



**Linux® Unified Host Utilities 7.1**

# **Release Notes**

August 2016 | 215-11441\_A0ur001  
[doccomments@netapp.com](mailto:doccomments@netapp.com)



# Contents

<b>Linux Unified Host Utilities 7.1 Release Notes .....</b>	<b>6</b>
Change in the Linux Host Utilities product name .....	6
About the 7.1 release of the Linux Unified Host Utilities .....	6
Information on finding system requirements .....	7
Changes in this release .....	7
Updates to the Release Notes .....	7
<b>Important Cautions .....</b>	<b>10</b>
<b>Known limitations .....</b>	<b>11</b>
(FC) Creating partitions on DM-Multipath causes an error .....	11
(FC) Host freezes after unloading QLogic driver .....	12
(FC) DM-Multipath failback delayed after giveback .....	12
(FC) Commands hang when interconnect cable is pulled .....	13
(FC) scli qlinstall script fails when running uninstall option .....	13
(FC) Host creates /dev/sd* if LUN 0 missing .....	13
(FC) The DM-Multipath driver fails to create device maps for new devices .....	14
Blacklisting a SCSI device using devnode method might create problems on reboots. ....	14
(iSCSI) OCFS2 self-fencing occurs during cluster failover .....	14
(RHEV, FC and iSCSI) Storage repository creation fails with physical and logical volume size mismatch error .....	15
<b>(Red Hat) Known issues when running Red Hat Enterprise Linux .....</b>	<b>16</b>
(Red Hat) sanlun not supported with Red Hat Enterprise Virtualization Hypervisor .....	16
(Red Hat) LUN resizing fails when using rescan-scsi-bus.sh script .....	16
(Red Hat, FC) I/O delays or system hangs sometimes seen after CFOs or SFOs on hosts running Red Hat Enterprise Linux and ALUA .....	16
Known problems and limitations for Red Hat Enterprise Linux 7 .....	17
(Red Hat, FC) Device resets seen on hosts running Red Hat 6.3 and Emulex .....	19
(Red Hat, FC) BSOD with BugCheck 3B seen with Microsoft Windows Server 2003 x64 guest VMs .....	19
(Red Hat, FC) Executing rescan-scsi-bus.sh -i with Cisco M81KR/P81E CNA can result in read-only root file system .....	20
(Red Hat, FC) SG_IO ioctl fails on DM-Multipath devices after an FC fault .....	20
(Red Hat, FC) Red Hat 6.1 host fails to add all LUN paths after fabric fault .....	20
(Red Hat, FC) Support for DM-Multipath root device fails if user_friendly_names is disabled .....	21
(Red Hat, FC) Automatic mounting of DM-Multipath devices fails .....	22
(Red Hat, FC) With Red Hat 6.3 and QLogic, path failures and I/O outages seen during fabric failures .....	22
(Red Hat, FC) With Red Hat 6 and QLogic, host occasionally crashes at qla2x00_process_completed_request .....	22

(Red Hat, FC) With Red Hat 6 and QLogic, host becomes unresponsive during I/O with faults .....	23
(Red Hat, FC) With Red Hat 6 and Emulex, host occasionally panics at lpfc_abort_handler .....	23
(Red Hat, FC) Host running Red Hat 6 or 5.6 with Emulex 8 Gb hangs during fabric faults .....	23
(Red Hat) With Red Hat 6, wrong path grouping occurs after storage system fault with I/O .....	24
(Red Hat) With Red Hat 6, DM-Multipath fails to update paths during I/O with fabric faults .....	24
(Red Hat, iSCSI) With Red Hat 6.2 or 6.3, soft lockup affects multipathd functionality .....	25
(Red Hat, iSCSI) With Red Hat 6 series, out of memory exception seen with more than 1,024 LUNs and DM-Multipath .....	25
(Red Hat, iSCSI) With Red Hat 6 series, iSCSI sessions log out even with iSCSI LUNs mounted .....	26
(Red Hat, iSCSI) service clvmd restart fails .....	26
(Red Hat, iSCSI) With Red Hat 6.2 or 6.3, soft lockup affects multipathd functionality .....	26
(Red Hat, iSCSI) Online GFS grow feature is not supported on iSCSI LUN .....	27
(Red Hat, iSCSI) With Red Hat 6, iSCSI script fails to show correct status .....	28
(RHEL) Change in UNMAP parameter value fails to automatically reflect on Red Hat Enterprise Linux 6.x hosts after NDU .....	28
(Red Hat) ext4 file system creation on LV striped across 15 or more discard-enabled multipath devices triggers “request botched” kernel errors .....	29
(RHEL, FC) sanlun does not display speed and firmware information on Intel cards .....	30
(RHEL, Brocade HBA/CNA) sanlun displays intermittent error .....	30
<b>(SUSE) Known issues when running SUSE Linux Enterprise Server ...</b>	<b>31</b>
multipathd daemon segfault error seen on SUSE Linux Enterprise Server 12 hosts .....	31
Path failures observed on a multipathd SUSE Linux Enterprise Server 12 host .....	31
The message “conflicting device node '/dev/mapper/360xx' found” appears when reconfiguring LUNs while creating DM devices on SUSE Linux Enterprise Server 12 host .....	31
The scsi_dh_alua module fails to load during multipathd startup with local boot on SUSE Linux Enterprise Server 12 host .....	31
(SUSE) Delays seen when you run rescan-scsi-bus.sh -r on SUSE Linux Enterprise Server 11 SP2 hosts after unmapping a LUN .....	32
(SUSE, FC) I/O delays seen during cluster failovers in environments using Data ONTAP 8.1 .....	32
(SUSE) Open-iSCSI initiator fails to stop even though root file system is not on the iSCSI device .....	32
(SUSE, FC) SUSE Linux Enterprise Server 11 SP2 does not accept changes to dev_loss_tmo, fast_io_fail_tmo .....	32

(SUSE, FC) I/O delays sometimes seen after CFOs on hosts running SUSE Linux Enterprise Server 11 SP1 and ALUA .....	33
(SUSE, FC) SUSE Linux Enterprise Server 11 SP1 with ALUA sometimes crashes during CFOs .....	33
(SUSE, FC ) With SUSE 11 SP1, DM-Multipath sometimes fails to update maps after I/O fault .....	33
(SUSE, FC) With SUSE 10.3 and Emulex 4 Gb, FC ports go offline during controller faults .....	34
(SUSE, iSCSI) IPv6 iSCSI sessions not discovered during SUSE installation .....	34
(SUSE, iSCSI) Path update delays seen during controller faults on hosts running SUSE Linux Enterprise Server 11 SP2 .....	35
(SUSE, iSCSI) When installing SUSE Linux Enterprise Server 11 SP2, the host cannot discover iSCSI targets using IPv6 addresses .....	35
(SUSE, iSCSI) Online resize of file system not supported .....	35
(SUSE, iSCSI) One or more ext3 file systems not mounted after reboot .....	36
(SUSE, iSCSI) sanlun does not display all iSCSI LUNs .....	36
<b>(Veritas) Known issues when running the Host Utilities with Veritas ...</b>	<b>37</b>
(Veritas) I/O delay seen on systems using iSCSI .....	37
(Veritas) With SUSE Linux and iSCSI, volumes might enter disabled state after controller fault .....	37
(Veritas) Storage space reclamation fails on Linux hosts using VSF with specific versions of Data ONTAP .....	37
I/O failures seen on RHEL5 hosts with Veritas Storage Foundation 5.1SP1RP4 during storage failover operations .....	38
<b>Ways to view current and fixed product bugs .....</b>	<b>39</b>
<b>Updates to NetApp documentation .....</b>	<b>40</b>
DM-Multipath recommended for all configurations .....	40
Recommended timeout values enable multipathing to work with NetApp storage .....	40
Default values recommended when using drivers bundled with Linux kernel .....	40
<b>NetApp product documentation .....</b>	<b>41</b>
How to search for documentation on the NetApp Support Site .....	41
Links to NetApp product documentation .....	41
<b>NetApp Linux Community Program .....</b>	<b>43</b>
<b>Contact technical support .....</b>	<b>44</b>
Things to check before you call technical support .....	44
Information you must provide to technical support .....	44
How to contact NetApp technical support .....	44
<b>Copyright information .....</b>	<b>45</b>
<b>Trademark information .....</b>	<b>46</b>
<b>How to send comments about documentation and receive update notifications .....</b>	<b>47</b>

## Linux Unified Host Utilities 7.1 Release Notes

---

These Release Notes contain the latest information for the Linux Unified Host Utilities 7.1, including updates about known problems and limitations, information about tunable parameters, and any important cautions. The Release Notes also include any issues that might have been discovered since the Host Utilities were released.

These Release Notes are updated when new information about using the Linux Unified Host Utilities becomes available. It is a good practice to periodically check the “Updates to the Release Notes” section to see whether new information has been added since you last checked.

### Change in the Linux Host Utilities product name

Linux Host Utilities is now called Linux Unified Host Utilities because it supports NetApp E-Series storage systems running SANtricity and FAS systems running ONTAP.

Any mention of Host Utilities or Linux Host Utilities in this document refers to Linux Unified Host Utilities.

### About the 7.1 release of the Linux Unified Host Utilities

The Linux Unified Host Utilities support several Linux operating systems as well as Veritas Storage Foundation. The Host Utilities enable you to connect a Linux host to NetApp storage systems.

You can use the Host Utilities with the following versions of Linux:

- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- Oracle Linux
- Oracle VM
- Citrix XenServer
- Red Hat Enterprise Virtualization Hypervisor

**Note:** For specific information about the operating system versions and updates that the Host Utilities support, see the Interoperability Matrix Tool.

[NetApp Interoperability Matrix Tool](#)

The Host Utilities software is provided as both 32-bit and 64-bit `.rpm` files. You can download the correct `.rpm` file for your host architecture and the documentation from the NetApp Support Site.

[NetApp Support](#)

For instructions about installing and setting up, see the *Linux Unified Host Utilities 7.1 Installation Guide* and the document *Linux Unified Host Utilities 7.1 Quick Command Reference*.

[Linux Unified Host Utilities 7.1 Installation Guide](#)

## Information on finding system requirements

NetApp qualifies additional components between releases of the Host Utilities software.

For the latest information about the system requirements, see the Interoperability Matrix, which is available online at [mysupport.netapp.com/matrix](https://mysupport.netapp.com/matrix).

## Changes in this release

This release of the Linux Host Utilities has a new product name and provides support for a tuned package for setting server profiles and improving I/O performance on Red Hat Enterprise Linux 6 and 7 hosts.

- The Linux Host Utilities product is now called the Linux Unified Host Utilities because it supports the SANtricity, ONTAP.  
The Linux Unified Host Utilities 7.1 continues to support versions of Red Hat Enterprise Linux, Red Hat Enterprise Virtualization Hypervisor, SUSE Linux Enterprise Server, Oracle VM, Oracle Linux, Citrix XenServer, Veritas, and InfoScale 7.0.
- Red Hat Enterprise Linux 6 and 7 now have a tuned package with a `tuned-adm` command to set different server profiles on the host depending on the environment.  
This includes an enterprise storage profile for configurations where LUNs from enterprise storage arrays are used. You can also use the virtual guest profile for Red Hat Enterprise Linux as a guest virtual machine. Using these tuned packages can result in marked improvement in throughput and latency on ONTAP.

