StorNext 3.5.3 Release Notes

Product	StorNext 3.5.3
Date	July 2011

Contents

6-67341-01 Rev D, July 2011

Purpose of This Release

StorNext 3.5.3 is a maintenance release which addresses previously identified issues.

This document also describes supported platforms and system components, as well as currently known issues, issues that were resolved for this release, and known limitations.

Visit www.quantum.com/ServiceandSupport for additional information and updates for StorNext.

Changes and Considerations

This section contains important things pertaining to this release you should know.

Linter Database Upgrade

StorNext 3.5.3 incorporates Linter database version 118. In order to better address issues with large databases, Linter version 118 uses a slightly different internal format for its journals.

To ensure a successful upgrade from earlier versions of StorNext to release 3.5.3, you must perform a full backup both before and after the upgrade.

Configuration Requirements

Before installing StorNext 3.5.3, note the following configuration requirements:

- In cases where gigabit networking hardware is used and maximum StorNext performance is required, a separate, dedicated switched Ethernet LAN is recommended for the StorNext metadata network. If maximum StorNext performance is not required, shared gigabit networking is acceptable.
- A separate, dedicated switched Ethernet LAN is mandatory for the metadata network if 100 Mbit/s or slower networking hardware is used.
- 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.
- The operating system on the metadata controller must always be run in U.S. English.
- For Windows systems (server and client), the operating system must always be run in U.S. English.

Caution: If a Library used by StorNext Storage Manager is connected via a fibre switch, zone the switch to allow only the system(s) running SNSM to have access to the library. This is necessary to ensure that a "rogue" system does not impact the library and cause data loss or corruption. For more information, see StorNext Product Alert 16.

Library Requirements

The following libraries require special configurations to run StorNext.

DAS and Scalar DLC Network-Attached Libraries

Prior to launching the StorNext Configuration Wizard, DAS, and Scalar DLC network-attached libraries must have the DAS client already installed on the appropriate host control computer.

DAS Attached Libraries

For DAS attached libraries, refer to "Installation and Configuration" and "DAS Configuration File Description" in the *DAS Installation and Administration Guide*. The client name is either the default StorNext server host name or the name selected by the administrator.

StorNext can support LTO-3 WORM media in DAS connected libraries, but WORM media cannot be mixed with other LTO media types in one logical library.

To use LTO-3 WORM media in a logical library, before configuring the library in StorNext, set the environmental variable `XDI_DAS_MAP_LTO_TO_LTOW` in the `/usr/adic/MSM/config/envvar.config` file to the name of the library. The library name must match the name given to the library when configuring it with StorNext. If defining multiple libraries with this environmental variable, separate

them with a space. After setting the environmental variable, restart StorNext Storage Manager (SNSM).

Note: SDLC software may not correctly recognize LTO-3 WORM media in the library and instead set it to "unknown media type." In this case you must manually change the media type to "LTO3" using the SDLC GUI.

Scalar DLC Attached Libraries

For Scalar 10K and Scalar 1000 DLC attached libraries, refer to "Installation and Configuration" and "Client Component Installation" in the *Scalar Distributed Library Controller Reference Manual* (6-00658-02).

The DAS client should be installed during the installation of the Scalar DLC attached libraries. Use this procedure to install the DAS client.

1. Select **Clients > Create DAS Client**.

   The client name is either the default StorNext server host name or the name selected by the administrator.
2. When the DAS client is configured in Scalar DLC, select **Aliasing**.
3. Select **sony_ait** as the **Media** aliasing.
4. The default value is 8mm.
5. Verify that **Element Type** has **AIT** drive selected.
6. Click **Change** to execute the changes.

ACSLS Attached Libraries

Due to limitations in the STK ACSLS interface, StorNext supports only single ACS configurations (ACS 0 only). StorNext support requires that the ACSLS client be installed on the appropriate host machine.

Disk Requirements

Disk devices must support, at minimum, the mandatory SCSI commands for block devices as defined by the SCSI Primary Commands-3 standard (SPC-3) and the SCSI Block Commands-2 (SBC-2) standard.

To ensure disk reliability, Quantum recommends that disk devices meet the requirements specified by Windows Hardware Quality Labs (WHQL) testing. However, there is no need to replace non-WHQL certified devices that have been used successfully with StorNext.

Disk devices must be configured with 512-byte or 4096-byte sectors, and the underlying operating system must support the device at the given sector size. StorNext customers that have arrays configured with 4096-byte sectors can use only Windows, Linux and IRIX clients. Customers with 512-byte arrays can use clients for any valid StorNext operating system (i.e., Windows, Linux, or UNIX).

In some cases, non-conforming disk devices can be identified by examining the output of `cvlabel -vvvl`. For example:

```
/dev/rdsk/c1d0p0: Cannot get the disk physical info.
```

If you receive this message, contact your disk vendors to determine whether the disk has the proper level of SCSI support.

Disk Naming Requirements

When naming disks, names should be unique across all SANs. If a client connects to more that one SAN, a conflict will arise if the client sees two disks with the same name.

LDAP Support Requirement

LDAP (Lightweight Directory Access Protocol) support requires Windows Active Directory.

Configuring Quantum Libraries for Solaris 10

To ensure that Quantum libraries are recognized and tape drives function properly, follow the configuration procedure below. This procedure works for the PX502 library and other Quantum tape libraries.

Note: You must be using update 4 or newer for Solaris 10 in order for tape drives to function properly.

