# Quantum®

# Compatibility Guide

## StorNext 4.7.1

Quantum 6-67948-03 StorNext 4.7.1 Compatibility Guide Rev. A, April 2014

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# Contents

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**www.quantum.com**
April 2014
Page 3 of 16

**Quantum StorNext**

# 1.0 StorNext Metadata Controller (MDC) RAM, Disk and CPU Requirements

The minimum amount of RAM and available hard disk space required to run StorNext SNFS and SNSM are presented here. StorNext utilizes database and journal files, and these are stored on the MDC. Consequently, the amount of local disk space that is required increases with the number of data files stored on StorNext file systems. If necessary, upgrade the RAM and local disk storage in the MDC to meet the minimum requirements before installing StorNext.

**Note:** The RAM requirements are for running StorNext File System and Storage Manager only. Running additional software (including the StorNext client software) requires additional RAM.

**Note:** StorNext File System requires the use of RAID devices that support the SCSI-3 standard. In addition, if the array uses write caching, Quantum requires that the cache is battery-backed.

**Note:** Currently, StorNext Storage Manager does not support IPV6.

| No. of File Systems | Minimum RAM* | File System Disk Space | Storage Manager Disk Space |
|---|---|---|---|
| 1–4** | 4 GB | 4 GB | • For application binaries, log files, and documentation: up to 30GB (depending on system activity) |
| 5–8** | 8 GB | 6 GB | • For support directories: 3 GB per million files stored |
| * If StorNext cache settings are modified, the amount of system RAM should be increased based on the cache settings guidelines. | | | |
| ** Four or more CPU cores are recommended for best performance. | | | |

# 2.0 StorNext MDC Additional RAM and Disk Deduplication and Replication Requirements

In order to use the data deduplication and replication features, your system must have the following memory and disk capacity in addition to the base memory and disk capacity required to run StorNext File System and Storage Manager.

**Note:** Deduplication is supported only on 64-bit operating systems.

| Repository Configuration | Minimum Additional RAM | Minimum Additional Disk Space Available |
|---|---|---|
| Base Repository | ---- | 50 MB |
| Systems Licensed for 0 - 1 TB of Data | 1 GB | 1 TB |
| Systems Licensed for 1 - 10 TB of Data | 6 GB | 10 TB |
| Systems Licensed for 10 - 50 TB of Data | 13 GB | 50 TB |
| Systems Licensed for 50 - 150 TB of Data | 28 GB | 150 TB |

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**www.quantum.com**
April 2014
Page 4 of 16

# 3.0   StorNext MDC Network Requirements

The following network requirements must be met before installing StorNext on the MDC:

- In cases where maximum StorNext performance is required, a separate, dedicated network is required for the StorNext metadata traffic.

  Even in cases where maximum StorNext performance is not required, a separate, dedicated network is recommended.

  If any part of the metadata network is not capable of 1Gb/s throughput, a separate, dedicated switched Ethernet LAN is required for the StorNext metadata network.
- The MDC and all clients must have static IP addresses.
- Verify network connectivity between all clients and the MDC with pings, and also verify entries in the **/etc/hosts** file. Alternatively, telnet or ssh between machines to verify connectivity.
- If using Gigabit Ethernet, disable jumbo frames and TOE (TCP offload engine).
- The hostname **localhost** is resolvable on the MDC.
- The hostname **localhost** on the MDC must resolve to an IPv4 address on the loopback device.
- The hostname **localhost** must not resolve to an IPv6 address.
- SUSE Linux distributions automatically associate the fully-qualified domain name (FQDN) of the local machine with the address 127.0.0.2 in the `/etc/hosts` file. There is no benefit from doing this when the machine is connected to a network that can resolve its name to an IP address. However, the existence of this entry can sometimes cause a failure of configuration synchronization within and between the server computers in an HA configuration. For this reason, the 127.0.0.2 entry should be deleted from the `/etc/hosts` file.
- Software firewalls such as "iptables" on Linux and Windows Firewall can interfere with the proper functioning of StorNext and result in unexpected errors unless specifically configured for use with StorNext. Quantum strongly recommends that all software firewalls be disabled on systems used as StorNext clients and servers. If required, StorNext can be configured for use with hardware firewalls. For more information, refer to the fsports man-page or help file and the "Ports Used By StorNext" section in the StorNext Tuning Guide.