The *Linux Unified Host Utilities 7.1 Installation Guide* and *Linux Unified Host Utilities 7.1 Quick Command Reference* documents provide explanations about various features.

[Linux Unified Host Utilities 7.1 Installation Guide](#)

**Note:** NetApp continues to work with the Host Utilities and add support for features after the initial release. For the most up-to-date information about which features are supported and which new features have been added, see the Interoperability Matrix.

## Updates to the Release Notes

The Release Notes are updated between product releases as new information is uncovered.

New features and enhancements in Linux Unified Host Utilities 7.1:

- Adds support for 32 Gb Fibre Channel adapters from Emulex and Qlogic.
- Fixes “`sanlun lun show -p` getting SIGABRT” in SLES12SP1, OL7.2, RHEL7.2, and RHEL 6.8.
- Extends support for Red Hat Linux 6.8, Oracle Linux 6.8, XenServer 7.0, Oracle VM 3.3 series, and Oracle VM 3.4 series operating systems.

The following changes have occurred since the Linux Host Utilities 6.1 release.

**January 2015**—The Release Notes were updated in January 2015 to add the following information:

- You can now find information relating to ONTAP, SANtricity software in the Release Notes.
- An issue that causes kernel crashes to occur on Red Hat Enterprise Linux 7.0 with QLE2672 while running I/O has been discovered.  
For more information, refer to known problems and limitations.

[Known problems and limitations for Red Hat Enterprise Linux 7](#) on page 17.

- The *Recommended Host Settings for Linux Unified Host Utilities 7.1* document has been updated to include new information about Oracle VM 3.2 series, Oracle Linux 6 and 7 series, Red Hat Enterprise Linux 6 and 7 series, SUSE Linux Enterprise Server 11 SP4, SUSE Linux Enterprise Server 12 series, KVM and XEN, RHEV 6.4 and 6.5, and Citrix XenServer parameters.
- The *Using Linux Host with ONTAP Storage* document has been updated to include new information about Oracle Linux 6 and 7 series, Red Hat Enterprise Linux 6 and 7 series, SUSE Linux Enterprise Server 11 SP4, SUSE Linux Enterprise Server 12 series, and Citrix XenServer parameters.
- An issue that results in failure of storage repository creation on a LUN has been discovered on systems running Red Hat Enterprise Virtualization Manager (RHEV-M) 3.0 with Data ONTAP 8.1 or later, with both FC and iSCSI.  
For more information, see [\(RHEV\) Storage repository creation fails with error](#) on page 15.
- `request` blotched kernel errors have been discovered while attempting to create an ext4 file system on thinly provisioned LUNs.  
For more information, see [\(Red Hat\) ext4 file system creation kernel error](#) on page 29.
- Change in the UNMAP parameter value fails to automatically reflect on Red Hat Enterprise Linux 6.x hosts after NDU.  
For more information, see [\(RHEL\) Change in UNMAP parameter value fails to automatically reflect on Red Hat Enterprise Linux 6.x hosts](#) on page 28.
- Storage space reclamation fails on Linux hosts using VSF on specific versions of ONTAP.  
For more information, see [\(Veritas\) Storage space reclamation fails on Linux hosts using Veritas Storage Foundation](#) on page 37.
- The `sanlun fcp show adapter` command displays intermittent “error” text when Linux Host Utilities 6.2 is installed on a Brocade HBA or CNA host.  
For more information, see [\(Brocade HBA/CNA\) sanlun displays intermittent “error”](#) on page 30.
- The `sanlun` command does not display speed and firmware information with software FCoE on Intel cards.  
For more information, see [\(Linux\) \(FC\) sanlun does not display speed and firmware information](#) on page 30.
- Support for Intel NIC and Brocade HBA/CNA.  
For more information, see the “Setup procedures for Intel NIC, QLogic, Brocade, and Emulex HBAs” section in the Installation and Setup Guide.

The following issues occur on the Red Hat Enterprise Linux 7.0 operating system:

- Host crash occurs on an Emulex 16 Gb FC host while performing storage faults.
- Firmware dumps and mailbox command timeouts occur on QLogic 8 Gb and 16 Gb FC host while performing storage faults.
- The message “driver's buffer pool is empty, IO busied” is displayed on Emulex 10 Gb FCoE host while performing storage faults.
- ENOSPC in XFS does not handle the “space allocation failed write project” condition during the data protect check.  
The XFS file system does not become read-only after this condition occurs.
- Too many commands are executed from the DMMP layer as part of the path check.
- When you boot the operating system, Dracut does not assign an IP address to the Ethernet address.



This prevents iSCSI sessions from being established during the boot process.

- When you install the Red Hat Enterprise Linux 7.0 OS on an iSCSI multipathd LUN, multiple iSCSI sessions should be established.  
When the host establishes multiple iSCSI session with a target, Anaconda displays an error message stating that iSCSI logins failed even though the logins are successful. This is how Anaconda usually reports issues and this does not affect iSCSI functionality.
- When you install the Red Hat Enterprise Linux 7.0 OS on an iSCSI multipathd LUN, Anaconda is expected to generate a kernel command line with the host or target IP or iSCSI details.  
However, Anaconda does not add the `bootdev` argument in the kernel command line to set the IP address on the host Ethernet interfaces. As a result, OS boot fails.

For more information about these issues, see [Known problems and limitations for Red Hat Enterprise Linux 7](#) on page 17.

## **Important Cautions**

---

There are no important cautions at this time.

## Known limitations

---

To use the Host Utilities most efficiently, you should be aware that performance can be affected by known issues about a particular feature, such as a network, or by features that the Host Utilities do not support, such as a specific version of an operating system.

Often there are workarounds for any limitation that has been identified.

### (FC) Creating partitions on DM-Multipath causes an error

In some cases when a system is running the FC protocol, the partitioning software reports an error after you create a partition on a server running DM-Multipath.

#### About this task

For example, the `fdisk` command might produce the following error messages when it cannot update the partition table on the disk.

```
WARNING: Re-reading the partition table failed with error 22: Invalid
argument.
The kernel still uses the old table.
The new table will be used at the next reboot.
```

The error messages indicate that the new partition is not recognized, which means that the system does not automatically create a new DM-Multipath device for the partition.

The following workaround resolves this problem. This workaround does not disturb other multipath maps and only needs to be performed after a new partition is created.

#### Steps

1. Create a new partition by executing the following command:  
`fdisk`
2. Read the partition table on the multipath device by executing the following tool:  
`kpartx -a <partition_name>`
3. Create new multipath devices for the partitions.

#### Example of creating a new partition

```
# ls -l /dev/mapper/
total 0
crw----- 1 root root 10, 63 Apr 26 18:08 control
brw-rw---- 1 root disk 253, 0 Apr 27 16:10 mpath0
# kpartx -a /dev/mapper/mpath0
# ls -l /dev/mapper/
total 0
crw----- 1 root root 10, 63 Apr 26 18:08 control
brw-rw---- 1 root disk 253, 0 Apr 27 16:10 mpath0
brw-rw---- 1 root disk 253, 1 Apr 27 16:11 mpath0p1
```

**After you finish**

For the latest status on this issue, see bug 196448 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

**(FC) Host freezes after unloading QLogic driver**

The Linux host freezes after you unload or reload the QLogic HBA FC driver even though DM-Multipath devices are mounted on it.

When you use DM-Multipath, only the common qla2xxx module usage count is incremented or decremented. The qla2300/qla2400 usage count is not changed. If you unload or reload the QLogic driver while the qla2xxx module is in use, then the next time you run a command such as `umount /mnt/tmp` or `/etc/init.d/boot.multipath start` on the host, the host freezes until you reboot it.

To prevent this problem, always make sure the qla2xxx module is not in use before you unload or reload the QLogic driver. You can use the `lsmod | grep qla2xxx` command to see if the module is loaded. If the command does not provide any output, the module is not loaded.

If the module is loaded, you can check the usage count to see if it is in use. A usage count of 0 for the qla2xxx module indicates that it is not in use. To check the usage count, run the `lsmod | grep qla2xxx` command.

The following example shows a usage count of 321, which means the module is in use and cannot be unloaded.

```
lsmod | grep qla2xxx
qla2xxx                1227393  321
scsi_transport_fc       83145   1 qla2xxx
scsi_mod                199385  18
be2iscsi,ib_iser,iscsi_tcp,bnx2i,libcxgbi,libiscsi2,
scsi_transport_iscsi2,scsi_dh_alua,scsi_dh_sg,qla2xxx,scsi_transport_fc,l
ibata,mptspi,
mptscsih,scsi_transport_spi,sd_mod
```

**(FC) DM-Multipath failback delayed after giveback**

In certain environments, DM-Multipath failback is delayed by four to five minutes after a controller giveback occurs. This can happen in environments where the `/etc/multipath.conf` file uses `readsector0 path_checker` and the host is running the FC protocol and either SUSE Linux Enterprise Server 10, SUSE Linux Enterprise Server 10 SP1, or Red Hat Enterprise Linux 5.

During this time, a complete I/O stall occurs on the host before I/O resumes on the primary paths.

It is also possible that, after a giveback, I/O continues on the secondary paths for the same amount of time as the DM-Multipath failback delay before it resumes on the primary paths.

During this I/O stall, the `multipath -ll` command displays the primary paths status as `[failed]` `[ready]`. In addition, no `multipathd` messages are logged in the syslog, even though `multipathd` has a default polling interval of 5 seconds.

To work around this problem, use one of the following methods:

- **(SUSE Linux, Red Hat Linux 5 Update 1 and later)** In the `/etc/multipath.conf` file, use `path_checker directio` instead of `readsector0` or `tur`. Doing this ensures there are no delays during failback.
- During the delayed failback, update the primary path status by restarting `multipathd`:

```
/etc/init.d/multipathd restart
```

After you do that, I/O immediately resumes on the primary paths.

## (FC) Commands hang when interconnect cable is pulled

When the NetApp controller interconnect cable is pulled, commands such as `multipath -ll` and `sanlun lun show` hang.

To prevent this problem, ensure that the interconnect cable is properly connected and working.

## (FC) scli qlinstall script fails when running uninstall option

The SANsurfer `scli qlinstall` script fails when running the `uninstall` option on a Linux host that is using FC and a QLogic driver that was part of the Linux operating system distribution.