1. Edit the `/etc/driver_aliases` file by removing or commenting out the following ST driver entries (if they exist):
   - `"scsiclass,01"`
   - `"scsiclass,08"`
2. Open the `/kernel/drv/sgen.conf` file and verify that the following entries are present in the file, adding them if necessary:
   - `inquiry-config-list="ADIC","*";`
   - `inquiry-config-list="QUANTUM","*";`
   - `inquiry-config-list="HP","*";`
   - `device-type-config-list="changer","sequential";`
3. Reboot the Solaris system to unload any drivers that have been loaded.
4. After rebooting, enter the following commands to configure and load new sgen drivers:
   - `update_drv -a -i '"scsiclass,01"' sgen`
   - `update_drv -a -i '"scsiclass,08"' sgen`
5. Enter the command "`cfgadm -alv`". You should see the following entries in the cfgadm list:

```
c2::500e09e00b40a000           connected    configured   unknown
QUANTUM PX500
unavailable  med-changer  n        /devices/pci@8,700000/fibre-
channel@3/fp@0,0:fc::500e09e00b40a000
c2::500e09e00b40a010           connected    configured   unknown
HP Ultrium 3-SCSI
unavailable  tape         n        /devices/pci@8,700000/fibre-
channel@3/fp@0,0:fc::500e09e00b40a010
```

Operating System Requirements

Table 1 shows the operating systems, kernel versions, and hardware platforms that support StorNext File System, StorNext Storage Manager, and the StorNext client software.

This table also indicates the platforms that support the following:

- MDC Servers
- File System SAN Clients
- Distributed LAN Servers
- File System LAN Clients
- Storage Manager

Table 1 StorNext Supported OSes and Platforms

StorNext 3.5.3 Supported Operating Systems and Platforms

Operating System	Kernel or Release	Platform	MDC Server	File System SAN Client	Distributed LAN Server	File System LAN Client	Storage Manager / SNAPI
Windows 2003 Server	R2 SP2	x86 32-bit	✓*	✓	✓*	✓	
		x86 64-bit	✓	✓	✓	✓	
Windows XP	SP2	x86 32-bit		✓		✓	
		x86 64-bit		✓		✓	
	SP3	x86 32-bit		✓		✓	
		x86 64-bit		✓		✓	
Windows Vista	SP1	x86 32-bit		✓		✓	
		x86 64-bit		✓		✓	
	SP2	x86 32-bit		✓		✓	
		x86 64-bit		✓		✓	
Windows 2008	SP1	x86 32-bit		✓		✓	
		x86 64-bit	✓	✓	✓	✓	
	R2	x86 32-bit		✓		✓	
		x86 64-bit	✓	✓	✓	✓	
	SP2	x86 32-bit		✓		✓	
		x86 64-bit	✓	✓	✓	✓	
Windows 7	N / A	x86 32-bit		✓		✓	
		x86 64-bit		✓		✓	

Notes: When adding StorNext Storage Manager to a StorNext File System environment, the metadata controller (MDC) must be moved to a supported platform. If you attempt to install and run a StorNext 3.5.3 server that is not supported, you do so at your own risk. Quantum strongly recommends against installing non-supported servers.

* MDC, DLS, and SM not recommended due to memory management issues.

StorNext 3.5.3 Components Supported Operating Systems and Platforms (Continued)							
Operating System	**Kernel or Release**	**Platform**	**MDC Server**	**File System SAN Client**	**Distributed LAN Server**	**File System LAN Client**	**Storage Manager / SNAPI**
RHEL 4 ‡	2.6.9-67.EL (Update 6) †	x86 32-bit	✓	✓	✓	✓	
	2.6.9-78.EL (Update 7) †	x86 32-bit	✓	✓	✓	✓	
	2.6.9-89 EL (Update 8)	x86 32-bit	✓	✓	✓	✓	✓**
	2.6.9-67.EL (Update 6) †	x86 64-bit	✓	✓	✓	✓	
	2.6.9-78.EL (Update 7) †	x86 64-bit	✓	✓	✓	✓	
	2.6.9-89 EL (Update 8)	x86 64-bit	✓	✓	✓	✓	✓**
RHEL 5 ‡	2.6.18-53.EL (Update 1) †	x86 64-bit	✓	✓	✓	✓	✓
	2.6.18-92.EL (Update 2) †	x86 64-bit	✓	✓	✓	✓	✓
	2.6.18-128 (Update 3) †	x86 64-bit	✓	✓	✓	✓	✓
	2.6.18-164.EL (Update 4)	x86 64-bit	✓	✓	✓	✓	✓

Notes: When adding StorNext Storage Manager to a StorNext File System environment, the metadata controller (MDC) must be moved to a supported platform. If you attempt to install and run a StorNext 3.5.3 server that is not supported, you do so at your own risk. Quantum strongly recommends against installing non-supported servers.

** Storage Manager should not be used with earlier service packs for RHEL4 due to a critical tape rewind problem in the RHEL4 kernel.

† All releases of RHEL4 and RHEL5 except RHEL4 Update 8 and RHEL5 Update 4 have a possible silent data corruption issue as documented in Product Alert #20. Quantum recommends that users migrate to RHEL4 Update 8 or RHEL5 Update 4 as soon as possible. Also, note that the "Xen" virtualization software is not supported for RHEL 4 and RHEL 5.

‡ 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.

Note: For systems running Red Hat Enterprise Linux version 4 or 5, before installing StorNext you must first install the kernel header files (shipped as the kernel-devel-smp or kernel-devel RPM).