**Note:** StorNext does not support file system metadata on the same network as iSCSI, NFS, CIFS, or VLAN data when 100 Mbit/s or slower networking hardware is used.

## 4.0    Additional StorNext MDC and StorNext and StorNext FX Client Requirements

The following requirements must be met before installing StorNext on an MDC, and StorNext and StorNext FX Clients.

- The operating system on the metadata controller must always be run in U.S. English. On Windows systems, this is done by setting the system locale to US English.
- The system does not have SELinux enabled.
- Quantum requires that system clocks be synchronized for proper functionality, and recommends that NTP be used to ensure clocks remain synchronized across all nodes.
- The following packages must be installed:
  - o   gcc
  - o   make
- kernel-source (for systems running SUSE Linux)
- kernel-devel (for systems running Red Hat Linux)
- **cpuspeed**, an external Linux service on recent Intel processors, is not correctly tuned to allow StorNext to take advantage of processor speed. SUSE systems may also be impacted, as may AMD processors with similar capabilities.

  On processors with a variable clockspeed (turboboost), the cpuspeed service on Red Hat controls the actual running speed of the processors based on system load.

  A workload such as a heavily used FSM and probably Storage Manager does not register as something which needs a faster cpu. Turning off the cpuspeed service has been shown to double metadata performance on affected hardware.

  Look at the reported CPU clock speed by typing `cat /proc/ cpuinfo` on the command line while the system is under load to determine if a system is impacted by this issue.

**Note**: The version of the kernel-source or kernel-devel package must correspond to the version of the booted kernel. In addition, the system must have basic utilities installed such as perl, bash, grep, etc. as well as basic libraries. In general, StorNext will not install on a stripped-down installation of Linux. For management servers running Red Hat Enterprise Linux version 5 or 6, before installing SNFS and SNSM, you must first install the kernel header files (shipped as the kernel-devel or kernel-devel-smp RPM, depending on your Linux distribution).

**Note:** For servers running SUSE Linux Enterprise Server, you must install the first kernel source code (shipped as the kernel-source RPM). StorNext will not operate correctly if these packages are not installed. You can install the kernel header files or kernel source RPMs by using the installation disks for your operating system.

## 5.0    StorNext and StorNext FX Client RAM, Disk and CPU Requirements

To install and run the StorNext or StorNext FX client software, the system must meet the following minimum hardware requirements.

For SAN (FC-attached) clients or LAN clients:
- 1 GB RAM
- 500 MB available hard disk space

For SAN clients acting as a Gateway server:
- 2 GB RAM
- 500 MB available hard disk space

**Note:** Gateway servers may require additional RAM depending on the number of file systems, LAN clients, and NICs used. See "Gateway Server Memory Tuning" in the *StorNext User's Guide* for Gateway server memory tuning guidelines.

# 6.0    StorNext and StorNext FX Client File System Buffer Cache

Multiple mounted file systems typically share a single buffer cache. A StorNext and StorNext FX client buffer cache is created for each different cachebufsize. By default, all file systems have the same cachebufsize of 64K, so they all share the same buffer cache.

These settings do not apply to Apple Xsan Clients, which do not use the StorNext buffer cache.
The amount of memory consumed by default for each cachebufsize depends on the platform type and the amount of memory in the system. The table below shows the default amount of memory consumed by cachebufsize.

| Platform Type | <=2GB Memory | 2GB Memory |
|---|---|---|
| 32-bit Windows | 32MB | 64MB |
| 32-bit Linux | 64MB | 128MB |
| All other platforms | 64MB | 256MB |

To see information about the buffer cache after mounting file systems, use the **cvdb(1)** command with the **-b** option. To change the amount of memory used by the buffer cache at mount time, use the **buffercachecap** parameter.

On Windows, the non-paged pool is used for buffer cache memory until it consumes up to 64 megabytes (32-bit systems) or 64 gigabytes (64-bit systems). Any additional buffer cache memory comes from the paged pool.