The script displays an error message similar to the following:

```
ERROR:qla2xxx does not seem to be installed
```

To avoid this problem you must unload the current driver and then install the required driver. Here is the workaround for this issue:

1. Make sure the current QLogic driver is not in use.
  - a. Run the `lsmod | grep qla2` command to display the usage count.
  - b. If the device is in use, stop all the processes using devices that are accessed through the QLogic driver.
2. Uninstall the current QLogic driver by performing one of the following tasks on the host where the driver is loaded:
  - Run the `uninstall` option of the SANsurfer `scli qlinstall` script.
  - Run the `modprobe -r {qla2300 | qla2400}` command.
3. Confirm that the QLogic driver has been successfully unloaded.
  - a. Run the `lsmod | grep qla2xxx` command. If the driver does not appear in the output, then it has been successfully unloaded.
4. Install the required driver by running the SANsurfer `scli qlinstall` script without any options.

## (FC) Host creates /dev/sd\* if LUN 0 missing

If the first LUN mapped to a host has an ID other than 0, the host creates a `/dev/sd*` for the missing LUN 0.

To resolve the problem, map a LUN 0 to the host and reload the HBA driver.

**Note:** Adding a LUN 0 without reloading the driver does not resolve the problem.

To prevent this problem, when you map LUNs to the host, make sure the first LUN is always LUN 0. By default, Data ONTAP does this when you do not explicitly specify the LUN identifier.

## (FC) The DM-Multipath driver fails to create device maps for new devices

The DM-Multipath driver fails to create device maps after you configure multipath devices on the host. No DM-Multipath entries appear in the `/dev/mapper/` directory or in the `multipath -l/-ll` command output.

This problem occurs when there are stale SCSI device entries in the `sysfs` file. The DM-Multipath driver cannot create appropriate device maps when there are stale SCSI device entries in the `sysfs` file.

To work around this problem you must identify the stale SCSI device entries and exclude (blacklist) them. Use one of the following methods to determine which entries to exclude:

- 1. Run the `sanlun lun show` command.
- 2. Check the `sysfs` (or `/sys/block/`) file.
- 3. Exclude all the `sd` entries that were not displayed by the `sanlun lun show` command.
- Run the `scsi_id -gus` command, and then exclude the `sd` entries that display errors.

To exclude entries, you can modify the blacklist section of the DM-Multipath configuration file. For more information, see the [Linux Unified Host Utilities Installation Guide](#).

## Blacklisting a SCSI device using devnode method might create problems on reboots.

A problem can occur when you use the `devnode` method to exclude (blacklist) a device in the DM-Multipath configuration file. When you reboot the host after using the `devnode` method, the wrong device is blacklisted.

This problem occurs because a device that is registered as `sda` during one boot process might not be registered as `sda` in the next boot process.

The workaround for this problem is to use the `WWID` method to blacklist the device in the `multipath.conf` file.

## (iSCSI) OCFS2 self-fencing occurs during cluster failover

During a clustered failover or network disruption on a system that is using iSCSI, Oracle Cluster File System (OCFS2) nodes might fence themselves by panicking.

OCFS2 uses a fencing mechanism that relies on each node being able to write a heartbeat value to a specific area on each OCFS2 volume. Every two seconds, each node writes a new heartbeat value and reads the value of the other node. If a node cannot write or read the heartbeat value, it retries the operation a specific number of times before it self-fences by panicking the Linux kernel as it fails to obtain quorum.

During a clustered failover or network disruption, all paths to the storage system can become unavailable, which means that none of the nodes in the OCFS2 cluster is able to write or read a heartbeat value. This can cause the nodes to fence themselves by panicking.

The workaround for this problem is to set the `O2CB_HEARTBEAT_THRESHOLD` value in `/etc/sysconfig/o2cb` to a value large enough to ensure that the nodes do not self-fence.

With a dedicated TCP/IP network for the iSCSI link between Linux hosts and the storage system, a reasonable value is usually 181. This value corresponds to a total of 360 seconds before a node self-fences.

Depending on the load in the iSCSI network, you should raise the value. It is best to use a value in the range of 61 to 201, which is ideal for a configuration with OCFS2 on multipath and iSCSI devices.

For more information, see the OCFS FAQs.

#### Related information

[OCFS FAQs](#)

## (RHEV, FC and iSCSI) Storage repository creation fails with physical and logical volume size mismatch error

Attempts to create a storage repository (SR) on a LUN fail in environments running Red Hat Enterprise Virtualization Manager (RHEV-M) 3.0, Data ONTAP 8.1 or later, and either Fibre Channel or iSCSI.

The following error message is reported when SR creation fails: "Volume Group block size error, please check your Volume Group configuration. Supported block size is 512 bytes" This behavior is a limitation in RHEV-M, which does not support any device with a differing physical and logical block size.

**Workaround:** The issue is fixed with RHEV Hypervisor 6.3 and RHEV Hypervisor 6.2 with vdsms-4.9-113.1.el6 and later.

For the most current NetApp information about this issue, see [Bug ID 657285](#) (login required).

Red Hat is tracking this issue in Red Hat Bugzilla 878539, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=878539](https://bugzilla.redhat.com/show_bug.cgi?id=878539).

## (Red Hat) Known issues when running Red Hat Enterprise Linux

---

The following issues might occur when you are running Red Hat Enterprise Linux. In many cases, workarounds to avoid these issues have been identified.

### (Red Hat) sanlun not supported with Red Hat Enterprise Virtualization Hypervisor

Red Hat Enterprise Virtualization Hypervisor does not allow you to install any software packages in the root directory. Because of this restriction, you cannot install the Linux Unified Host Utilities software package, which includes the `sanlun` utility.

You can, however, use NetApp storage systems with hosts running Red Hat Enterprise Virtualization Hypervisor.

For information about setting up a DM-Multipath configuration file to use in environments running Red Hat Enterprise Virtualization Hypervisor, see the guide [Using Linux hosts with Data ONTAP storage](#).

### (Red Hat) LUN resizing fails when using `rescan-scsi-bus.sh` script

Attempts to re-size a LUN on NetApp controllers fail when you enter the command `rescan-scsi-bus.sh --forcerescan` on a host running Red Hat Enterprise Linux 6.3.

The script runs without any problem, but the new size is not reflected in the SCSI devices on the host.

**Workaround:** Entering an `echo 1` manually into `rescan` in `sysfs` for each device causes the devices to re-size to new size.

On each SCSI device that belongs to a re-sized LUN, enter the following command:

```
echo 1 > /sys/block/<SCSI_device>/device/rescan
```

<SCSI\_device> is the name of that device.

For the most current NetApp information about this issue, see [Bug ID 638513](#) (login required).

### (Red Hat, FC) I/O delays or system hangs sometimes seen after CFOs or SFOs on hosts running Red Hat Enterprise Linux and ALUA

Hosts running Red Hat Enterprise Linux 5.x, 6.x, or 7.x with ALUA enabled sometimes encounter either long delays in I/O operations or host hangs after a controller failover occurs.

The problem occurs when the recovery from the CFO or SFO is delayed. The delay causes the ALUA transition period on the controller to take longer. When that happens, the number of I/O retries increases to the point where the host is being pounded with incessant retries. The retries start occurring within milliseconds instead of seconds. As a result, the I/O operations take a long time to complete or even stall. In some cases, the host hangs.

There is no current workaround for this problem.



For Red Hat Enterprise Linux 5.7, Red Hat is tracking this issue in Red Hat Bugzilla 733635, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=733635](https://bugzilla.redhat.com/show_bug.cgi?id=733635).

For Red Hat Enterprise Linux 6, Red Hat is tracking this issue in Red Hat Bugzilla 733631, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=733631](https://bugzilla.redhat.com/show_bug.cgi?id=733631).

For the latest NetApp status on this issue, see bug 532922 (Red Hat Enterprise Linux 5.x) or bug 528558 (Red Hat Enterprise Linux 6.x) at Bugs Online on the NetApp Support Site at <mysupport.netapp.com/NOW/cgi-bin/bol>.

## Known problems and limitations for Red Hat Enterprise Linux 7

Red Hat Enterprise Linux 7.0 has a number of unresolved issues that you can track on Red Hat Bugzilla.

### **Bug ID 844417: Kernel crash hit at \_\_lpfc\_sli\_issue\_iocb\_s4 with LPe16002B-M6**

#### **Description**

Host crash occurs on an Emulex 16G FC host while performing storage faults.

#### **Resolution**

None. You can track this issue using Bugzilla ID [1131393](#).

### **Bug ID 811587: Kernel crash hit at mempool\_free with LPe16002B-M6**

#### **Description**

Host crash occurs on an Emulex 16G FC host while performing storage faults.

#### **Resolution**

None. You can track this issue using Bugzilla ID [1079735](#).

### **Bug ID 803071: Kernel crash hit at \_raw\_spin\_lock\_irqsave with LPe16002B-M6**

#### **Description**

Host crash occurs on Emulex 16G FC host while performing storage faults.

#### **Resolution**

None. You can track this issue using Bugzilla ID [1067895](#).

### **Bug ID 820163: Firmware dumps and mailbox timeout occur with QLogic adapters**

#### **Description**

Firmware dumps and mailbox command timeouts occur on QLogic 8G and 16G FC host while performing storage faults.

#### **Resolution**

None. You can track this issue using Bugzilla ID [1090378](#).

### **Bug ID 799323: "0707driver's buffer pool is empty, IO busied" messages on Emulex OCe10102-FX-D host with IO**

#### **Description**

The message "driver's buffer pool is empty, IO busied" is displayed on Emulex 10G FCoE host while performing storage faults.

#### **Resolution**

None. You can track this issue using Bugzilla ID [1061755](#).

**Bug ID 810773: XFS file system does not become read-only on reaching its maximum capacity****Description**

ENOSPC in XFS does not handle the “space allocation failed write project” condition during the data protect check. The XFS file system does not become read-only after this condition occurs.

**Resolution**

None. You can track this issue using Bugzilla ID [1077671](#).

**Bug ID 816528: Path status check in device-mapper-multipath fires too many commands****Description**

Too many commands are executed from the DMMP layer as part of the path check.

**Resolution**

None. You can track this issue using Bugzilla ID [1081397](#).

**Bug ID 836785: Dracut intermittently does not assign IP address while booting to an iSCSI SANBoot LUN****Description**

When you boot the operating system, Dracut does not assign an IP address to the Ethernet address. This prevents iSCSI sessions from being established during the boot process.

**Resolution**

None. You can track this issue using Bugzilla ID [1114966](#).

**Bug ID 836800: Anaconda displays iSCSI login failure message in spite of successful logins during OS installation****Description**

When you install the Red Hat Enterprise Linux 7.0 OS on an iSCSI multipathd LUN, multiple iSCSI sessions should be established. When the host establishes multiple iSCSI session with a target, Anaconda displays an error message stating that iSCSI logins failed even though the logins are successful. This is how Anaconda usually reports issues and this does not affect iSCSI functionality.

**Resolution**

None. You can track this issue using Bugzilla ID [1114820](#).

**Bug ID 836657: Anaconda does not add the “bootdev” argument in the kernel command line to set IP addresses for an iSCSI SANboot OS installation****Description**

When you install the Red Hat Enterprise Linux 7.0 OS on an iSCSI multipathd LUN, Anaconda is expected to generate a kernel command line with the host or target IP or iSCSI details. However, Anaconda does not add the `bootdev` argument in the kernel command line to set the IP address on the host Ethernet interfaces. As a result, OS boot fails.