For systems running SUSE Linux Enterprise Server, you must first install the kernel source code (typically shipped as the kernel-source RPM).

Caution: Red Hat 5 ships with secure Linux kernel enabled by default. To ensure proper StorNext operation, you must not install Red Hat 5 with secure Linux enabled. The secure Linux kernel must be off, or the file system could fail to start.

StorNext 3.5.3 Components
Supported Operating Systems and Platforms (Continued)

Operating System	Kernel or Release	Platform	MDC Server	File System SAN Client	Distributed LAN Server	File System LAN Client	Storage Manager / SNAPI
SLES 10 †† ‡ ***	2.6.16-46-0.12 (SP1)	x86 32-bit		✓		✓	
	2.6.16.60-0.27 (SP2)	x86 32-bit		✓		✓	
	2.6.16.60-0.54.5 (SP3)	x86 32-bit		✓		✓	
	2.6.16-46-0.12 (SP1)	x86 64-bit	✓	✓	✓	✓	✓
	2.6.16.60-0.27 (SP2)	x86 64-bit	✓	✓	✓	✓	✓
	2.6.16.60-0.54.5 (SP3)	x86 64-bit	✓	✓	✓	✓	✓
	2.6.16-46-0.12 (SP1)	Itanium 64-bit	✓	✓			
	2.6.16.60-0.27 (SP2)	Itanium 64-bit	✓	✓			
	2.6.16.60-0.54.5 (SP3)	Itanium 64-bit	✓	✓			
SLES 11 ‡ ***	2.6.27.19-5	x86 64-bit		✓		✓	
		Itanium 64-bit	✓	✓			

†† SLES 10 SP1 (and earlier) and SP2 kernels earlier than 37 are sensitive to the same silent data corruption issue documented in Product Alert #20. The problem has been fixed in SP2 that includes level 2.6.16.60-0.37_f594963d, in SLES 10 SP3, and in the SLES 11 releases. There is no recommended workaround at this time.

‡ 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.

***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. Later revisions within the service pack are typically, but not always, supported.

StorNext 3.5.3 Components Supported Operating Systems and Platforms (Continued)							
Operating System	**Kernel or Release**	**Platform**	**MDC Server**	**File System SAN Client**	**Distributed LAN Server**	**File System LAN Client**	**Storage Manager / SNAPI**
Sun Solaris 10	Generic 120011-14	sparc 64-bit	✓	✓			✓
	Generic 127128-11	Opteron x86 64-bit		✓		✓	
		Intel x86 64-bit		✓		✓	
SGI-IRIX	6.5.30	64-bit MIPS		✓			
IBM AIX	5.3	64-bit Power Architecture		✓			
HP-UX	11i v2	Itanium 64-bit		✓			

⌗ StorNext support will transition from HP-UX 11i v2 to 11i v3, and from IBM AIX 5.3 to 6.1 on a future date.

Note: GNU tar is required on Solaris systems. In addition, for systems running Solaris 10, install the Recommended Patch Cluster (dated March 10, 2006 or later) before installing StorNext. To enable support for LUNs greater than 2TB on Solaris 10, the following patches are required:

- 118822-23 (or greater) Kernel Patch
- 118996-03 (or greater) Format Patch
- 119374-07 (or greater) SD and SSD Patch
- 120998-01 (or greater) SD Headers Patch

Supported Libraries and Tape Drives

Libraries and tape drives supported for use with StorNext 3.5.3 are presented in Table 2. Where applicable, minimum firmware levels for libraries are provided.

Table 2 StorNext Supported Libraries and Tape Drives

StorNext 3.5.3 Supported Libraries and Tape Drives					
Vendor Library Family	**Libraries**	**Enforced Minimum / Recently Tested Library Firmware Level**	**Drive Types**	**Enforced Minimum / Recently Tested Drive Firmware Level**	**Notes**
Quantum / ADIC	Scalar i500	Minimum: 140G	IBM LTO-1		Library firmware upgrade may be required for LTO-3 WORM support 420G.GS00400
			IBM LTO-2		
			IBM LTO-3		
			IBM LTO-4		
			BM LTO-3 WORM		
			IBM LTO-4 WORM		
			HP LTO-4		
	Scalar i2000	Minimum: 120A Minimum (IBM LTO-3, IBM LTO-3 WORM): 300A Minimum (IBM LTO-4, IBM LTO-4 WORM) 540A Minimum: 7404 i/o blades and i6.5 require 590A	IBM LTO-1		
			IBM LTO-2		
			IBM LTO-3	See library firmware requirement	
			IBM LTO-4		
			IBM LTO-3 WORM		
			IBM LTO-4 WORM		
			HP LTO-4		
			HP LTO-4 WORM		
			DLT-S4	Minimum: 1F1F	
	Scalar 24	Minimum: 107A.GY0002	IBM LTO-1		Not including WORM
			IBM LTO-2		
			IBM LTO-3		
			IBM LTO-4		
	Scalar i40/i80	Minimum: 101G.GS005 Recently Tested: 101G.GS005	HP LTO-4		
	Scalar 50	Minimum: 002A	HP LTO-4		
	Scalar 100	Minimum: 2.05.0003	IBM LTO-1		Not including WORM NOTE: 2.10.0013 firmware is not to be used
			IBM LTO-2		
			IBM LTO-3		
			AIT-2		
	Scalar 1000	Minimum: 3.00.0017	IBM LTO-2		Must use SDLC/DAS, SDLC/SCSI Target Mode or Native SCSI
			IBM 3590B1A		
			AIT-1		
	Scalar 10000	Minimum: 110A.00001	IBM LTO-1		Must use SDLC/DAS, SDLC/SCSI Target Mode or Native SCSI
			IBM LTO-2		
			IBM LTO-3	See library firmware requirement	
			IBM LTO-4		
			IBM LTO-3 WORM		
			AIT-2		
			AIT-2 WORM		

Note: Before using DLT cleaning with DLT-S4 or SDLT 600 drives, configure the library (Scalar i2000 or PX720) to disable reporting of the media ID. If media ID reporting is not disabled, StorNext will not recognize the cleaning media (SDLT type 1).