# 7.0    StorNext Software Upgrade Matrix

Sites running the following StorNext versions may upgrade directly to this release assuming the platform, service pack, architecture (32 or 64-bit), and StorNext component(s) are supported in this release.

- StorNext 4.3.2
- StorNext 4.3.3
- StorNext 4.7
- StorNext 4.7.0.1

All other versions of StorNext require additional steps to upgrade to this release.

**IMPORTANT NOTE:** Please also see the Lattus-to-StorNext compatibility information

# 8.0    Discontinued Operating Systems and Platforms

For StorNext software, no operating systems or service packs were dropped from this release (compared to StorNext 4.7.0.1).

## 9.0    Supported Operating Systems and Platforms

Bold indicates a combination new in this release compared to StorNext 4.7.0.1.

| Operating System | Kernel or Release | Platform | MDC Server[1] | File System SAN Client | StorNext FX | Distributed LAN Server Gateway | File System LAN Client[2] | Storage Manager / SNAPI | Distributed Data Mover | Replication / Dedup Server |
|---|---|---|---|---|---|---|---|---|---|---|
| Windows Server 2003[6] | R2 SP2 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | ✓ | ✓ | ✓ | ✓ 3,4 | ✓ | | | |
| Windows XP[6] | SP2 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| | SP3 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| Windows Vista[6] | SP1 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| | SP2 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| Windows Server 2008[6] | SP1 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | ✓ | ✓ | ✓ | ✓ 3, 4 | ✓ | | | |
| | SP2 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | ✓ | ✓ | ✓ | ✓ 3, 4 | ✓ | | | |
| | R2 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | ✓ | ✓ | ✓ | ✓ 3, 4 | ✓ | | | |
| | R2 SP1 | x86 64-bit | ✓ | ✓ | ✓ | ✓ 3, 4 | ✓ | | | |
| Windows 7[6] | | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| | SP1 | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| Windows 8[6] | | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| Windows Server 2012 | | x86 64-bit | ✓ | ✓ | ✓ | ✓ 3, 4 | ✓ | | | |
| RHEL 5[5 6 7] | 2.6.18-164.EL (Update 4) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.18-194.EL (Update 5) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.18-238.EL (Update 6) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

[1] High Availability is available on all supported Linux MDC platforms. Platforms that support MDC Servers also can be configured as a name server.

[2] StorNext Distributed LAN clients can be connected to either Distributed LAN Servers or StorNext G300 appliances.

[3] Distributed LAN Server on Windows supports up to 128 Distributed LAN Clients.

[4] Gateway instrumentation is not available for Windows.

[5] RHEL and SLES kernel and Windows service pack levels listed indicate the supported versions.  Updates within the same service pack (e.g. security updates) are, in general, supported unless otherwise noted.

[6] The "Xen" virtualization software is not supported.

[7] HBA multipath customers: please verify with your HBA vendor that your current multipath driver is supported for any planned Linux OS version/update/service pack level.  If your driver is not supported for your planned Linux OS version/update/service pack, the StorNext client or server may not be functional after your Linux upgrade.