**Resolution**

At boot time, you should manually add the IP address to the kernel command line and continue with the OS boot. You can track the issue using Bugzilla ID [1114464](#).

### **Bug ID 861862: qla2xxx: Kernel crash hit at swiotlb\_unmap\_sg\_attrs with QLE2672**

#### **Description**

A kernel crash occurs on Red Hat Enterprise Linux 7.0 with QLE2672 while running I/O.

#### **Resolution**

Issue is fixed in the Red Hat Enterprise Linux 7.1 kernel. You can track this issue using Bugzilla ID [1154689](#).

### **Bug ID 867039: Kernel crash hit at kmem\_cache\_alloc with QLE2672**

#### **Description**

A kernel crash occurs on Red Hat Enterprise Linux 7.0 with QLE2672 while running I/O.

#### **Resolution**

None. Track this issue using Bugzilla ID [1165117](#).

## **(Red Hat, FC) Device resets seen on hosts running Red Hat 6.3 and Emulex**

Device resets have occurred on hosts running Red Hat Enterprise Linux 6.3 and Emulex. The resets can contribute toward long I/O outages on the Emulex host.

These resets are generally seen during I/O when SAN fabric faults occur. They affect systems with inbox LPFC driver v8.3.5.68.5p on Red Hat Enterprise Linux 6.3 GA kernel-2.6.32-279.el6.

**Workaround:** Currently, there is no workaround for this problem. This issue is fixed in Red Hat Enterprise Server 6.3.z errata kernel- 2.6.32-279.14.1.el6.

For the most current NetApp information about this issue, see [Bug ID 604067](#) (login required).

## **(Red Hat, FC) BSOD with BugCheck 3B seen with Microsoft Windows Server 2003 x64 guest VMs**

A Blue Screen of Death (BSOD) with BugCheck 3B has been seen in environments running Microsoft Windows Server 2003 Standard Edition x64 guest virtual machines and Red Hat Enterprise Linux 6.2 or 6.3 Kernel-based Virtual Machine (KVM) hypervisor.

The following error has been observed when, during a fabric or storage failure, the hypervisor FC ports are blocked for too long:

```
'Windows(R) Server 2003 Standard x64' guest OS hits BSOD with stop error:
000000000000003b.
```

**Workaround:** There is no workaround at this time.

For more information, see the Microsoft KB article 914215, which is online at <http://support.microsoft.com/kb/914215>.

For the most current NetApp information about this issue, see [Bug ID 621400](#) (login required).

## (Red Hat, FC) Executing `rescan-scsi-bus.sh -i` with Cisco M81KR/P81E CNA can result in read-only root file system

In certain Red Hat Enterprise Linux 6.x configurations, if you run the `rescan-scsi-bus.sh` script with the `-i` option, the root file system is marked read-only.

This issue has only been seen in configurations running Red Hat Enterprise Linux 6.x with a Cisco M81KR or P81E CNA in a Cisco UCS system and booting from a SAN boot LUN on a NetApp controller.

To prevent this problem, do not specify the `-i` option with the `rescan-scsi-bus.sh` script.

NetApp has reported this issue to Cisco.

For the latest NetApp status on this issue, see bug 523911 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat, FC) `SG_IO ioctl` fails on DM-Multipath devices after an FC fault

On hosts running Red Hat Enterprise Linux 5 and 6 series, the `sg_*` commands on a DM-Multipath device sometimes fail with EAGAIN after the path groups switch on a fabric fault. This problem is seen only when there is no I/O occurring to the multipath devices.

This problem happens because the path groups are not activated if no I/O is occurring on the DM-Multipath device.

**Workaround:** The workaround for this problem is to run a small amount of I/O on the DM-Multipath devices to activate one of the path groups. You can do this by running the `dd` command (read from the DM-Multipath device). On each DM-Multipath device, enter the following command:

```
# dd if=/dev/mapper<device> of=/dev/null bs=4096 count=100 iflag=direct
```

Where `<device>` specifies that DM-Multipath device.

Now run the `ioctl` function. The `ioctl` function will succeed.

Red Hat is tracking this issue in the following Bugzillas:

- 5 series: Bugzilla 760438, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=760438](https://bugzilla.redhat.com/show_bug.cgi?id=760438)  
**Note:** There are no plans to fix this issue in Red Hat Enterprise Linux 5 series because the fix might involve a large amount of code changes.
- 6 series: Bugzilla 827103, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=827103](https://bugzilla.redhat.com/show_bug.cgi?id=827103)

For the most current NetApp information about this issue, see [Bug ID 521233](#) (login required).

## (Red Hat, FC) Red Hat 6.1 host fails to add all LUN paths after fabric fault

A host that is running FC and Red Hat Enterprise Linux 6.1 sometimes fails to add back all the paths to LUNs after it recovers from a fabric fault. This issue occurs on hosts that are supporting I/O and have only a few LUNs.

In this situation, the host recovers from the fabric fault, but does not detect all the SCSI devices.

If you execute the `multipath -ll` command for all the DM-Multipath devices that initially had four paths to each LUN, it returns output similar to the following:

```
360a98000572d58656d4a6441566b4156 dm-2 NETAPP,LUN
size=10G features='1 queue_if_no_path' hwhandler='1 alua' wp=rw
|+- policy='round-robin 0' prio=50 status=active
|  - 5:0:1:6 sdn 8:208 active ready running
|+- policy='round-robin 0' prio=10 status=enabled
|  - 5:0:0:6 sdy 65:128 active ready running
|  - 4:0:0:6 sdaa 65:160 active ready running
```

Currently, there is no workaround for this issue. If you encounter this issue, you should rescan the SCSI bus by executing the `rescan-scsi-bus.sh` script. This allows you to manually rediscover and add the lost SCSI devices.

For example, you might enter the command:

```
rescan-scsi-bus.sh -L max_luns
```

`max_luns` is the maximum number of LUNs mapped to the host.

Red Hat is tracking this issue in Red Hat Bugzilla 713682, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=713682](https://bugzilla.redhat.com/show_bug.cgi?id=713682).

For the latest NetApp status on this issue, see bug 511638 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat, FC) Support for DM-Multipath root device fails if `user_friendly_names` is disabled

Support for the DM-Multipath root device fails on Red Hat Enterprise Linux 5 Update 1 if `user_friendly_names` is disabled.

To enable support for the DM-Multipath root device, the `user_friendly_names` option is set to `yes` by default when you install Red Hat Enterprise Linux 5 Update 1 using Anaconda.

If you change this value to `no`, the operating system fails to boot and displays an error message similar to the following:

```
Checking filesystems fsck.ext3: No such file or directory while trying to
open /dev/mapper/mpath0p1
```

The boot operation fails because of the `/dev/mapper/mpathp1` entry for `/boot` in `fstab`.

If you need to disable `user_friendly_names` on the Red Hat Enterprise Linux 5 Update 1 root when you have a multipath host, complete the following steps:

1. In the `/etc/multipath.conf` file, either set `user_friendly_names` to `no` or remove it from the file.
2. Re-create the `initrd` by running the following command:  

```
mkinitrd -f /boot/initrd-"`uname -r`.img `uname -r`"
```
3. Change the `/dev/mapper/mpath` name to the corresponding `/dev/mapper/<DevId>` name in `/etc/fstab`, `/boot/grub/grub.conf`, `/boot/grub/device.conf`, and any other place where the name of the DM-Multipath device appears.

## (Red Hat, FC) Automatic mounting of DM-Multipath devices fails

Automatic mounting of DM-Multipath devices by using `/dev/mpath/` entries in `fstab` fails on Red Hat Enterprise Linux 5 hosts.

If the `user_friendly_names` option is set to `yes` in the DM-Multipath configuration file (`multipath.conf`) on a Red Hat Enterprise Linux 5 host, it causes problems during the boot process. No `/dev/mpath` entries are available during the boot process, which causes the automatic mounting to fail.

Use `/dev/mapper/` entries to set up automatic mounting of DM-Multipath devices on a Red Hat Enterprise Linux host instead of `/dev/mpath/` entries.

## (Red Hat, FC) With Red Hat 6.3 and QLogic, path failures and I/O outages seen during fabric failures

During SAN fabric failures, intermittent path failures and I/O outages have been observed on hosts running Red Hat Enterprise Linux 6.3, FC, and QLogic with `qla2xxx` inbox driver v8.04.00.04.06.3-k.

These issues are associated with the following entries in `/var/log/messages`:

```
kernel: qla2xxx [0000:1a:00.0]-3031:4: No room left in outstanding
commands array, index=1024.
kernel: qla2xxx [0000:1a:00.0]-3813:4: Start scsi failed rval=258 for
cmd=ffff8802f3f9e180.
```

These entries indicate that the QLogic driver is queuing errors when it runs out of host resources. As a result, it fails to service new commands until the existing commands are processed. This can contribute to path failures and I/O outages on the Red Hat Enterprise Linux 6.3 host.

**Workaround:** There is no workaround at this time.

NetApp is tracking this issue with Red Hat in Bugzilla 829739, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=829739](https://bugzilla.redhat.com/show_bug.cgi?id=829739).

For the most current NetApp information about this issue, see [Bug ID 612127](#) (login required).

## (Red Hat, FC) With Red Hat 6 and QLogic, host occasionally crashes at `qla2x00_process_completed_request`

When a host is running Red Hat Enterprise Linux 6 and QLogic, the host sometimes crashes at `qla2x00_process_completed_request` during I/O with controller faults. This issue has been seen with the QLogic QLE2562 FC HBA.

This issue has been fixed in the 6.0.z errata kernel v2.6.32-71.18.1.el6 (`qla2xxx` driver version: 8.03.01.05.06.0-k8).

Red Hat is tracking this issue in Red Hat Bugzilla 639254, which is available at [https://bugzilla.redhat.com/show\\_bug.cgi?id=639254](https://bugzilla.redhat.com/show_bug.cgi?id=639254).

For the latest NetApp status on this issue, see bug 452179 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat, FC) With Red Hat 6 and QLogic, host becomes unresponsive during I/O with faults

On a host that is running Red Hat Enterprise Linux 6, QLogic, and DM-Multipath and also has DM-Multipath configured on some LUNs, the host sometimes hangs during I/O with controller faults and fails to recover.

This issue has been fixed in the 6.0.z errata kernel v2.6.32-71.18.1.el6 (qla2xxx driver version: 8.03.01.05.06.0-k8).

Red Hat is tracking this issue in Red Hat Bugzilla 634948, which is available at [https://bugzilla.redhat.com/show\\_bug.cgi?id=634948](https://bugzilla.redhat.com/show_bug.cgi?id=634948).

For the latest NetApp status on this issue, see bug 448149 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat, FC) With Red Hat 6 and Emulex, host occasionally panics at lpfc\_abort\_handler

On systems running Red Hat Enterprise Linux 6 and Emulex, the host sometimes panics at the lpfc\_abort\_handler during I/O with controller faults.

