

FCP Linux® Host Utilities 3.0.1 for the Native OS

Release Notes

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Part number 215-03293_A0
June 2007

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Table of Contents

- Changes in this release 1
- Required RPMs for dm-multipath 2
- Known problems and limitations for RHEL hosts 3
- Known problems and limitations for SLES hosts 5
- For information about additional problems. 7
- Where to find additional information. 8

Changes in this release

New name	The FCP Linux® Host Utilities 3.0.1 for Native OS is the follow-on release to the FCP Linux® Host Utilities 3.0. This release of FCP Linux Host Utilities is a document update release only. If you already have FCP Linux Host Utilities 3.0 installed, you do not need to reinstall this software.
Linux Versions	The FCP Linux Host Utilities 3.0.1 for Native OS support: ◆ Red Hat® Enterprise Linux (RHEL) . ◆ Oracle Enterprise Linux (OEL). ◆ SUSE® Linux Enterprise Server (SLES) . New configuration components are also qualified between support kit releases. For the latest support information, see the FCP Host Compatibility Matrix at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml.
Multipathing support with dm-multipath	Linux native OS device mapper multipathing (dm-multipath) support is added. This support enables you to configure multiple network paths between the Linux host and storage system. If one path fails, FCP traffic continues on the remaining paths.
Other features	The FCP Linux Host Utilities 3.0.1 for Native OS support the following features: ◆ 4 gigabit Fibre Channel using supported QLogic® and Emulex® host bus adapters. The compatibility matrix lists supported HBA models. ◆ Linux host clusters and Global File System (RHEL only). ◆ Linux logical volume manager (LVM). ◆ AMD64 and Xeon EM64T host CPUs.

Required RPMs for dm-multipath

Check the FCP host compatibility matrix

The following version information was current when written. For the latest version information, see the FCP Host Compatibility Matrix at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml.

Required RHEL multipathing RPM versions

If you are using the dm-multipath support for RHEL, you need the following userspace RPM versions:

- ◆ device-mapper RPM: 1.02.02-3.0.RHEL4
- ◆ device-mapper-multipath RPM: 0.4.5-12.0.RHEL4

Required SLES multipathing RPM versions

If you are using the dm-multipath support for SLES, you also need the following userspace RPM versions:

- ◆ device-mapper RPM: 1.01.01-1.6
- ◆ multipath RPM: 0.4.5-0.11

Known problems and limitations for RHEL hosts

Multiple devices shown for each LUN

Problem: The `sanlun lun show` command displays multiple devices for each LUN that is mapped to the Linux host. This problem occurs only with RHEL 4 Update 2 and RHEL 4 Update 3 without dm-multipath.

What to do: Use the dm-multipath support to manage multiple paths.

Otherwise, configure the storage system or zoning so that there is only one path to each LUN.

Always map first LUN as LUN 0

Problem: 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. Adding LUN 0 later does not solve the problem.

Workaround: Always map the first LUN for a host to LUN 0. This is the default behavior of Data ONTAP when you do not explicitly specify the LUN identifier.

For QLogic HBAs, map a LUN 0 to the host and then run the `qla2xxx_lun_rescan` script included in the Host Utilities to remove the device created for the missing LUN 0 and discover the real LUN 0.

Using partitions on Linux with Data ONTAP LUNs may require alignment for best performance

Problem: Using default partition settings on LUNs may result in performance problems. This problem can occur if the `sectors` value for a partition is not a multiple of 8.

What to do: Manually enter the disk geometry parameters when creating partitions with the `fdisk` command. Refer to bug number 156121 on Bugs Online at <http://now.netapp.com/NOW/cgi-bin/bol> for specific steps.

Zoning with cfmodes standby and mixed

If the active/active configuration storage system is using the standby or mixed cfmodes, your switches must be zoned by WWPN.

To prevent failover problems, create zones that include the host HBAs and the primary port WWPNS on storage system. Do not include the standby port WWPNS on the storage system in the zones with the host HBA ports.

The host should never access the standby port WWPNs. During failover, the standby ports of the takeover system assume the WWPNs of the primary ports of the system that is down. The primary ports are already included in existing zones, so the host can access them.

LUNs not recognized by dm- multipath

Problem: LUNs are mapped to the Linux host and are correctly reported by the `sanlun lun show all` command. However the LUNs are not reported by the `multipath -ll` command. Multipath devices are not created for the LUNs.