| Operating System | Kernel or Release | Platform | MDC Server[1] | File System SAN Client | StorNext FX | Distributed LAN Server Gateway | File System LAN Client[2] | Storage Manager / SNAPI | Distributed Data Mover | Replication / Dedup Server |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2.6.18-274.EL (Update 7) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.18-308.EL (Update 8) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.18-348.EL (Update 9) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| RHEL 6[6,7] | 2.6.32-71.EL | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.32-131.EL (Update 1) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.32-220.EL (Update 2) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.32-279.EL (Update 3) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.32-358.EL (Update 4) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| SLES 10[6,7,8] | 2.6.16.60-0.54.5 (SP3) | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | 2.6.16.60-0.54.5 (SP3) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 2.6.16.60-0.85.1 (SP4) | x86 32-bit | | ✓ | ✓ | | ✓ | | | |
| | 2.6.16.60-0.85.1 (SP4) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| SLES 11[6,7,8,9] | 2.6.27.19-5 | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| | 2.6.32.12-0 (SP1) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 3.0.13-0.27.1 (SP2) | x86 64-bit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Debian | 6.0.x (6.0.5 or later) | x86 64-bit | | ✓ | ✓ | | ✓ | | | |
| Solaris 10 | Any | SPARC 64-bit | | ✓ | | | | | | |
| | | x86 64-bit | | ✓ | | | ✓ | | | |
| Solaris 11 | Any | SPARC 64-bit | | ✓ | | | | | | |
| | | x86 64-bit | | ✓ | | | ✓ | | | |
| Solaris 11.1 | Any | SPARC 64-bit | | ✓ | | | | | | |
| | | x86 64-bit | | ✓ | | | ✓ | | | |
| IBM AIX | 6.1 | 64-bit Power Architecture | | ✓ | | | | | | |
| | 7.1 | 64-bit Power Architecture | | ✓ | | | | | | |
| HP-UX | 11i v3[9] | Itanium 64-bit | | ✓ | | | | | | |
| CentOS[10] | Equivalent supported RHEL5 and RHEL6 | x86 64-bit | | ✓ | | | ✓ | | | |
| Scientific Linux[10] | Equivalent supported RHEL5 and RHEL6 | x86 64-bit | | ✓ | | | ✓ | | | |
| Oracle Linux[10] | Equivalent supported RHEL5 and RHEL6 | x86 64-bit | | ✓ | | | ✓ | | | |

[8] A "roll" of a particular digit is not indicative that a new SLES service pack has been declared by Novell. The kernel revisions listed in this document are typically (but not always), the first kernel revision of the service pack.

[9] HPUX 11iv3 requires the "0909 Patch set".

[10] Platform is supported only if the issue can be reproduced on the equivalent Red Hat release. Only the "standard" versions of this platform are supported. "Special" or "optimized" versions are not supported.

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**www.quantum.com**
April 2014
Page 9 of 16

# 10.0 StorNext Client Interoperability

| StorNext SAN Client Version | Platform |
|---|---|
| StorNext 3.5.x | Certain back-revision clients, as follows, are supported:<br><br>• AIX 5.3<br>• HPUX 11iv2<br>• SGI IRIX 6.5.30<br>• SLES10 Itanium<br>• SLES11 Itanium<br>• RHEL4<br><br>Quantum recommends that clients be upgraded along with the MDC. |
| StorNext 4.0.x<br>StorNext 4.1.x | Certain back-revision clients, as follows, are supported:<br><br>• RHEL4<br><br>Quantum recommends that clients be upgraded along with the MDC. |
| StorNext 4.2.x | Quantum recommends that clients be upgraded along with the MDC. |
| StorNext 4.3.x | Quantum recommends that clients be upgraded along with the MDC. |
| StorNext 4.6.x | Quantum recommends that clients be upgraded along with the MDC. |
| StorNext 4.7.x | Quantum recommends that clients be upgraded along with the MDC. |

General information on client interoperability:

• The StorNext MDC must be running an equivalent or more recent version of StorNext than the client is running.
• All components (e.g. File System, Storage Manager, etc.) installed on the same machine must be running the same version of StorNext.
• The StorNext DDM mover component must be at the same version at that running on the MDC.


# 11.0 StorNext Virtual Machine Support

| (StorNext MDCs are not supported running within virtual machines) | | | | |
|---|---|---|---|---|
| **Operating System** | **Kernel or Release** | **Platform** | File System SAN Client (See Note A) | File System LAN Client (See Note B) |
| Windows<br>  Server 2008<br>  Server 2012<br>  XP<br>  Vista<br>  7<br>  8 | All SN supported service packs | x86 32-bit | ✓ | ✓ |
| | | x86 64-bit | ✓ | ✓ |
| RHEL5 | All SN supported service packs | x86 64-bit | ✓ | ✓ |
| RHEL6 | All SN supported service packs | x86 64-bit | ✓ | ✓ |
| SLES 11 | All SN supported service packs | x86 64-bit | ✓ | ✓ |

**NOTE A**: Setting up a SAN client within a virtual machine can be complicated and should be done with great care to avoid data loss.

Guests running StorNext SAN clients have limited cluster functionality due to the use of RDMs to access storage. In particular, snapshots, vMotion, DRS, and fault tolerance are disabled. If these features are required, use DLC clients instead.