StorNext 3.5.3 Supported Libraries and Tape Drives (Continued)					
Vendor Library Family	**Libraries**	**Enforced Minimum / Recently Tested Library Firmware Level**	**Drive Types**	**Enforced Minimum / Recently Tested Drive Firmware Level**	**Notes**
Quantum / ADIC	PX500	Minimum: 001A	HP LTO-3		Not including WORM 30.0
	PX720	Minimum 4.00	HP LTO-2		Not including WORM
			HP LTO-3		
			DLT-S4		
	DXI 7500	Recently Tested: 05.02.084	Supported emulations include: DLT7000, SDLT320, SDLT600, DLT-S4, Quantum/Certance LTO-2, 3, HP LTO-1, 2, 3, 4, IBM LTO-1, 2, 3, 4		
Dell	PV136T	Minimum: 3.11	IBM LTO-2		
			IBM LTO-3		
			IBM LTO-4		
HP	ESL E Series	Minimum: 4.10	HP LTO-3		
			HP LTO-3 WORM		
			HP LTO-4		
			HP LTO-4 WORM		
	MSL 6000	Minimum: 5.07	HP LTO-2		
			HP LTO-3		
			HP LTO-3 WORM		
			HP LTO-4		
	MSL G3 Series (2024/4048/8096)	Minimum 2024: 0370 (3.70) Minimum 4048: 0600 (6.00) Minimum 8096: 0850 (8.50)	HP LTO-2		
			HP LTO-3		
			HP LTO-3 WORM		
			HP LTO-4		
			HP LTO-4 WORM		
	EML E-Series	Minimum: 1070	HP LTO-3		
			HP LTO-4		
			HP LTO-4 WORM		
IBM	TS3500	Minimum: 7422	IBM LTO-2		
			IBM LTO-3	Minimum: 93GE	
			IBM LTO-4	Minimum: A239	
			IBM 3592 (J1A and E05)		
			IBM TS1120 (E05)		Same as IBM3592 E05
Qualstar	XLS	Minimum: 0880	IBM LTO-3		
			IBM LTO-4		
Sony	Petasite CSM-200	Minimum: 6.30	IBM LTO-4 drive (T1600)		
Spectralogic	T-Series	Recently Tested: 2000	LTO-3	Vendor supported: 93G0	See Bulletin 46. Library firmware is known as BlueScale 11.
			LTO-4	Recently tested: 97F9	

Note: Before using DLT cleaning with DLT-S4 or SDLT 600 drives, configure the library (Scalar i2000 or PX720) to disable reporting of the media ID. If media ID reporting is not disabled, StorNext will not recognize the cleaning media (SDLT type 1).

StorNext 3.5.3 Supported Libraries and Tape Drives (Continued)					
Vendor Library Family	**Libraries**	**Enforced Minimum / Recently Tested Library Firmware Level**	**Drive Types**	**Enforced Minimum / Recently Tested Drive Firmware Level**	**Notes**
Oracle (Sun / StorageTek) SCSI/FC Libraries	L180/ L700/ L1400	Minimum: 3.18.02	T9840C		
			T9840D		
			T10000A	Minimum 1.40	See Note 2
			T10000B	Minimum 1.40 Recently tested: 1.44	See Note 2
			HP LTO-3		
			HP LTO-4		
			IBM LTO-3		
			IBM LTO-4		
	SL3000	Minimum: 2.35 Recently tested : 2.35	T9840C		
			T9840D		
			T10000A	Minimum 1.40	See Note 2
			T10000B	Minimum 1.40 Recently tested: 1.44	See Note 2
			HP LTO-3		
			HP LTO-4		
			IBM LTO-3		
			IBM LTO-4		
	SL500	Minimum: 1373	HP LTO-3		
			HP LTO-4		
			IBM LTO-3		
			IBM LTO-4		
	9740	Minimum: 2000	Sun/STK 9840		
			Sun/STK 9940		
Oracle (Sun / StorageTek) ACSLS (pre-7.3) Libraries See Note 3	9310	Minimum: None	T10000 Rev A	Minimum 1.40	See Note 2
	9710	Minimum: None			
	9740	Minimum: 2000			
	L5500	Minimum: None			
	L700	Minimum: 2.36	Sun/STK 9840, Sun/STK 9940, Sun/STK 9940B, T10000 Rev A, HP LTO-2, HP LTO-4, IBM LTO-2, IBM LTO-3, IBM LTO-4	T10K: Minimum 1.40	T10K: See Note 2
	L180	Minimum: 2.00			
	SL8500				
	SL500	Minimum: 10.67			Not including WORM

Note 1: The Sun / StorageTek 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.

Note 2: When using T10000 drives, the STK library parameter “Fastload” must be set to “OFF”.

Note 3: ACSLS versions prior to ACSLS 7.3 have not been tested with this release.