This issue has been fixed in the native LPFC driver v8.3.5.17, which is available in 6.0.z errata kernel-2.6.32-71.18.1.el6.

Red Hat is tracking this issue in Red Hat Bugzilla 633231, which is available at [https://bugzilla.redhat.com/show\\_bug.cgi?id=633231](https://bugzilla.redhat.com/show_bug.cgi?id=633231).

For the latest NetApp status on this issue, see bug 447023 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat, FC) Host running Red Hat 6 or 5.6 with Emulex 8 Gb hangs during fabric faults

Linux hosts running Red Hat Enterprise Linux 6 or Red Hat Enterprise Linux 5 Update 6 with an 8-Gb Emulex adapter using a LightPulse Fibre Channel (LPFC) driver shipped in box and firmware v2.00A3 hang when a fabric fault occurs.

There are two workarounds you can use to avoid this problem. Perform one of the following workarounds:

- Workaround 1: Downgrade the 8-Gb adapter firmware to firmware v1.11A5.
- Workaround 2: Disable the LPFC driver's N-Port-ID Virtualization (NPIV) by setting the `lpfc_enable_npiv` option to 0.

There two methods for setting this value to 0. Use one of the following methods:

- Method 1: Disable the setting and ensure that it remains disabled during system boots by adding the following line to the `/etc/modprobe.conf` file:

```
options lpfc lpfc_enable_npiv=0
```

Now rebuild the initrd image.

- Method 2: During load time, call the `lpfc_enable_npiv=0` option in either the `insmod` command line or the `modprobe` command line.

(Red Hat Enterprise Linux 5 Update 6) Red Hat is tracking this issue in Red Hat Bugzilla 660278, which is available at [https://bugzilla.redhat.com/show\\_bug.cgi?id=660278](https://bugzilla.redhat.com/show_bug.cgi?id=660278).

(Red Hat Enterprise Linux 6.0) Red Hat is tracking this issue with Red Hat Bugzilla 678275, which is available at [https://bugzilla.redhat.com/show\\_bug.cgi?id=678275](https://bugzilla.redhat.com/show_bug.cgi?id=678275).

NetApp provides information on this issue in the following bugs at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol):

- Red Hat Enterprise Linux 6: bug 485099
- Red Hat Enterprise Linux 5 Update 6: bug 468229

## (Red Hat) With Red Hat 6, wrong path grouping occurs after storage system fault with I/O

DM-Multipath sometimes wrongly updates the path groups on a host that is running Red Hat Enterprise Linux 6.0. This problem occurs during I/O with a storage system and fabric faults.

When this situation occurs, the `multipath -ll` output may look similar to the following:

```
# multipath -ll 360a98000486e2f65686f5a4b544e3379
360a98000486e2f65686f5a4b544e3379 dm-34 NETAPP,LUN
size=6.0G features='1 queue_if_no_path' hwhandler='0' wp=rw
|+- policy='round-robin 0' prio=4 status=enabled
|  |- 1:0:1:27 sdgg 131:192 active ready running
|+- policy='round-robin 0' prio=1 status=enabled
|  |- 1:0:2:27 sdab 65:176 active ready running
|  |- 1:0:4:27 sdde 70:192 active ready running
|  |- 0:0:3:27 sdhu 134:64 active ready running
|  `-- 0:0:1:27 sdkw 67:320 active ready running
|+- policy='round-robin 0' prio=4 status=active
|  |- 0:0:2:27 sdbp 68:48 active ready running
|  |- 0:0:4:27 sder 129:48 active ready running
|  `-- 1:0:3:27 sdji 8:448 active ready running
```

To prevent this problem, use device-mapper-multipath errata v0.4.9-31.el6\_0.3. This errata contains a fix for this problem.

Red Hat is tracking this issue in Red Hat Bugzilla 658937, which is available at [https://bugzilla.redhat.com/show\\_bug.cgi?id=658937](https://bugzilla.redhat.com/show_bug.cgi?id=658937).

For the latest status on this issue, see bug 485101 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat) With Red Hat 6, DM-Multipath fails to update paths during I/O with fabric faults

If your system is running Red Hat Enterprise Linux 6 and DM-Multipath is using the device-mapper-multipath errata v0.4.9.31.el6\_0.2, DM-Multipath sometimes fails to update paths during I/O with fabric faults.

When this situation occurs, the `multipath -ll` output may look similar to the following:

```
# multipath -ll /dev/sdce
360a98000486e2f65686f6246516e6859 dm-22 NETAPP,LUN
size=5.0G features='1 queue_if_no_path' hwhandler='1 alua' wp=rw
|+- policy='round-robin 0' prio=50 status=active
|  |- 3:0:1:19 sdce 69:32 active ready running
|  `-- 2:0:1:19 sdca 68:224 active ready running
|+- policy='round-robin 0' prio=10 status=enabled
```



```
| ^- 2:0:0:19 sdaj 66:48 active ready running
^-+- policy='round-robin 0' prio=10 status=enabled
^- 3:0:0:19 sdao 66:128 failed ready running
#
```

To prevent this problem use device-mapper-multipath errata v0.4.9-31.el6\_0.3 . This errata contains a fix for this problem.

Red Hat is tracking this issue in Red Hat Bugzilla 681144, which is available a [https://bugzilla.redhat.com/show\\_bug.cgi?id=681144](https://bugzilla.redhat.com/show_bug.cgi?id=681144).

For the latest NetApp status on this issue, see bug 488284 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat, iSCSI) With Red Hat 6.2 or 6.3, soft lockup affects multipathd functionality

Soft lockups on the CPU have been seen during controller faults on systems running Red Hat Enterprise Linux 6.2 or 6.3 and the software iSCSI protocol. These soft lockups affect the multipathd functionality.

When a soft lockup occurs, the multipathd daemon either takes a long time to update the path status or the `multipath -ll` command takes a long time to generate the output.

This behavior is only seen when `directio` is used as the value for the `path_checker` parameter in the `/etc/multipath.conf` file.

**Workaround:** There is no known workaround. However, this problem has not been seen when you use `tur` as the `path_checker` parameter in the `/etc/multipath.conf` file.

NetApp is tracking this issue with Red Hat in Bugzilla 753548, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=753548](https://bugzilla.redhat.com/show_bug.cgi?id=753548).

For the most current NetApp information about this issue, see [Bug ID 547461](#) (login required).

## (Red Hat, iSCSI) With Red Hat 6 series, out of memory exception seen with more than 1,024 LUNs and DM-Multipath

Out of memory (OOM) exceptions have occurred when 1024 or more LUNs configured with DM-Multipath were mapped to hosts running Red Hat Enterprise Linux 6.1, 6.2, or 6.3 and iSCSI.

The DM-Multipath available with Red Hat Enterprise Linux 6 series has a large memory footprint for each multipath device. As DM-Multipath is configured on more LUNs, the memory footprint increases until the OOM exception occurs.

**Workaround:** There is no workaround at this time. The host reboots after the exception, but does not come back on line until the LUNs are unmapped.

Red Hat is tracking this issue in Bugzilla 708916, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=708916](https://bugzilla.redhat.com/show_bug.cgi?id=708916).

For the most current NetApp information about this issue, see [Bug ID 508901](#) (login required).

## (Red Hat, iSCSI) With Red Hat 6 series, iSCSI sessions log out even with iSCSI LUNs mounted

The iSCSI sessions log out when you enter a command to stop the iSCSI daemon even though the corresponding iSCSI LUNs are in use. This issue has been seen on hosts running Red Hat Enterprise Linux 6.1, 6.2 or 6.3.

After you enter the command to stop the iSCSI daemon, any attempts you make to unmount the iSCSI LUNs fail; however, the iSCSI sessions are logged out. This leaves the mount points on the host in a hung state.

Normally, if iSCSI LUNs are mounted, iSCSI sessions should not log out when a stop command for the SCSI daemon is issued.

**Workaround:** There is no workaround.

Red Hat is tracking this issue in Bugzilla 691746, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=691746](https://bugzilla.redhat.com/show_bug.cgi?id=691746).

## (Red Hat, iSCSI) service clvmd restart fails

A timing issue in the `clvmd` script causes it to fail if you run the `service clvmd restart` command in a GFS 4.0 environment.

### About this task

In rare situations where a volume group does not come up after the boot process, you might need to restart `clvmd`. For example, if the iSCSI LUNs are not available before the LVM start-up script runs, then the volume group will not come up after the boot process. To read the volume groups from the iSCSI LUNs, you need to run `vgscan`. In addition, you might need to restart `clvmd`. However, if you are using GFS 4.0 and you run `service clvmd restart`, it fails.

**Note:** GFS and the underlying cluster LVM layer provide cluster management.

To avoid a `clvmd` restart failure with GFS 4.0, you must first stop `clvmd` and then use the `service clvmd start` command to start it. Here is the workaround for this issue.

### Steps

1. Stop `clvmd` by running the command:

```
service clvmd stop
```

2. Start `clvmd` by running the command:

```
service clvmd start
```

## (Red Hat, iSCSI) With Red Hat 6.2 or 6.3, soft lockup affects multipathd functionality

Soft lockups on the CPU have been seen during controller faults on systems running Red Hat Enterprise Linux 6.2 or 6.3 and the software iSCSI protocol. These soft lockups affect the `multipathd` functionality.

When a soft lockup occurs, the `multipathd` daemon either takes a long time to update the path status or the `multipath -ll` command takes a long time to generate the output.

This behavior is only seen when `directio` is used as the value for the `path_checker` parameter in the `/etc/multipath.conf` file.

**Workaround:** There is no known workaround. However, this problem has not been seen when you use `tur` as the `path_checker` parameter in the `/etc/multipath.conf` file.

NetApp is tracking this issue with Red Hat in Bugzilla 753548, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=753548](https://bugzilla.redhat.com/show_bug.cgi?id=753548).

For the most current NetApp information about this issue, see [Bug ID 547461](#) (login required).

## (Red Hat, iSCSI) Online GFS grow feature is not supported on iSCSI LUN

If you have a file system that is created over an iSCSI device or a multipath device on a LUN, you cannot use the online GFS grow feature in the Global File System (GFS) .

### About this task

When you use GFS on the LVM volume, you can extend the volume without unmounting the file system. You do this by adding new LUNs to the volume group and expanding the logical volume on which the GFS is created.

NetApp storage systems also allow you to resize a LUN dynamically; however, the iSCSI layer in Linux is not capable of detecting the change in the LUN size. To display the new size of the LUN, you must restart the iSCSI service. But a restart of the iSCSI service fails if any iSCSI devices are mounted at that time. Because of this, even if the LUN on which the GFS file system is located is resized, you must unmount the file system and then restart iSCSI and the multipathing service before Linux can detect the new size.