To configure StorNext SAN clients in VMware guests, be aware of the following considerations:

- StorNext Data LUNs must be assigned to each StorNext SAN client VM using Raw Device Maps (RDMs) in /Physical Mode/ on a Shared virtual SCSI adapter.
- Never use /Virtual Mode/ RDMs for StorNext LUNs.
- Consult your storage vendor for details on properly configuring the storage for use as VMware vSphere to use raw LUNs as RDMs.
- On each SAN client, generate a raid-strings file by running the command:
  - cvlabel -R > /usr/cvfs/config/raid-strings
  - Then open /usr/cvfs/config/raid-strings in a text editor and change the third column to JBOD for all storage types. This disables StorNext multi-path handling, which is not needed in a guest. The host will handle multi-pathing.

**NOTE B**: To configure StorNext Distributed LAN Clients in VMware guests, follow the same procedures you would for a physical system. There are no VMware-specific requirements or issues.

## 12.0 Compatibility with other Products

| Product | Reference |
|---|---|
| Xsan to StorNext Compatibility | Please see the Xsan compatibility matrix document for Xsan compatibility with StorNext. |
| SNAPI to StorNext Compatibility | Please see the SNAPI compatibility matrix document for compatibility between SNAPI and StorNext. |
| StorNext Partial File Retrieval (PFR) to StorNext Compatibility | Please see the PFR compatibility matrix document for compatibility between PFR and StorNext. |
| Advanced Reporting | Sites running roll-your-own (non-appliance) StorNext are compatible with the following Advanced Reporting versions:<br>• RHEL5: StorNext Advanced Reporting 2.0.7<br>• RHEL6: StorNext Advanced Reporting 2.0.7<br>StorNext metadata appliances M330, M440, M660 running StorNext 4.7 are compatible with StorNext Advanced Reporting 2.0.7. |

## 13.0 Compatibility between Lattus Software and StorNext Software

StorNext 4.7.1 is compatible with Lattus 3.3.1.

## 14.0 Compatibility between Lattus Software and A10 Software

N/A – No Lattus Access Node software produced for this release

## 15.0 StorNext Browser Support

The following browsers are supported with the StorNext GUI for this release:

- Firefox versions 4 and later (Quantum recommends using the latest released version)
- Internet Explorer versions 8 through 10 (Quantum recommends IE10)
- Chrome version 18 and later (Quantum recommends using the latest released version)
- Safari version 5.1

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www.quantum.com
April 2014
Page 11 of 16

# 16.0  Quantum Supported Libraries and Tape Drives

| (**bold** indicates a combination new in this release) | | | |
|---|---|---|---|
| Vendor Library Family | Libraries | Drive Types[11] | Notes |
| Quantum | Scalar i500 | IBM LTO-2<br>IBM LTO-3<br>IBM LTO-4<br>IBM LTO-5<br>IBM LTO-6<br>HP LTO-4<br>HP LTO-5<br>HP LTO-6 | |
| | Scalar i6000 / i2000 | IBM LTO-1 FC and SCSI<br>IBM LTO-2 FC and SCSI<br>IBM LTO-3<br>IBM LTO-4<br>IBM LTO-5<br>IBM LTO-6<br>HP LTO-3<br>HP LTO-4<br>HP LTO-5<br>HP LTO-6<br>Quantum DLT-S4<br>Quantum SDLT 320 SCSI<br>Quantum SDLT 600 FC | |
| | Scalar i80 / i40 | HP LTO-4<br>HP LTO-5<br>HP LTO-6 | |
| | Scalar 24 | IBM LTO-1<br>IBM LTO-2<br>IBM LTO-3<br>IBM LTO-4 | |
| | Scalar 50 | HP LTO-4 | |
| | Scalar 100 | IBM LTO-1<br>IBM LTO-2<br>IBM LTO-3<br>AIT-2 | NOTE: 2.10.0013 firmware not to be used. |
| | Scalar 1000 | IBM LTO-2<br>IBM 3590B1A<br>AIT-1 | Must use SDLC[12] / DAS, SDLC [12]/SCSI Target Mode or Native SCSI |
| | Scalar 10000 | IBM LTO-1<br>IBM LTO-2<br>IBM LTO-3<br>IBM LTO-4<br>IBM LTO-5<br>AIT-2<br>AIT-2 WORM | Must use SDLC [12] / DAS, SDLC [12] / SCSI Target Mode or Native SCSI |