What to do: Make sure the LUNs are not excluded (blacklisted) from the dm-multipath configuration. Enter the following command on the Linux host to display the devices that are blacklisted:

```
multipath -v -d | grep blacklist
```

If any FCP devices are blacklisted, check the `devnode_blacklist` section of the `/etc/multipath.conf` file. Pay special attention to any statements added to blacklist local SCSI disks. Note that `devnode "sd[a-b]"` excludes not only `/dev/sda` and `/dev/sdb`, but also `/dev/sdaa`, `/dev/sdba`, and so on. Be sure to use `devnode "sd[a-b]$"` instead.

If the FCP devices are not blacklisted, but are still not recognized by the `multipath` command, regenerate the multipath maps by entering the following command:

```
multipath -v3
```

For more information, see bug 201302 on Bugs Online at <http://now.netapp.com/NOW/cgi-bin/bol>.

Known problems and limitations for SLES hosts

LUNs not recognized by dm-multipath

Problem: LUNs are mapped to the Linux host and are correctly reported by the `sanlun lun show all` command. However the LUNs are not reported by the `multipath -ll` command. Multipath devices are not created for the LUNs.

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If the FCP devices are not blacklisted, but are still not recognized by the `multipath` command, regenerate the multipath maps by entering the following command:

```
multipath -v3
```

For more information, see bug 201302 on Bugs Online at <http://now.netapp.com/NOW/cgi-bin/bol>.

File systems on partitions may have performance problems

Description: The default `fdisk` command parameters used to create a partition on a LUN may result in poor performance for that LUN.

Explanation: The default `fdisk` parameters can create a misalignment between the LUN block boundaries and the underlying WAFL® boundaries. This causes the storage system to double its I/O workload for that LUN.

Workaround: You can explicitly specify the `fdisk` parameters when creating a partition to use values that guarantee the correct block alignment. Refer to bug number 156121 on Bugs Online at <http://now.netapp.com/NOW/cgi-bin/bol> for specific steps.

Zoning with cfmode standby and mixed

If the active/active configuration storage system is using the standby or mixed cfmode, your switches must be zoned by WWPN.

To prevent failover problems, create zones that include the host HBAs and the primary port WWPNs on storage system. Do not include the standby port WWPNs on the storage system in the zones with the host HBA ports.

The host should never access the standby port WWPNs. During failover, the standby ports of the takeover system assume the WWPNs of the primary ports of the system that is down. The primary ports are already included in existing zones, so the host can access them.

sanlun does not display all FCP LUNs

Description: The `sanlun` command does not display all FCP LUNs mapped to the initiator.

Explanation: There are two possible explanations for this problem:

- ◆ Number of 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), `sanlun` does not list all the LUNs.

- ◆ Storage system is unreachable for a long time

If the time during which the storage system is unreachable exceeds the FCP timeouts, the `sanlun lun show all` command might not provide a complete list of mapped LUNs the first time you run the command.

Workaround: The following table lists the workarounds for this problem.

If...	Then...
You have more than 32 SCSI devices	Create more <code>/dev/sg*</code> entries using the Linux <code>mknod</code> command. For details about the <code>mknod</code> command, see the Linux man page. Example: <pre>mknod --mode=660 /dev/sg32 c 21 32</pre>
The storage system was unreachable	1. Run the <code>sanlun lun show all</code> command a second time. 2. Make sure that the LUNs listed match the LUNs mapped to the host on all storage systems.

For information about additional problems

Occasionally, additional problems are reported with the Support Kit or known bugs are fixed. The problems are listed in an online system called Bugs Online.

For a list of known and fixed bugs, access Bugs Online by completing the following steps.

Step	Action
1	Use a Web browser to go to http://now.netapp.com .
2	Click Service & Support.
3	Click Bugs Online & Release Tools.
4	In the Bug Search Tools section, choose FCP-Linux from the Bug Type(s) menu.
5	Click Go. Result: The Bugs Online - Advanced Search Results lists all bugs for Linux FCP hosts.

Where to find additional information

Where to go for more information

The following table describes documents with the most current information about host and storage system requirements and additional documentation.

If you want...	Go to...
The most current system requirements for the Linux host	<i>FCP Host Compatibility Matrix</i> at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml
The supported storage system models for Data ONTAP licensed with FCP	◆ <i>FCP Configuration Guide</i> at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/ ◆ <i>System Configuration Guide</i> for Data ONTAP at http://now.netapp.com
Information about how to configure and manage the FCP service on the storage system	The following documents for your Data ONTAP release: ◆ <i>Data ONTAP Block Access Management Guide</i> ◆ <i>Data ONTAP Release Notes</i>