StorNext 3.5.3 Supported Libraries and Tape Drives (Continued)					
Vendor Library Family	**Libraries**	**Enforced Minimum / Recently Tested Library Firmware Level**	**Drive Types**	**Enforced Minimum / Recently Tested Drive Firmware Level**	**Notes**
Oracel (Sun / StorageTek) ACSLS 7.3 Libraries See Notes 1 and 3	L180/ L700/ L1400	Minimum: 3.18.02	T9840C		
			T9840D		
			T10000A	Minimum 1.40	See Note 2
			T10000B	Minimum 1.40 Recently tested: 1.44	See Note 2
			HP LTO-3		
			HP LTO-4		
			IBM LTO-3		
			IBM LTO-4		
	SL3000	Minimum: 2.35 Recently tested: 2.35	T9840C		
			T9840D		
			T10000A	Minimum 1.40	See Note 2
			T10000B	Minimum 1.40 Recently tested: 1.44	See Note 2
			HP LTO-3		
			HP LTO-4		
			IBM LTO-3		
			IBM LTO-4		
	SL500	Minimum: 1373	HP LTO-3		
			HP LTO-4		
			IBM LTO-3		
			IBM LTO-4		
	SL8500	Minimum: 4.14 Recently Tested: 4.70	T9840C		
			T9840D		
			T10000A	Minimum 1.40	See Note 2
			T10000B	Minimum 1.40 Recently tested: 1.44	See Note 2
			HP LTO-3		
			HP LTO-4		
			IBM LTO-3		
			IBM LTO-4		

Note 1: The Sun / StorageTek 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.

Note 2: When using T10000 drives, the STK library parameter “Fastload” must be set to “OFF”.

Note 3: ACSLS versions prior to ACSLS 7.3 have not been tested with this release.

Supported StorNext Upgrade Paths

In general, sites running the following StorNext versions may upgrade directly to StorNext 3.5.3, assuming that the platform, service pack, architecture (32-bit or 64-bit), and StorNext component are supported in the installed StorNext version and in StorNext 3.5.3:

- StorNext 3.1.2
- StorNext 3.1.3
- StorNext 3.1.4
- StorNext 3.1.4.1
- StorNext 3.1.5
- StorNext 3.5
- StorNext 3.5.1
- StorNext 3.5.2
- StorNext 3.5.2.1

All other versions of StorNext require additional steps to upgrade to StorNext 3.5.3.

StorNext Upgrade Recommendations

Whenever possible, StorNext systems should run the latest StorNext-supported operating system service pack or update level.

- For the 3.5.3 release there are no additional upgrade recommendations.

Client Interoperability for StorNext 3.5.3

All StorNext clients must be upgraded to StorNext 3.5.3 during the upgrade process.

Table 3 indicates StorNext MDC to Apple Xsan client interoperability.

Table 3 StorNext MDC to Xsan Client Interoperability

StorNext 3.5.3 Client Interoperability			
Apple Xsan Version	**Platform**	**Compatible**	**Notes**
1.4	x86-32 bit	No	See notes 1 and 2
1.4.1	x86-32 bit	No	See notes 1 and 2
1.4.2	x86-32 bit	No	See notes 1 and 2
2.0	x86-32 bit	Yes	See notes 1 and 2
2.1	x86-32 bit	Yes	See notes 1 and 2
2.1.1	x86 32-bit	Yes	See notes 1 and 2
2.2	x86 32-bit	Yes	
	x86 64-bit	Yes	
2.2.1	x86 32-bit	Yes	
	x86 64-bit	Yes	

[1] Apple Leopard machines run with 32-bit kernel, 64-bit user

[2] Releases earlier than MacOS X 10.5.5 may have limited Windows Access Control Lists (ACL) functionality.

Compatibility With Other StorNext Products and Features

This section describes various interactions between this release and other StorNext products and features.

StorNext API (SNAPI) Compatibility

SNAPI 2.0.1 is compatible with this StorNext 3.5.3 release.

Partial File Retrieval Compatibility

The StorNext 3.5.3 release is compatible with StorNext Partial File Retrieval (PFR) 1.0 or 1.0.1.

Supported System Components

System components that are supported for use with StorNext 3.5.3 are presented in Table 4.

Table 4 StorNext Supported System Components

Component	Description
Tested Browsers	Internet Explorer 6.0 or later (up to 8.x) Mozilla Firefox 2.0 or later (up to 3.x) (Minimum browser resolution: 800x600) **NOTE:** Disable pop-up blockers.
LTO-1 Media and LTO-3 or LTO-4 Tape Drive Compatibility	LTO-1 media in a library containing LTO-3 or LTO-4 drives are considered for store requests unless they are logically marked as write protected. When LTO-1 media is mounted in an LTO-3 or LTO-4 drive, StorNext marks the media as write protected. Quantum recommends circumventing LTO-1 media for store requests by following this procedure: **1** From the SNSM home page, choose **Attributes** from the **Media** menu. **2** On the **Change Media Attributes** window, select the **LTO-1** media from the list. **3** Click the **Write Protect** option. **4** Click **Apply** to make the change. **5** Repeat the process for each piece of LTO-1 media. **NOTES:** A similar issue exists for LTO-2 media in a library containing LTO-4 tape drives. LTO-3 drives can read but not write LTO-1 tapes. LTO-4 drives can read but not write LTO-2 tapes, and also cannot read LTO-1 tapes at all.