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[11] StorNext supports LTO WORM functionality where offered by the drive vendor.  Please see the vendor website for more details.
[12] Scalar Distributed Library Controller has been tested up to version 2.8

| (**bold** indicates a combination new in this release) | | | |
|---|---|---|---|
| **Vendor Library Family** | **Libraries** | **Drive Types[11]** | **Notes** |
|  |  | IBM 3592 |  |
|  | PX500 | HP LTO-3 | 30.0 |
|  | PX720 | HP LTO-2<br>HP LTO-3<br>DLT-S4 |  |
|  | DXI 7500 | Supported i2k emulation modes include: DLT7000, SDLT320, SDLT600, DLT-S4, Quantum/Certance LTO-2, 3, HP LTO-1, 2, 3, 4, IBM LTO-1, 2, 3, 4 |  |
|  | DXI 8500 | Supported i2k emulation modes include:<br>DLT7000, SDLT320, SDLT600, DLT-S4, Quantum/Certance LTO-2, 3, HP LTO-1, 2, 3, 4, IBM LTO-1, 2, 3, 4 |  |

## 17.0  Non-Quantum Supported Libraries and Tape Drives

| **Vendor Library Family** | **Libraries** | **Drive Types[13]** | **Notes** |
|---|---|---|---|
| Dell | PV136T | IBM LTO-2<br>IBM LTO-3<br>IBM LTO-4 |  |
|  | PowerVault ML6000 (6010, 6020, 6030) | IBM LTO-3<br>IBM LTO-4<br>IBM LTO-5<br>IBM LTO-6 |  |
| HP | ESL E Series | HP LTO-3<br>HP LTO-4<br>HP LTO-5 |  |
|  | MSL 6000 | HP LTO-2<br>HP LTO-3<br>HP LTO-4 | MSL 6000 does not support HP LTO-5 |
|  | MSL G3 Series (2024/4048/8096) | HP LTO-2<br>HP LTO-3<br>HP LTO-4<br>HP LTO-5<br>HP LTO-6 |  |
|  | EML E-Series | HP LTO-3<br>HP LTO-4<br>HP LTO-5 |  |
|  | ESL G3 | HP LTO-4<br>HP LTO-5<br>HP LTO-6 |  |
|  | MSL 6480 | HP LTO-3 |  |

[13] StorNext supports LTO WORM functionality where offered by the drive vendor.  Please see the vendor website for more details.

| Vendor Library Family | Libraries | Drive Types[13] | Notes |
|---|---|---|---|
|  |  | HP LTO-4 |  |
|  |  | HP LTO-5 |  |
|  |  | HP LTO-6 |  |
| IBM | TS3500 | IBM LTO-2 | Same as IBM3592 E05 |
|  |  | IBM LTO-3 |  |
|  |  | IBM LTO-4 |  |
|  |  | IBM LTO-5 |  |
|  |  | IBM 3592 (J1A and E05) |  |
|  |  | IBM TS1120 (E05) |  |
|  |  | IBM TS1130 |  |
|  |  | IBM TS1140 |  |
|  | TS3310 | IBM LTO-3 |  |
|  |  | IBM LTO-4 |  |
|  |  | IBM LTO-5 |  |
|  |  | IBM LTO-6 |  |
| Oracle SCSI/FC Libraries | L180/L700/L1400 | T9840C |  |
|  |  | T9840D |  |
|  |  | T10000A[14] |  |
|  |  | T10000B[14] |  |
|  |  | HP LTO-3 |  |
|  |  | HP LTO-4 |  |
|  |  | IBM LTO-3 |  |
|  |  | IBM LTO-4 |  |
|  | SL3000 | T9840C |  |
|  |  | T9840D |  |
|  |  | T10000A[14] |  |
|  |  | T10000B[14] |  |
|  |  | T10000C[14 15] |  |
|  |  | T10000D[16] |  |
|  |  | HP LTO-3 |  |
|  |  | HP LTO-4 |  |
|  |  | HP LTO-5 |  |
|  |  | HP LTO-6 |  |
|  |  | IBM LTO-3 |  |
|  |  | IBM LTO-4 |  |
|  |  | IBM LTO-5 |  |
|  |  | IBM LTO-6 |  |
|  | SL500 | HP LTO-3 |  |
|  |  | HP LTO-4 |  |
|  |  | HP LTO-5 |  |
|  |  | IBM LTO-3 |  |
|  |  | IBM LTO-4 |  |
|  |  | IBM LTO-5 |  |