The workaround for growing a GFS consists of the following steps:

### Steps

1. Unmount the file system.
2. Resize the LUN on the storage system.
3. To flush the multipath, run the following command:  
`multipath -F`
4. To stop the multipath service, run the following command:  
`service multipath stop`
5. To start the iSCSI session, run the following command:  
`service iscsi restart`
6. To restart the multipath service, run the following command:  
`service multipath start`
7. Mount the file system.
8. On one of the nodes, run the following command:  
`gfs_grow`
9. To verify the new size, run the following command on all the nodes:  
`gfs_grow -Tv <mountpoint>`

**After you finish**

For the latest status on this issue, see bug 215923 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (Red Hat, iSCSI) With Red Hat 6, iSCSI script fails to show correct status

When you are using Red Hat Enterprise Linux 6 and you install the root file system on an iSCSI LUN, the `/etc/init.d/iscsi` script does not show the correct status for the iSCSI daemon. This issue does not affect the iSCSI functionality.

For example, the iSCSI daemon status is displayed as "Stopped" even though all the iSCSI sessions are logged in.

This issue exists in the following Red Hat Enterprise Linux packages:

- Red Hat Enterprise Linux 6.0 `scsi-initiator-utils` package
- Red Hat Enterprise Linux 6.0z `scsi-initiator-utils` package

The fix for this issue occurs in the Red Hat Enterprise Linux 6.1 iSCSI package: `iscsi-initiator-utils-6.2.0.872-14.el6` and later versions.

Red Hat is tracking this issue in Red Hat Bugzilla 658428, which is available at [https://bugzilla.redhat.com/show\\_bug.cgi?id=658428](https://bugzilla.redhat.com/show_bug.cgi?id=658428).

For the latest status on this issue, see bug 466322 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## (RHEL) Change in `UNMAP` parameter value fails to automatically reflect on Red Hat Enterprise Linux 6.x hosts after NDU

If you are running Red Hat Enterprise Linux 6.x and you perform a non-disruptive upgrade (NDU) to Data ONTAP 8.1.3 operating in 7-Mode, Data ONTAP 8.2 and later versions, the host does not automatically reflect the new 4 MB value for the `UNMAP` parameter `Maximum unmap LBA count`.

**About this task**

Previous versions of Data ONTAP set this value to 244 MB. This issue affects LUNs that have `space_alloc` enabled and are using the Linux discard feature to reclaim space on the storage system.

The following sample output is displayed before NDU:

```
# sg_inq -p 0xb0 /dev/sdX
VPD INQUIRY: Block limits page (SBC)
Maximum unmap LBA count: 499712
```

The following sample output is displayed after NDU:

```
# sg_inq -p 0xb0 /dev/sdX
VPD INQUIRY: Block limits page (SBC)
Maximum unmap LBA count: 8192
```

To get the host to correctly reflect the new value, you must manually rescan the SCSI devices and manually reconfigure the DM-Multipath devices by following the steps mentioned in the workaround section.

**Workaround:** You can update the host to reflect the new UNMAP value after the NDU completes by performing the following steps:

#### Steps

1. Rescan all SCSI devices by using the following command: `rescan-scsi-bus.sh --remove`
2. Check the Maximum unmap LBA count value to confirm that it reflects the SCSI layer by using the following command: `cat /sys/block/sdX/queue/discard_max_bytes` This command should display the value '4194304' (i.e.  $8192 * 512 = 4194304$  bytes (i.e. 4MB).  
The Maximum unmap LBA count is reflected as `discard_max_bytes` parameter.
3. Reconfigure the multipath daemon so that the new UNMAP values are reflected in the device-mapper multipath (DMMP) layer by using the following command:  
`multipathd -k"reconfigure"`
4. Confirm that the new value for Maximum unmap LBA count is reflected in the DMMP layer by using the following command:

```
cat /sys/block/dm-X/queue/discard_max_bytes
```

The value '4194304' should get displayed as shown in the second step of the workaround.

Change in unmap parameter reflects correctly now.

For the most current NetApp information about this issue, see [Bug ID 657285](#) (login required).

Red Hat is tracking this issue in Red Hat Bugzilla 740795 and 741163, which are online at:

- [https://bugzilla.redhat.com/show\\_bug.cgi?id=740795](https://bugzilla.redhat.com/show_bug.cgi?id=740795)
- [https://bugzilla.redhat.com/show\\_bug.cgi?id=741163](https://bugzilla.redhat.com/show_bug.cgi?id=741163)

## (Red Hat) ext4 file system creation on LV striped across 15 or more discard-enabled multipath devices triggers “request botched” kernel errors

When you attempt to create an ext4 file system on thinly provisioned LUNs, request botched kernel errors are seen. As a result, the file system creation might take longer to complete and occasional hangs are observed. The script runs without any problem, but the new size is not reflected in the SCSI devices on the host.

This issue has only occurred when you attempt to create ext4 file system on a LV striped across 15 or more discard-enabled multipath devices on systems running Red Hat Enterprise Linux 6.x and Data ONTAP 8.1.3 operating in 7-Mode, Data ONTAP 8.2 and later. The issue happens because the kernel erroneously attempts to merge discard requests, which is not supported on Red Hat Enterprise Linux 6.x at this time.

When this issue occurs, multiple instances of the following message are written to syslog (`/var/log/messages`): `kernel: blk: request botched`

**Workaround:** To prevent this problem, use the `E nodiscard` option when you create an ext4 file system similar to the following:

```
# mkfs.ext4 -E nodiscard <LV_Device>
```

`<LV_Device>` is the logical volume where you are attempting to create the file system.

For the most current NetApp information about this issue, see [Bug ID 673009](#) (login required).

Red Hat is tracking this issue in Red Hat Bugzilla 907844, which is online at [https://bugzilla.redhat.com/show\\_bug.cgi?id=907844](https://bugzilla.redhat.com/show_bug.cgi?id=907844).

## (RHEL, FC) sanlun does not display speed and firmware information on Intel cards

The firmware version and speed of Intel NIC card is not displayed with `sanlun fcp show adapter` command output.

The `sanlun fcp show adapter` command output does not display speed and firmware information about software FCoE with Intel NIC on RHEL hosts.

**Workaround:** To prevent this problem, use the `-fcoeadm` command to display the supported speed and firmware information.

## (RHEL, Brocade HBA/CNA) sanlun displays intermittent error

An intermittent error is displayed with `sanlun fcp show adapter` command when Linux host utilities 6.2 is installed on a Red Hat Enterprise Linux 6.2 Brocade HBA or CNA host.

This error is only in text, although the `sanlun fcp show adapter` command displays the required output.

The following example displays the issue:

```
[root@ibm3650-np02 ~]# ./sanlun fcp show adapter -v
error

adapter name:      /dev/bsg/fc_host0
WWPN:              100000053326def0
WWNN:              200000053326def0
driver name:       bfa
model:             Brocade-825
model description: Brocade-825
serial number:     AVM2546F5ZD
hardware version:  Rev-C
driver version:    3.2.0.0 12/02/2012 19.42.10
firmware version:  3.2.0.0
Number of ports:   1 of 2
port type:         Fabric
port state:        Operational
supported speed:   8 GBit/sec
negotiated speed:  8 GBit/sec
OS device name:    /dev/bsg/fc_host0
```

## **(SUSE) Known issues when running SUSE Linux Enterprise Server**

---

The following issues might occur when you are running SUSE Linux Enterprise Server. In many cases, workarounds to avoid these issues have been identified.

### **multipathd daemon segfault error seen on SUSE Linux Enterprise Server 12 hosts**

When you are using SUSE Linux Enterprise Server 12 hosts, you might come across a segfault error in the multipathd daemon.

There is currently no workaround for this problem. For the most current NetApp information about this issue, see Bug ID 863314 (login required).

You can track this issue with SUSE on Bugzilla with the ID [901891](#).

### **Path failures observed on a multipathd SUSE Linux Enterprise Server 12 host**

You might observe path failures on a multipathd SUSE Linux Enterprise Server 12 host during I/O with storage faults.

There is currently no workaround for the issue. For the most current NetApp information about this issue, see Bug ID 847490 (login required).

You can track this issue with SUSE Linux Enterprise Server 12 on Bugzilla by using the ID [890854](#).

### **The message “conflicting device node '/dev/mapper/360xx' found” appears when reconfiguring LUNs while creating DM devices on SUSE Linux Enterprise Server 12 host**

When you reconfigure LUNs on SUSE Linux Enterprise Server 12 hosts while creating DM devices, a failure occurs and the host displays the error message `conflicting device node '/dev/mapper/360xx' found`.

There is currently no workaround for this error. For the most current NetApp information about this issue, see Bug ID 863584 (login required).

You can track this issue on SUSE with the Bug ID [903001](#).

### **The scsi\_dh\_alua module fails to load during multipathd startup with local boot on SUSE Linux Enterprise Server 12 host**

The `scsi_dh_alua` module fails to load automatically during multipathd startup with the local boot. You need to manually load the `scsi_dh_alua` module before starting multipathd.

There is currently no workaround for this issue. For the most current NetApp information about this issue, see Bug ID 873555 (login required).

You can track this issue with SUSE Linux Enterprise Server 12 on Bugzilla by using the ID [908529](#).

## **(SUSE) Delays seen when you run `rescan-scsi-bus.sh -r` on SUSE Linux Enterprise Server 11 SP2 hosts after unmapping a LUN**

After you unmap a LUN on a host running SUSE Linux Enterprise Server 11 SP2, you might see long delays when you execute `rescan-scsi-bus.sh -r` to remove the corresponding SCSI devices of that LUN. The delays occur when the script calls the `udevadm unsettle` function. This function takes a long time to complete even when there are very few LUNs provisioned to the host.

Currently, there is no workaround for this problem.

Novell is tracking this issue in Novell Bugzilla 719449, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=719449](https://bugzilla.novell.com/show_bug.cgi?id=719449).

## **(SUSE, FC) I/O delays seen during cluster failovers in environments using Data ONTAP 8.1**

When a cluster failover occurs in an environment running SUSE Linux Enterprise Server 11 SP2, Data ONTAP 8.1, FC, and either Emulex or QLogic, I/O delays can occur. Internal testing has produced I/O delays of 4 minutes.

Currently, there is no workaround for this problem.

For the most current NetApp information about this issue, see [Bug ID 618170](#) (login required).

## **(SUSE) Open-iSCSI initiator fails to stop even though root file system is not on the iSCSI device**

Attempts to stop the Open-iSCSI initiator fail on hosts running SUSE Linux Enterprise Server SP11. This failure occurs even if the root file system is not on an iSCSI device, such as a LUN.

To work around this problem, add the following line to the top of the `/etc/init.d/open-iscsi` file:

```
DM_MAJOR=$(sed -n 's/\(.*\) device-mapper/\1/p' /proc/devices)
```

Novell is tracking this issue in Novell Bugzilla 608224, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=608224](https://bugzilla.novell.com/show_bug.cgi?id=608224).

## **(SUSE, FC) SUSE Linux Enterprise Server 11 SP2 does not accept changes to `dev_loss_tmo`, `fast_io_fail_tmo`**

SUSE Linux Enterprise Server 11 SP2 does not allow you to set `dev_loss_tmo` to infinity or `fast_io_fail_tmo` to 5 on remote ports (rports). When DM-Multipath is run without these settings, host hangs and path failures during cluster failovers have been seen.

