detects a drive that started formatting during a sanitization, but did not finish.

Corrective Action

Reboot the partner node to clear the formatting condition. Rerun the original sanitize operation.

Syslog Message

shm: Disk %s on the partner has possibly not completed format. To reformat the disk, the partner must be rebooted.

Parameters

diskName (STRING): Name of the disk.

shm.reformat.startMsg

Severity

NOTICE

Description

This message occurs when the system has begun to reformat a disk that was not completed during sanitization.

Corrective Action

(None).

Syslog Message

shm: Disk %s is being reformatted due to an error during disk sanitize.

Parameters

diskName (STRING): Name of the disk.

shm.ssd events

shm.ssd.threshold.ioLatency

Severity

NOTICE

Description

This message occurs when ONTAP® detects that a solid-state drive (SSD) has an average block latency during a five-minute timeframe that is greater than expected. ONTAP will continue to monitor the SSD latency and might fail the SSD if it exceeds latency thresholds.

Corrective Action

(None).

Syslog Message

SSD %s has exceeded the expected block latency in the current timeframe with an average latency of %d us and an average utilization of %d percent. The next highest SSD latency: %d us. %s

Parameters

disk_name (STRING): Name of the disk.

latency_avg (INT): Average block latency in the current timeframe in microseconds (us).

util_avg (INT): Average drive utilization percent in the current timeframe.

next_hi_latency_avg (INT): Average block latency for the SSD with the next highest block latency in the current timeframe.

disk_information (STRING): Formatted information about the disk. This includes the disk's vendor, model, firmware revision, and serial number.

shm.threshold events

shm.threshold.agrsvIOCount

Deprecated

This event is removed as it is a test message not intended for customers.

Severity

NOTICE

Description

This message occurs when the system detects a disk that exceeds the threshold count of high aggressive IO latencies.

Corrective Action

(None).

Syslog Message

Disk %s has exceeded %d IOs which have latencies greater than the threshold.

Parameters

disk_name (STRING): Name of the disk.

agrsv_IO_count (INT): Count of aggressive timeout IOs.

shm.threshold.allMediaErrors

Severity

ERROR

Description

This message occurs when the system detect more than 25 medium and/or recovered errors in a 10-minute window.

Corrective Action

(None).

Syslog Message

shm: Disk %s has crossed the combination media error threshold in a 10 minute window.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.checksumErrors**Severity**

ERROR

Description

This message occurs when a disk exceeds the threshold of checksum errors on the same block.

Corrective Action

(None).

Syslog Message

shm: Disk %s has exceeded the threshold for checksum errors on the same block; the system will fail the disk.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.consecutiveAborts**Severity**

ERROR

Description

This message occurs when a disk exceeds the threshold of consecutive abort errors on one drive.

Corrective Action

(None).

Syslog Message

shm: Disk %s has exceeded the threshold of %d consecutive abort errors; the system will fail the disk if possible.

Parameters

diskName (STRING): Name of the disk.

count (INT): Count of errors.

shm.threshold.consecutiveTimeouts

Severity

ERROR

Description

This message occurs when a disk exceeds the threshold of consecutive timeouts on one drive.

Corrective Action

(None).

Syslog Message

shm: Disk %s has exceeded the threshold of %d consecutive timeouts; the system will fail the disk if possible.

Parameters

diskName (STRING): Name of the disk.

count (INT): Count of errors.

shm.threshold.disk.pcycle

Severity

ERROR

Description

This message occurs when a disk exceeds the threshold of power-cycle error recovery tries.

Corrective Action

(None).

Syslog Message

shm: Disk %s has exceeded the threshold for power-cycle error recovery events; the system will fail the disk if possible.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.disk.poh

Severity

NOTICE

Description

This message occurs when the storage system contains drives that exceed five years of cumulative power-on hours. This five-year period represents the expected reliable lifespan of the drive. The likelihood that a drive will fail increases significantly the longer the drive stays in use beyond its warranty period.

Corrective Action

For additional guidance, search for Support Bulletin SU464 on the NetApp Support Site.

Syslog Message

There are "%d" drives that have exceeded five years of life. To view them, use the "storage disk show -power-on-hours >=43800 -fields power-on-hours" command.

Parameters

count (INT): Count of drives that have exceeded the five year threshold.

shm.threshold.highIOLatency

Severity

ERROR

Description

This message occurs when the system detects a disk that has an average IO latency during the current window that is significantly greater than all other drives of the same class.

Corrective Action

(None).

Syslog Message

Disk %s exceeds the average IO latency threshold and will be recommended for failure.

Parameters

disk_name (STRING): Name of the disk.

shm.threshold.lipStormReset

Severity

ERROR

Description

This message occurs when the system detects more than one instance of a disk resetting itself because of a large number of Loop Initialization Procedure requests (a LIP storm). The disk will be failed.

Corrective Action

Replace the disk.

Syslog Message

shm: The system has detected more than one LIP storm reset on disk %s.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.mediaErrorsLba

Severity

ERROR

Description

This message occurs when the system detects more than three media (recovered or medium) errors on the same block.