Component	Description
NFS	Version 3 **NOTES:** An NFS server that exports a StorNext file system with the default export options may not flush data to disk immediately when an NFS client requests it. This could result in loss of data if the NFS server crashes after the client has written data, but before the data has reached the disk. This issue may be addressed in a future StorNext release. As a workaround, add the no_wdelay option to each line in the /etc/exports file that references a StorNext file system. For example, typical export options would be (rw,sync,no_wdelay). Quantum recommends that subtree checking be disabled on all StorNext NFS exports. Subtree checking has been associated with spurious access failures. Be sure to specify the no_subtree_check option in the exports file when exporting StorNext through NFS.
Addressable Power Switch	WTI RPS-10m WTI IPS-800 The RPS-10m (master) is supported. The RPS-10s (slave) is not supported.
LDAP	LDAP (Lightweight Directory Access Protocol) support requires Windows Active Directory.

Hardware Requirements

To successfully install StorNext 3.5.3, the following hardware requirements must be met:

- StorNext File System and Storage Manager Requirements on page 18
- StorNext Client Software Requirements on page 18.

Note: The following requirements are for running StorNext only. Running additional software (including the StorNext client software) requires additional RAM and disk space.

StorNext File System and Storage Manager Requirements

The hardware requirements for StorNext File System and Storage Manager are presented in Table 5.

Table 5 File System and Storage Manager Hardware Requirements

No. of File Systems	RAM	File System Disk Space	Storage Manager Disk Space
1–4*	2 GB	2 GB	For application binaries, log files, and documentation: up to 30GB (depending on system activity) For support directories: 3 GB per million files stored
5–8**	4 GB	4 GB	

*Two or more CPU cores are recommended for best performance.
**Two or more CPU cores are required for best performance.

Note: If a file system uses deduplicated storage disks (DDisks), note the following additional requirements:

- Requires 2 GB RAM per DDisk in addition to the base RAM noted in Table 5.
- Requires an additional 5GB of disk space for application binaries and log files.
- Deduplication is supported only for file systems running on a Linux operating system (x86 32-bit or x86 64-bit).
- An Intel Pentium 4 or later processor (or an equivalent AMD processor) is required. For best performance, Quantum recommends an extra CPU per DDisk.

StorNext Client Software Requirements

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

For SAN (FC-attached) clients or for Distributed LAN Clients:

- 1 GB RAM
- 500 MB available hard disk space

For SAN clients acting as a Distributed LAN Server:

- 2 GB RAM
- 500 MB available hard disk space

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

Resolved Issues

The following sections list resolved issues in this release of StorNext:

- StorNext File System Resolved Issues on page 19
- StorNext Storage Manager Resolved Issues on page 20
- StorNext Database Resolved Issues on page 21

Note: There is no change to cryptographic functionality in StorNext release 3.5.3.

StorNext File System Resolved Issues

Table 6 lists resolved issues that are specific to StorNext File System.

Table 6 StorNext File System Resolved Issues

Operating System	CR Number	SR Number	Description
Windows	33544	861526, 964310, 1083276, 1080804	Corrected a condition which caused the cvcp command to stop copying files to StorNext on Windows clients after copying approximately one million files. No error messages were generated, and not all of the files were copied.
	33602	n/a	The StorNext End User License Agreement (EULA) is now displayed during a StorNext upgrade.

Operating System	CR Number	SR Number	Description
All	33545	1121704, 1215864	The number of Ethernet interfaces supported has been increased from 10 to 48.
	33546	1161634, 1163184, 1198174, 1210294, 1248976, 1241954	Corrected a condition in which a directory with overlapping leaf block key ranges lead to loops in readdir.
	33547	n/a	The StorNext End User License Agreement (EULA) has been updated for the 3.5.3 release.
	33548	1212726	Resolved a condition in which snmetadump did not always increment the inode gen number after file removal.
	33552	1199968	Corrected a condition which caused snmetadump to fail.
	33553	1198464	Resolved a condition in which running cvcp -u lead to file corruption.
	33554	1226008	Corrected a condition in which the cvfsck command cleared the root directory incorrectly.
	33555	n/a	Corrected a condition which caused FSM panics at startup due to corrupt Windows security descriptors, following file system recovery from StorNext backup.
	33556	1228164	An option which resulted in null copied files was removed for the cvcp command.
	33557	1199968, 1264772	Snmetadump allocation now correctly starts at beginning.
	33558	1221394	Resolved a condition which caused snmetadump failure.

StorNext Storage Manager Resolved Issues

Table 7 lists resolved issues that are specific to StorNext Storage Manager.

Table 7 StorNext Storage Manager Resolved Issues

Operating System	CR Number	SR Number	Description
Linux	33551	1142606	Resolved a condition which caused backups to fail, requiring a fresh metadata dump.

Operating System	CR Number	SR Number	Description
All	33559	1249000	Resolved a condition which could cause StorNext commands to fail on or after January 1, 2012.

StorNext Database Resolved Issues

Table 8 lists resolved issues that are specific to the StorNext database.

Table 8 StorNext Database and Log Resolved Issues

Operating System	CR Number	SR Number	Description
All	33549	1249000	Resolved a database condition which could cause issues on or after January 1, 2012.

Known Issues

The following sections list known issues in this release of StorNext, as well as associated workarounds, where applicable:

- StorNext File System Known Issues on page 22
- StorNext GUI Known Issues on page 24
- StorNext Installation Known Issues on page 25

StorNext File System Known Issues

Table 9 lists known issues that are specific to StorNext File System.