Currently, there is no workaround for this problem.

Novell is tracking this issue in Novell Bugzilla 749085, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=749085](https://bugzilla.novell.com/show_bug.cgi?id=749085).



## **(SUSE, FC) I/O delays sometimes seen after CFOs on hosts running SUSE Linux Enterprise Server 11 SP1 and ALUA**

Hosts running SUSE Linux Enterprise Server 11 SP 1 with ALUA enabled sometimes encounter long delays in I/O operations after a controller failover (CFO) occurs.

The problem occurs when the recovery from the CFO is delayed. The delay causes the ALUA transition period on the controller to take longer. When that happens, the number of I/O retries increases to the point where the host is being pounded with incessant retries. The retries start occurring within milliseconds instead of seconds. As a result, the I/O operations take a long time to complete.

Currently, there is no workaround for this problem.

Novell is tracking this issue in Novell Bugzilla 708296, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=708296](https://bugzilla.novell.com/show_bug.cgi?id=708296).

## **(SUSE, FC) SUSE Linux Enterprise Server 11 SP1 with ALUA sometimes crashes during CFOs**

Hosts running SUSE Linux Enterprise Server 11 SP1 with either kernel version 2.6.32.45-0.3-default or 2.6.32.43-0.3-default and ALUA enabled sometimes crash during controller failover operations. The crash occurs because of the ALUA hardware handler.

To avoid this problem, make sure you are using a supported version of the SUSE Linux Enterprise Server 11 SP1 kernel. For information on supported kernel versions, see the Interoperability Matrix, which is available online at [mysupport.netapp.com/matrix](https://mysupport.netapp.com/matrix).

Novell is tracking this issue in Novell Bugzilla 718035, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=718035](https://bugzilla.novell.com/show_bug.cgi?id=718035).

For the latest status on this issue, see bug 530608 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol).

## **(SUSE, FC ) With SUSE 11 SP1, DM-Multipath sometimes fails to update maps after I/O fault**

In FC environments where a SUSE Linux Enterprise Server 11 SP1 host is configured with multiple LUNs and each LUN has multipath paths, DM-Multipath sometimes fails to update its maps during I/O with controller faults. In addition, some paths in the multipath maps remain in inconsistent state.

For example, this problem has been seen in situations where multiple faults occurred with a configuration of 10 LUNs, each of which had 8 paths for a total of 80 SCSI devices.

This issue has also been seen in configurations using a SAN boot LUN. In some cases, the SAN boot LUN becomes unresponsive after the controller faults.

The problem occurs because of issues with the ALUA handler and the multipath-tools package.

To prevent this problem, take the following two actions:

- Install the maintenance update that was released Jan. 13, 2011, which fixes these problems. The following packages have been confirmed to have the fixes that resolve this problem:
  - kernel-default-2.6.32.27-0.2.2
  - device-mapper-1.02.27-8.17.20

- multipath-tools-0.4.8-40.25.1
- kpartx-0.4.8-40.25.1
- In addition, use the `tur` option as the value of the `path_checker` parameter in the `multipath.conf` file.  
The `tur` option replaces the `directio` option as the default value for this parameter.

Novell is tracking this issue in Bugzilla 600043, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=600043](https://bugzilla.novell.com/show_bug.cgi?id=600043).

For the latest status on this issue, see bug 414050 at Bugs Online on the NetApp Support Site at <mysupport.netapp.com/NOW/cgi-bin/bol>.

## (SUSE, FC) With SUSE 10.3 and Emulex 4 Gb, FC ports go offline during controller faults

In environments using SUSE Linux Enterprise Server 10.3 with an Emulex 4-Gb, FC HBA, FC ports go offline during storage controller faults. This issue occurs because of a problem in driver version 8.2.0.48.2p with the msi interrupt handler.

There are two workarounds for this issue. Select the correct one for your environment:

- Upgrade to the SLES10SP4 kernel and use inbox Emulex driver version 8.2.0.92.1p or later.
- If you are using driver version is 8.2.0.48.2p, change the value of the driver parameter `lpfc_use_msi` to 0.  
The default value of this parameter is 2.

To set the driver parameter `lpfc_use_msi` to 0, complete the following steps:

1. In the `/etc/modprobe.conf.local` file, append the following line:

```
options lpfc lpfc_use_msi=0
```

2. Re-create the `initrd` by entering the following command:

```
mkinitrd
```

**Note:** It is a good practice to make a backup copy of the current `initrd` before running the `mkinitrd` command.

3. Reboot the host.
4. Verify that the value of the driver parameter `lpfc_use_msi` by entering the following command:

```
cat /sys/class/scsi_host/host<adapter_number>/lpfc_use_msi
```

For the latest NetApp status on this issue, see bug 516749 at Bugs Online on the NetApp Support Site at <mysupport.netapp.com/NOW/cgi-bin/bol>.

## (SUSE, iSCSI) IPv6 iSCSI sessions not discovered during SUSE installation

While SUSE Linux Enterprise Server 11 SP2 is being installed, the IPv6 sessions are not discovered even though the IPv6 address is enabled.

When you provide an IPv4 address for a target node, the SUSE host only discovers the IPv4 session. If you supply the IPv6 address, none of the iSCSI sessions are discovered.

These issues do not affect the installation of SUSE Linux Enterprise Server 11 SP2 on iSCSI multipathed devices.

**Workaround:** At this time, the only workaround is to install the operating system using an IPv4 iSCSI session. After the installation completes, manually discover the IPv6 sessions.

Novell is tracking this issue in Bugzilla 756226, which is online at [https://bugzilla.novell.com/show\\_bug.cgi?id=756226](https://bugzilla.novell.com/show_bug.cgi?id=756226).

For the most current NetApp information about this issue, see [Bug ID 590997](#) (login required).

## **(SUSE, iSCSI) Path update delays seen during controller faults on hosts running SUSE Linux Enterprise Server 11 SP2**

DM-Multipath sometimes takes 25 minutes to update the path status of LUNs attached to hosts running SUSE Linux Enterprise Server 11 SP2 and the iSCSI protocol. This issue has been seen intermittently after a controller fault caused by a giveback, takeover, or reboot.

If you execute the `multipath -ll` command during the failover, the path status displays as `failed ready running`.

Internal testing has shown that this issue does not happen often. When it happens, it does not necessarily affect all the LUNs attached to the host. After about 25 minutes, DM-Multipath updates the LUN status to `active ready running`. Normally, it takes less than a minute for DM-Multipath to update the path status.

Currently, there is no workaround for this problem.

Novell is tracking this issue in Novell Bugzilla 746675, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=746675](https://bugzilla.novell.com/show_bug.cgi?id=746675).

## **(SUSE, iSCSI) When installing SUSE Linux Enterprise Server 11 SP2, the host cannot discover iSCSI targets using IPv6 addresses**

If you use IPv6 when you install SUSE Linux Enterprise Server 11 SP2, the host fails to connect to the iSCSI target. This happens because the IPv6 sessions are not discovered, even if they are enabled on the target. This problem does not occur if you use IPv4 sessions.

Currently, the only workaround for this issue is to use IPv4 sessions when you install SUSE Linux Enterprise Server 11 SP2. After the installation completes, you must manually discover the IPv6 sessions.

Novell is tracking this issue in Novell Bugzilla 756226, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=756226](https://bugzilla.novell.com/show_bug.cgi?id=756226).

## **(SUSE, iSCSI) Online resize of file system not supported**

When you are using SUSE Linux Enterprise Server and iSCSI, resizing a file system while it is online is not supported.

To resize a file system, you must unmount the file system and then use the `resize` utility to extend or shrink the size of the file system.

However, if you resize a LUN on a NetApp storage system, you can display information about its new size on the host by rescanning the iSCSI sessions.

Novell is tracking this issue in Bugzilla 386325, which is online at [https://bugzilla.novell.com/show\\_bug.cgi?id=386325](https://bugzilla.novell.com/show_bug.cgi?id=386325).

## (SUSE, iSCSI) One or more ext3 file systems not mounted after reboot

After a reboot of the host, the ext3 file systems are not mounted. This issue is seen on hosts running SUSE Linux Enterprise Server and iSCSI.

An error message similar to the following is displayed:

```
fs type ext3 not supported by kernel
```

This problem occurs when the module that supports ext3 file systems was not loaded before the system tried to mount the file systems.

To work around this problem, run the `iscsi-mountall` command to mount the file systems.

## (SUSE, iSCSI) sanlun does not display all iSCSI LUNs

On hosts running SUSE Linux Enterprise Server and iSCSI, the `sanlun` command does not display all iSCSI LUNs mapped to the initiator.

There are two possible explanations for this problem. The workaround you use depends on which situation caused the problem.

- More than 32 SCSI devices

The `sanlun` command checks the number of `/dev/sg*` entries on the host. The default number of `/dev/sg*` entries is 32. If you have more than 32 SCSI devices (for example, two physical SCSI hard drives, one SCSI CD-ROM, and 30 LUNs), the `sanlun` command does not list all the LUNs.

The workaround in this situation is to create more `/dev/sg*` entries. You can use the Linux `mknod` command to do this. For more information on this command, see the man page.

The following is an example of using the `mknod` command:

```
mknod --mode=660 /dev/sg32 c 21 32
```

- Storage system is unreachable for a long time

If storage system has been unreachable for a time period that exceeds the timeouts in the `/etc/iscsi.conf` file, the `sanlun lun show all` command might not provide a complete list of mapped LUNs the first time you run it.

To recover from this situation, run the `sanlun lun show all` command again.

Then make sure that the LUNs listed match the devices listed in the `/dev/iscsi` directory or in the output of the `iscsi -ls` command.

## (Veritas) Known issues when running the Host Utilities with Veritas

---

The following issues might occur when you are running the Host Utilities with Veritas Storage Foundation. In many cases, workarounds to avoid these issues have been identified.

### (Veritas) I/O delay seen on systems using iSCSI

On hosts running Veritas Storage Foundation 5.1 with the iSCSI protocol, the resumption of I/O might be delayed after an iSCSI session failure.

The iSCSI parameter `node.session.timeo.replacement_timeout` is set to 120 seconds, which is the default. When a cable failure or iSCSI port block occurs, I/O is held at the iSCSI layer for 120 seconds. Testing has shown that, in some cases, there is a delay of more than 120 seconds before I/O resumes on other active VxDMP paths.

This delay is not seen in takeover/giveback scenarios, where I/O resumes as soon as the takeover completes.

For the latest status on this issue, see bug 399840 at Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](http://mysupport.netapp.com/NOW/cgi-bin/bol).

### (Veritas) With SUSE Linux and iSCSI, volumes might enter disabled state after controller fault

When you are using SUSE Linux Enterprise Server with the iSCSI protocol, Veritas Storage Foundation 5.1 volumes might enter a disabled state after a storage controller fault occurs.

An issue has been found in SUSE Linux Enterprise Server with the latest kernels where the SCSI layer does not honor the timeout value when handling I/O errors during iSCSI session failures. The I/O error is immediately propagated up to the multipathing layer (VxDMP), which disables the path.