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[14] When using T10000 drives, the STK library parameter "Fastload" must be set to "OFF".
[15] When using a T10000 Rev C drive with ACSLS 8.0.x, please assure that your cleaning cartridges are supported in that ACSLS release. Quantum has found a case where a cleaning cartridge isn't recognized by ACSLS 8.0.x and reports incorrect media type in the StorNext GUI. This report of incorrect media type does not prevent the cleaning cartridge from being successfully used, but can cause operator confusion. ACSLS 8.1.x corrects the issue.

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**6-67948-03 StorNext 4.7.1 Compatibility Guide Rev. A**

**www.quantum.com**
April 2014
Page 14 of 16

| Vendor Library Family | Libraries | Drive Types[13] | Notes |
|---|---|---|---|
| Oracle ACSLS 7.3 ACSLS 7.3.1 ACSLS 8.0.x[16] ACSLS 8.1.x ACSLS 8.2.x | SL150 | HP LTO-5 HP LTO-6 | |
| | 9740 L180/L700/L1400 | Sun/STK 9840 T9840C T9840D T10000A[14] T10000B[14] HP LTO-3 HP LTO-4 IBM LTO-3 IBM LTO-4 | Obsolete |
| | SL3000 | T9840C T9840D T10000A[14] T10000B[14] T10000C[14][15] T10000D[14] HP LTO-3 HP LTO-4 HP LTO-5 HP LTO-6 IBM LTO-3 IBM LTO-4 IBM LTO-5 IBM LTO-6 | Requires minimum ACSLS 7.3.1 Requires minimum ACSLS 8.2 Requires minimum ACSLS 7.3.1 Requires minimum ACSLS 8.2 |
| | SL500 | HP LTO-3 HP LTO-4 HP LTO-5 IBM LTO-3 IBM LTO-4 IBM LTO-5 | Requires minimum ACSLS 7.3.1 Requires minimum ACSLS 7.3.1 |
| | SL8500 | T9840C T9840D T10000A[14] T10000B[14] T10000C[14][15] T10000D[14] HP LTO-3 HP LTO-4 HP LTO-5 | Requires minimum ACSLS 7.3.1 |
| | | HP LTO-6 IBM LTO-3 IBM LTO-4 IBM LTO-5 | Requires minimum ACSLS 8.2 Requires minimum ACSLS 7.3.1 |

[16] The Oracle FC and ACSLS sections have been modified to include drive and library permutations that are "paper certified" based on testing that has been performed and validated by Sun/STK.

| Vendor Library Family | Libraries | Drive Types[13] | Notes |
|---|---|---|---|
| | | IBM LTO-6 | Requires minimum ACSLS 8.2 |
| | SL150 | HP LTO-5 | |
| | | HP LTO-6 | Requires minimum ACSLS 8.2 |
| Qualstar | XLS | IBM LTO-3 | |
| | | IBM LTO-4 | |
| | | IBM LTO-5 | |
| Sony | Petasite CSM-200 | IBM LTO-4 drive (T1600) | |
| Spectra Logic | T-Series (T50e, T120, T200, T380, T680, T950, and T-Finity) | LTO-3 LTO-4 LTO-5 LTO-6 IBM TS1140 | See Bulletin 46 Library firmware is known as BlueScale 11. Both L700 emulation and Native mode are supported In L700 emulation mode, LTO-5 drives report as LTO-4, limiting the capacity of the media. |

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www.quantum.com
April 2014
Page 16 of 16