Table 9 StorNext File System Known Issues

Operating System	CR Number	SR Number	Description	Workaround (if applicable)
Solaris	24563	n/a	Solaris hosts may need to rescan disk devices after StorNext labels have been applied. In particular, when a StorNext label is put on a LUN less than 1TB in size, Solaris hosts will not be able to use that LUN until they have done a device rescan. A device rescan is accomplished with a boot flag: `reboot -- -r`	The workaround this issue by rescanning devices using the boot flag `reboot -- -r` If the labeling operation was performed on a Solaris host, that host does not need to do the rescan. However, some intermediate versions of the Solaris 10 Kernel Jumbo Patch break the necessary functionality to support this; please be sure you have applied the latest Solaris 10 Kernel Jumbo Patch before labeling any StorNext LUNs.

Linux	23661	958244	StorNext File System does not support the Linux `sendfile()` system call.
			This issue causes Apache web servers to deliver blank pages when content resides on StorNext file systems.
			This issue also affects Samba servers running on Linux.
				The workaround is to disable sendfile usage by adding the following entry into the Apache configuration file `httpd.conf`:
				`EnableSendfile off`
				The workaround for Samba servers is to add the following line into the configuration file:
				`sendfile=no`

	26321	n/a	Due to the way Linux handles errors, the appearance of SCSI "No Sense" messages in system logs can indicate possible data corruption on disk devices. This affects StorNext users on Red Hat 4, Red Hat 5, SuSe 9, and SuSe 10.	This issue is not caused by StorNext, and is described in detail in StorNext Product Alert 20. For additional information, see Red Hat 4 CR 480666, Red Hat 5 CR 468088, and SuSE 10 CR 440381.

Operating System	CR Number	SR Number	Description	Workaround (if applicable)
All	25836	898484	Failover on stripe groups is not currently supported.	
	23377	725697 1236258	Errors can result when there are multiple retrieves in progress at the same time for the same multi-segmented file, and then one of the retrieves is canceled when the last segment is being retrieved.	You can avoid this issue by either not requesting multiple retrieves for the same multi-segment file, or by not canceling the subsequent requests.
	30877	1071576	When performing offline disk expansion (that is, adding a disk to an existing stripe group while I/O is stopped on the clients), clients locked up until the machines were rebooted.	When expanding a file system, Quantum recommends adding new Stripe Groups rather than adding disks to existing Stripe Groups. Adding disks to existing stripe groups can negatively impact the performance of a StorNext file system. In addition, adding new Stripe Groups will not require StorNext clients to be remounted to gain access. If adding disks to existing Stripe Groups is necessary, StorNext file systems must be unmounted before the MDC does the offline disk expansion. After the expansion is complete, refresh disks on the StorNext clients before mounting the file system again.

StorNext GUI Known Issues

Table 10 lists known issues that are specific to the StorNext GUI process.

Table 10 StorNext GUI Known Issues

Operating System	CR Number	SR Number	Description	Workaround (if applicable)
Linux	25685	n/a	The StorNext GUI will label all disks in a stripe group according to the single label type (EFI or VTOC) specified per stripe group. The GUI will overwrite any pre-existing labels if (and *only* if) the label type is changed from VTOC to EFI or vice versa.	

All	29577	1045100	After following the procedure in the StorNext User's Guide for deleting an affinity through the StorNext GUI, at least one StorNext user has reported being unable to save a new or modified file to the directory that contained the deleted affinity.	You can use this alternate procedure to delete affinities from the command line.
				1 Unmount the file system.
				2 Stop the file system.
				3 Change the file system stripe group `Exclusive` parameter to No.
				4 Start the file system.
				5 Mount the file system.
				6 Run `cvaffinity -l` to find the top directory with the affinity you want to delete.
				7 Remove the affinity by running the following commands:
				`# find [dir with affinity] -type d -exec cvaffinity -d {} \;`
				`# find [dir with affinity] -type f -exec cvaffinity -d {} \;`
				8 Use the command `"cvaffinity -l [dir_name]"` or `"cvaffinity -l [file_name]"` to verify that the affinity has been deleted.

	33264	1254816	The "Transcribe Media" feature in the StorNext GUI times out after three minutes.	This issue will be addressed in a future StorNext release.

StorNext Installation Known Issues

Table 11 lists known issues that are specific to the StorNext installation process.

Table 11 StorNext Installation Known Issues

Operating System	CR Number	SR Number	Description	Workaround (if applicable)

Linux (RHEL4 and RHEL5 only)	24692	n/a	When you mount a CD in a Red Hat 4 or 5 system, CDs are mounted by default with a noexec (non-executable) option which prevents you from proceeding with the StorNext installation.	Remount the CD by typing mount `-o remount, exec ...`
				Alternatively, mount the CD to a different directory by typing the following:
				`# mkdir /mnt/MOUNT_PATH`
				`# mount /dev/cdrom /mnt/MOUNT_PATH # cd /mnt/MOUNT_PATH`

Windows	25866	n/a	StorNext upgrades on Vista machines can fail in the middle of installation. This problem is caused by the way Windows Vista handles software upgrades. A related error is described in Microsoft article 263253.	Microsoft has a utility called the Windows Installer Cleanup Utility that removes files left behind by incomplete installations. Access the Microsoft website and search for article ID 290301. To work around this issue, follow these steps: 1. Click Start, and then click Run. 2. In the Open box, type Regedit and then click OK. 3. On the Edit menu, click Find. 4. In the Find what box, type Snfs_XXX.dat and then click Find Next. 5. If the search result selects a string value called PackageName, continue with these steps. Otherwise, repeat steps 3-4. 6. Double-click the PackageName string value. 7. In the Value data box, change the installation directory path to the new pathname. For example if the old installation directory path contained OCT10, change that to the current path (e.g, NOV12.) 8. On the Registry menu, click Exit.