If the I/O error is seen on all the VxDMP paths that belong to same LUN, VxDMP sends the error to the volume manager. The volume manager then disables all the volumes.

To work around this issue, you must set the VxDMP parameter `dmp_lun_retry_timeout` to 300.

NetApp engineering is working with Novell to resolve the issue. For more information, see Bugzilla 645616, which is available at [https://bugzilla.novell.com/show\\_bug.cgi?id=645616/](https://bugzilla.novell.com/show_bug.cgi?id=645616/).

For the most current NetApp information about this issue, see [Bug ID 442853](#) (login required).

### (Veritas) Storage space reclamation fails on Linux hosts using Veritas Storage Foundation with Data ONTAP versions 8.1.3 operating in 7-Mode and Data ONTAP 8.2

The space reclaim operation on Linux hosts running Veritas Storage Foundation (VSF) and Data ONTAP versions 8.1.3 operating in 7-Mode, Data ONTAP 8.2 fails despite the space reclaim command returning `success` message.

This discrepancy is because the versions prior to Data ONTAP 8.1.3 operating in 7-Mode and Data ONTAP 8.2 set the `Maximum unmap LBA count` parameter's value to 244 MB, but with Data

ONTAP 8.1.3 operating in 7-Mode, Data ONTAP 8.2 and later, this value has changed to 4MB. Whereas, VSF is only configured to work with the older value of 244MB.

**Workaround:** There is no known workaround at this time.

For the most current NetApp information about this issue, see [Bug ID 695854](#) (login required).

Symantec is working on this issue and a fix is expected in an upcoming VSF Array Support Library release.

## **I/O failures seen on RHEL5 hosts with Veritas Storage Foundation 5.1SP1RP4 during storage failover operations**

I/O failures are observed in RHEL5 hosts during storage failover operations. This is because ALUA state transitions are not handled by SCSI layer, and the errors are propagated directly to the VxDMP layer.

### **Workaround**

Loading SCSI ALUA handler module resolves this issue. To load SCSI ALUA handler module execute `themodprobe scsi_dh_alua` command.

This issue is tracked with Symantec using the Service Request number: Case 06673556

## Ways to view current and fixed product bugs

---

NetApp provides an online tool that enables you to search for the most current information about a known bug. You can also use this tool, which is available on the NetApp Support Site, to get a list of current or fixed bugs for a particular product.

Bugs Online on the NetApp Support Site at [mysupport.netapp.com/NOW/cgi-bin/bol](https://mysupport.netapp.com/NOW/cgi-bin/bol) enables you to search for information in the following ways:

- By entering the bug number
- By entering keywords related to the bug
- By selecting a software product from the list in the **Bug Type(s)** field or the **Product Type(s)** field

Some products are listed in one field and some in the other field. You should check both to find the product you want.

Some keyword combinations and bug types that you might want to use include the following:

- FCP - Linux
- iSCSI - Linux

## Updates to NetApp documentation

---

Occasionally, issues with the documentation are found between updates to the Installation and Administration Guide and other guides. This section lists any issues that have been found since the last time the documentation was updated.

NetApp welcomes comments on the documentation. If you have suggestions for improvements or corrections to the documentation, please send them. For information on how to contact NetApp about documentation issues, see [How to send your comments](#) on page 47.

### DM-Multipath recommended for all configurations

At a minimum, you should use DM-Multipath with all storage system configurations. Testing has shown that single-path solutions do not survive controller failovers (CFOs).

As a result, the instructions and examples in the [Linux Unified Host Utilities Installation Guide](#) refer to DM-Multipath configurations only. There is no information about single-path solutions.

### Recommended timeout values enable multipathing to work with NetApp storage

For multipathing to work correctly with NetApp systems when you are using iSCSI, you should set the `node.session.timeo.replacement_timeout` parameter in the iSCSI configuration file to the value recommended by NetApp.

The “(iSCSI) Setting the timeout values to enable multipathing” section in the [Using Linux Hosts with Data ONTAP storage](#) document contains the recommended value for your system.

**Note:** If you are using Red Hat Enterprise Linux 4 series, you must set the value of the `ConnFailTimeout` parameter.

Multipathing works with the default values; however, internal testing has shown that changing the values enables multipathing to perform better with NetApp storage systems.

### Default values recommended when using drivers bundled with Linux kernel

When you are setting up an FC environment that uses the native, inbox drivers that are bundled with the Linux kernel, you can use the default values for the drivers.

In iSCSI environments where you are using QLogic or Broadcom, you need to manually set certain recommended values. The recommendations are based on internal testing at NetApp.



## NetApp product documentation

---

You can access documentation for all NetApp products on the NetApp Support Site at [mysupport.netapp.com](https://mysupport.netapp.com).

In addition to product documentation, NetApp provides other product information, such as technical reports and white papers.

## How to search for documentation on the NetApp Support Site

NetApp provides a variety of documentation on the [mysupport.netapp.com](https://mysupport.netapp.com) site that can be helpful in working with the Host Utilities.

You can use the Search tool on the [mysupport.netapp.com](https://mysupport.netapp.com) site to search through the following information sources:

- Product documentation
- Knowledgebase articles
- Bugs Online
- The support community
- Tools and other documentation
- Partner knowledgebases

## Links to NetApp product documentation

The Product Documentation page contains pointers to the most current NetApp documentation for Host Utilities and storage systems.

Links to specific Host Utilities documents are in the Product Library A-Z page available at [mysupport.netapp.com/documentation/productsatoz/index.html](https://mysupport.netapp.com/documentation/productsatoz/index.html) for each Host Utilities product.

The following table describes some of the documents on the [mysupport.netapp.com](https://mysupport.netapp.com) site that contain information about host and storage system requirements, supported configurations, and best practices, as well as procedures for installing and managing your storage environment:

If you need more information about...	Go to...
The latest supported configurations	Interoperability Matrix
Configuring and managing your Data ONTAP storage system	<ul style="list-style-type: none"> <li>• The following documents for your Data ONTAP release:               <ul style="list-style-type: none"> <li>◦ The <i>Data ONTAP Software Setup Guide</i> for your version of Data ONTAP</li> <li>◦ The <i>Data ONTAP SAN Administration Guide</i> for your version of Data ONTAP</li> <li>◦ The <i>Data ONTAP Release Notes</i> for your version of Data ONTAP</li> </ul> </li> </ul>

If you need more information about...	Go to...
Configuring and managing your E-Series storage system	<ul style="list-style-type: none"> <li>• The following documents for your SANtricity release:</li> <li>• The <i>SANtricity Storage Manager 11.20 Configuration and Provisioning for Windows Express Guide</i> that is appropriate for your protocol</li> <li>• The <i>SANtricity Storage Manager Configuration and Provisioning Express Guide</i> for your operating system, protocol, and version of SANtricity.</li> <li>• The <i>SANtricity Storage Manager Software Installation Reference</i> specific for your version of SANtricity.</li> <li>• The <i>SANtricity Storage Manager Multipath Driver's Guide</i> specific for your version of SANtricity.</li> <li>• The <i>SANtricity Storage Manager Release Notes</i> for your version of SANtricity.</li> </ul> <p>Go to the E-Series documentation at <a href="https://mysupport.netapp.com/documentation/productsatoz/index.html">mysupport.netapp.com/documentation/productsatoz/index.html</a> to find SANtricity related documentation.</p>
Supported Fibre Channel SAN topologies	The <i>Data ONTAP SAN Configuration Guide</i> for your version of Data ONTAP
Configuring your host for Host Utilities	The Host Utilities documents in the <a href="#">Host Utilities Documentation Library</a>

## NetApp Linux Community Program

---

The NetApp Linux Community Program provides a place where Linux users who have NetApp equipment can share information. It can be helpful to check this site periodically.

The NetApp Linux Community Program is located at <http://linux.netapp.com/>.

**Note:** This site is not part of NetApp's online support site ([mysupport.netapp.com](http://mysupport.netapp.com)) or the NetApp Interoperability Matrix. NetApp does not provide support in connection with this site or its contents.

## Contact technical support

---

If you have a question that has not been resolved by these Release Notes, contact NetApp technical support.

### Things to check before you call technical support

Before you call technical support, there are several things you can try to solve the problem yourself.

- You should go through the *Release Notes* to see whether they contain information about the problem.
- You should check all cables to ensure that they are connected properly.
- If you are using switches, you should check the power to the switches to ensure that the system is turned on.  
You should also ensure that the system components were turned on in the correct order.
- You should review the troubleshooting information provided in the documentation for this product.

### Information you must provide to technical support

Before you contact technical support, you must gather information about your system and your problem.

You should have the following information available when you contact technical support:

- Your contact information
- A list of all the NetApp products you are using
- All the error messages from the system
- Information about your system setup
- Your licensing information

### How to contact NetApp technical support

You can contact NetApp technical support from the NetApp Support Site.

[\*NetApp Support\*](#)

## Copyright information

---

Copyright © 1994–2016 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.

**RESTRICTED RIGHTS LEGEND:** Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

## Trademark information

---

NetApp, the NetApp logo, Go Further, Faster, AltaVault, ASUP, AutoSupport, Campaign Express, Cloud ONTAP, Clustered Data ONTAP, Customer Fitness, Data ONTAP, DataMotion, Fitness, Flash Accel, Flash Cache, Flash Pool, FlashRay, FlexArray, FlexCache, FlexClone, FlexPod, FlexScale, FlexShare, FlexVol, FPolicy, GetSuccessful, LockVault, Manage ONTAP, Mars, MetroCluster, MultiStore, NetApp Insight, OnCommand, ONTAP, ONTAPI, RAID DP, RAID-TEC, SANtricity, SecureShare, Simplicity, Simulate ONTAP, Snap Creator, SnapCenter, SnapCopy, SnapDrive, SnapIntegrator, SnapLock, SnapManager, SnapMirror, SnapMover, SnapProtect, SnapRestore, Snapshot, SnapValidator, SnapVault, StorageGRID, Tech OnTap, Unbound Cloud, and WAFL and other names are trademarks or registered trademarks of NetApp, Inc., in the United States, and/or other countries. All other brands or products are trademarks or registered trademarks of their respective holders and should be treated as such. A current list of NetApp trademarks is available on the web.

<http://www.netapp.com/us/legal/netapptmlist.aspx>

## How to send comments about documentation and receive update notifications

---

You can help us to improve the quality of our documentation by sending us your feedback. You can receive automatic notification when production-level (GA/FCS) documentation is initially released or important changes are made to existing production-level documents.

If you have suggestions for improving this document, send us your comments by email.

[doccomments@netapp.com](mailto:doccomments@netapp.com)

To help us direct your comments to the correct division, include in the subject line the product name, version, and operating system.

If you want to be notified automatically when production-level documentation is released or important changes are made to existing production-level documents, follow Twitter account @NetAppDoc.

You can also contact us in the following ways:

- NetApp, Inc., 495 East Java Drive, Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277