Corrective Action

(None).

Syslog Message

shm: Disk %s has had multiple media errors on sector %llu.

Parameters

diskName (STRING): Name of the disk.

block_num (LONGINT): Block number.

shm.threshold.mediaErrorsReassign**Severity**

ERROR

Description

This message occurs when the system detects more than three medium and/or recovered errors in a 10-minute window on the same disk sector. The bad sector will be reassigned.

Corrective Action

(None).

Syslog Message

shm: Disk %s has had multiple media errors on the same sector in the last 10 minutes, and is reassigning the sector.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.mediumErrors**Severity**

ERROR

Description

This message occurs when the system detects more than 25 medium errors in a 10-minute window.

Corrective Action

(None).

Syslog Message

shm: Disk %s has crossed the medium error threshold in a 10 minute window.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.mediumErrors7days**Severity**

ERROR

Description

This message occurs when the system detects more than 100 medium errors in a seven-day window.

Corrective Action

(None).

Syslog Message

shm: Disk %s has crossed the medium error threshold in a seven-day window.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.ratedLife

Severity

NOTICE

Description

This message occurs when the rated life used by a solid state drive (SSD) exceeds 90%. When an SSD reaches 100% of rated life, it might not be able to retain data while powered off for long periods of time.

Corrective Action

The number of weeks of rated life remaining indicated for each SSD is an estimate based on past usage. If the SSD is expected to remain in service beyond the estimated remaining time, initiate planning for SSD replacement when the rated life reaches 100%. Use the "storage disk show -ssd-wear" command to monitor the current rated life used by your SSDs.

Syslog Message

shm: There are %d drives that have consumed at least 90 percent of their rated life: %s.

Parameters

count (INT): Count of drives that have exceeded the threshold.

disk_names (STRING): Name, percentage of rated life and estimated remaining time before reaching 100% rated life of each SSD that has exceeded the threshold.

shm.threshold.ratedLife2

Severity

ERROR

Description

This message occurs when the rated life used by a solid state drive (SSD) exceeds 95%. When an SSD reaches 100% of rated life, it might not be able to retain data while powered off for long periods of time.

Corrective Action

The number of weeks of rated life remaining indicated for each SSD is an estimate based on past usage. If the SSD is expected to remain in service beyond the estimated remaining time, initiate planning for SSD replacement when the rated life reaches 100%. Use the "storage disk show -ssd-wear" command to monitor the current rated life used by your SSDs.

Syslog Message

shm: There are %d drives that have consumed at least 95 percent of their rated life: %s.

Parameters

count (INT): Count of drives that have exceeded the threshold.

disk_names (STRING): Name, percentage of rated life and estimated remaining time before reaching 100% rated life of each SSD that has exceeded the threshold.

shm.threshold.ratedLifeMax

Severity

ALERT

Description

This message occurs when the rated life used value exceeds 100% on a solid state drive (SSD). When an SSD reaches 100% of rated life, it might not be able to retain data while powered off for long periods of time.

Corrective Action

Replace the SSDs that have reached the end of their rated life.

Syslog Message

shm: There are %d drives that have reached the end of their rated life: %s

Parameters

count (INT): Count of drives that have exceeded the threshold.

disk_names (STRING): Name and percentage of rated life of each SSD that has exceeded the threshold.

shm.threshold.recoveredErrors

Severity

ERROR

Description

This message occurs when the system detects more than 25 recovered errors in a 10-minute window.

Corrective Action

(None).

Syslog Message

shm: Disk %s has crossed the recovered error threshold in a 10 minute window.

Parameters

diskName (STRING): Name of the disk.

shm.threshold.sensekey

Severity

ERROR

Description

This message occurs when a disk exceeds the threshold of a particular sense key error.

Corrective Action

(None).

Syslog Message

shm: Disk %s has exceeded the threshold for sense key %d errors; the system will fail the disk if possible.

Parameters

diskName (STRING): Name of the disk.

senseKey (INT): Sense key value.

shm.threshold.spareBlocksConsumed

Severity

NOTICE

Description

This message occurs when the spare blocks consumed value exceeds the first threshold on an SSD drive.

Corrective Action

(None).

Syslog Message

shm: There are %d disks that have consumed at least 60 percent of their use-based internal spare capacity. The affected disks are: %s.

Parameters

count (INT): Count of disks which have exceeded the threshold.

disk_names (STRING): Names of the disk drives.

shm.threshold.spareBlocksConsumedMax

Severity

NOTICE

Description

This message occurs when the spare blocks consumed value exceeds the second threshold on an SSD drive.

Corrective Action

(None).

Syslog Message

shm: There are %d disks that have consumed at least 80 percent of their use-based internal spare capacity. The affected disks are: %s.

Parameters

count (INT): Count of disks which have exceeded the second threshold.

disk_names (STRING): Names of the disk drives.

Copyright information

Copyright © 2024 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.