Operating System	CR Number	SR Number	Description	Workaround (if applicable)
All	25192	n/a	VMware snapshots may not be used for virtual machines running StorNext. StorNext does not currently process the loss of state synchronization when a snapshot is restored, so incorrect behavior may result.	

Operating Guidelines and Limitations

Table 12 lists updated information and guidelines for running StorNext, as well as known limitations in this release.

Table 12 StorNext Operating Guidelines and Limitations

Operating System / Affected Component	Description
Windows	In StorNext releases prior to 3.5, the StorNext Windows client attempted to keep the UNIX uid, gid and mode bits synchronized with similar fields in the Windows security descriptor. However, these Windows and UNIX fields were often not synchronized correctly due to mapping and other problems. One consequence of this problem was that changing the owner in Windows incorrectly changed the UNIX uid and file permissions and propagated these errors into sub-directories. Beginning with release 3.5, the StorNext Windows client sets the UNIX uid, gid and mode bits only when Windows creates a file. The StorNext Windows client will no longer change the Unix uid, gid or mode bits when a Windows user changes the Windows security descriptor or Read-Only file attribute. If you change the UNIX mode bits and the file is accessible from Windows, you must change the Windows security descriptor (if Windows Security is configured On) or Read-Only file attribute to ensure the change is reflected on both Windows and UNIX.
	When a StorNext file system is mounted to a drive letter or a directory, configure the Windows backup utility to NOT include the StorNext file system.

Operating System / Affected Component	Description
Windows	If you are using the StorNext client software with Windows Server 2003, Windows Server 2008, Windows XP, or Windows Vista, turn off the Recycle Bin in the StorNext file systems mapped on the Windows machine. You must disable the Recycle Bin for the drive on which a StorNext file system is mounted. Also, each occurrence of file system remapping (unmounting/mounting) will require disabling the Recycle Bin. For example, if you mount a file system on E: (and disable the Recycle Bin for that drive) and then remap the file system to F:, you must then disable the Recycle Bin on the F: drive. As of release 3.5, StorNext supports mounting file systems to a directory. For Windows Server 2003 and Windows XP you must disable the Recycle Bin for the root drive letter of the directory-mounted file system. (For example: For C:\MOUNT\File_System you would disable the Recycle Bin for the C: drive.) For Windows Server 2008 and Windows Vista you must disable each directory-mounted file system. For Windows Server 2003 or Windows XP: **1** On the Windows client machine, right-click the **Recycle Bin** icon on the desktop and then click **Properties**. **2** Click **Global**. **3** Click **Configure drives independently**. **4** Click the **Local Disk** tab that corresponds to the mapped or directory-mounted file system. **5** Click the checkbox **Do not move files to the Recycle Bin. Remove files immediately when deleted**. **6** Click **Apply**, and then click **OK**. For Windows Server 2008 and Windows Vista: **1** On the Windows client machine, right-click the **Recycle Bin** icon on the desktop and then click **Properties**. **2** Click the **General** tab. **3** Select the mapped drive that corresponds to the StorNext mapped file system. For directory-mounted file systems, select the file system from the list. **4** Choose the option **Do not move files to the Recycle Bin. Remove files immediately when deleted**. **5** Click **Apply**. **6** Repeat steps 3-5 for each remaining directory-mounted file system. **7** When finished, click **OK**.

Operating System / Affected Component	Description
All	Be aware of the following limitations regarding file systems and stripe groups: The maximum number of disks per file system is 512 The maximum number of disks per data stripe group is 128 The maximum number of stripe groups per file system is 256 The maximum number of tape drives is 256
	For managed file systems only, the maximum recommended directory capacity is 50,000 files per single directory. (This recommendation does not apply to unmanaged file systems.)
	Quantum recommends making two or more backup copies to minimize vulnerability to data loss in the event of hardware failure.
	The StorNext Cluster-Wide Central Control file (nss_cctl.xml) is used to enforce the cluster-wide security control on StorNext nodes (client nodes, fsm nodes, and nodes running cvadmin). This file is placed on an nss coordinator server. Currently the nss coordinator server capable of parsing this xml file must be on the Linux platform.

Documentation

The following documents are currently available for StorNext products:

Document Number	Document Title
6-67339-01	*StorNext User's Guide*
6-67338-01	*StorNext Installation Guide*
6-67337-01	*StorNext File System Tuning Guide*
6-67347-01	*StorNext Upgrade Guide*
6-67340-01	*StorNext CLI Reference Guide*
6-67335-01	*StorNext File System Quick Reference Guide*
6-67336-01	*StorNext Storage Manager Quick Reference Guide*

Contacting Quantum

More information about StorNext is available on the Service and Support website at www.quantum.com/support. The Service and Support Website contains a collection of information, including answers to frequently asked questions (FAQs). You can also access software, firmware, and drivers through this site.

For further assistance, or if training is desired, contact Quantum:

Quantum Technical Assistance Center in the USA:	+1 800-284-5101
For additional contact information:	www.quantum.com/support
To open a Service Request:	www.quantum.com/osr

For the most updated information on Quantum Global Services, please visit: www.quantum.com/support