Dell Storage Center 7.1 Release Notes

This document describes the new features, enhancements, fixed issues, and open issues in Storage Center 7.1.
Current Version: 7.1.30
Release Date: 2018 - 01
Previous Version: 7.1.20

Contents

Document Revision History

Document Number: 680-021-019

Revision	Date	Description
A	August 2016	Initial release of Storage Center 7.1
B	September 2016	Updated for Storage Center 7.1.2
C	September 2016	Updated feature support for SC7020
D	November 2016	Updated for Storage Center 7.1.3
E	December 2016	Updated for Storage Center 7.1.4
F	January 2017	Updated Storage Center scalability guidelines
G	April 2017	Updated for Storage Center 7.1.12
H	April 2017	Updated the description of a fixed issue in Storage Center 7.1.12
I	July 2017	Updated for Storage Center 7.1.20
J	July 2017	Updated the issues fixed in Storage Center 7.1.20
K	January 2018	Updated for Storage Center 7.1.30
L	February 2019	Updated the supported maximum storage space for an SC4020

Document Number: 680-021-019
Rev. L
2019 - 02

Supported Storage Systems

Storage Center 7.1 is supported on the following storage systems:

- SC9000
- SC8000
- SC7020
- SC4020
- SCv2000 series

New in This Release

The following features were added to Storage Center 7.1.

Dell Storage Manager 2016 R2

Dell Storage Manager 2016 R2 or later is required to manage storage systems running Storage Center 7.1.

Storage Center 7.1 no longer supports the browser-based GUI known as Storage Center System Manager

You must install Dell Storage Manager 2016 R2 or later before updating a storage system to Storage Center 7.1. If you update a storage system to Storage Center 7.1 without using Dell Storage Manager 2016 R2 or later, you will lose management connectivity to the storage system.

NOTE: The storage system must be running Storage Center 6.6.4 or later to update to Storage Center 7.1.

SC7020 Storage System

Storage Center 7.1 introduces support for the SC7020 storage system.

The SC7020 consists of a 3U chassis with dual storage controllers, redundant power supplies, and up to 30 2.5-inch hot swappable SAS hard drives. The SC7020 can be expanded up to 500 drives and it supports SC400 and SC420 12 Gb expansion enclosures and SC280 6 Gb expansion enclosures.

NOTE: Support for upgrading a storage system with SC200 and SC220 expansion enclosures to an SC7020 storage system is planned for a later release.

SC4020 Storage Systems with Front-End SAS Connectivity

Storage Center 7.1 adds support for SC4020 storage system models with front-end SAS I/O cards.

NOTE: An SC4020 storage system with front-end SAS connectivity does not support the Live Volume feature in Storage Center 7.1.

32 Gb FC I/O Card Support

Storage Center 7.1 adds support for a 32 Gb Fibe Channel I/O card.

Support for the 32 Gb Fibre Channel I/O card is currently limited to SC9000 storage systems with a specific configuration of switches and operating systems. See the *Dell Storage Compatibility Matrix* for more information.

4Kn Drive Support

Storage Center 7.1 adds support for native 4K sector drives.

Native 4K drives use a 4096-byte sector size instead of the legacy 512-byte sector size.

Cross-Platform Replication

The cross-platform replication feature provides a method for performing volume replication between PS Series storage arrays and Storage Centers. This feature preserves the functional and operational models in the current replication implementation for each storage system.

NOTE: SCv2000 series storage systems do not support cross-platform replication.

Data Center Bridging (DCB) Support

Storage Center 7.1 supports data center bridging (DCB) services.

Dell Storage Manager displays DCB information for supported I/O cards, such as switch names and features of the switch port that an iSCSI port is plugged into. Dell Storage Manager also displays information about the Link Layer Discovery Protocol (LLDP), which is used to help support DCB.

Data Progression Improvements

Storage Center includes changes to Data Progression that reduce the impact on Storage Center performance.

Data Progression runs daily at specified time and continues until all tasks are completed. If all the tasks are not completed, those tasks are completed in the next Data Progression cycle.

NOTE: Data Progression still follows the schedule set on the Storage Center.

Data Reduction

Data Reduction uses compression and deduplication to decrease the amount of disk space used by volume data. Compression reduces the amount of space used by a volume by encoding data. Deduplication finds duplicate data in pages then removes the duplicate data, conserving the disk space that would be used by additional copies. When deduplication is used, compression is also applied to a volume.

Drive Age Reporting

Storage Center 7.1 adds support for the Drive Age Reporting feature.

The age of each drive is displayed as **Power On Time** in Dell Storage Manager 2016 R2.

Federation Live Migrate

Storage Center 7.1 adds support for the Federation Live Migrate feature.

Federation Live Migrate allows for the online migration of a volume from one Storage Center to another Storage Center without downtime or disruption to the host server.

NOTE: Federation Live Migrate is supported on SC9000, SC8000, SC7020, and SC4020 storage systems, but it is not supported on SCv2000 series storage systems.

IPv6 Support for Fault Domains and Pinging

Storage Center 7.1 supports IPv6 addresses in iSCSI fault domains as well as other IPv6 features.

- iSCSI fault domains can be created and modified to use ports with IPv6 addresses.
- Dell Storage Manager 2016 R2 can display multiple IPv6 addresses for each physical port, as well as multiple discovered gateway IPv6 addresses.
- Ports can be pinged using an IPv4 or IPv6 address.

NOTE: Replications between Storage Center and PS Series groups do not support IPv6.

Live Volume with Auto Failover in Microsoft Server Enviroments

Storage Center 7.1 adds support for the Live Volume with Auto Failover feature in Microsoft server environments.

Live Volume with Auto Failover is supported in Microsoft server environments including Windows Server 2012 and Windows Server 2012 R2. In addition, Live Volume with Auto Failover is supported on both Microsoft Hyper-V and Windows clustering environments including Windows clustering on VMware hosts using physical mode raw device mappings (pRDMs).

NOTE: Live Volume with Auto Failover in Microsoft server environments is supported on SC9000, SC8000, SC7020 and SC4020 storage systems, but it is not supported on SCv2000 series storage systems.

Online Import of Volumes from PS Series Storage Arrays

An online import creates a destination volume, maps it to the server, then migrates the data to the destination volume.

In Storage Center 7.1, performing an online import of volumes from PS Series storage arrays is supported on Red Hat Enterprise Linux 7.x, VMware ESXi 5.5 or later, and Windows Server 2008 R2 or later.

Renaming Replays to Snapshots

Starting in this release, Replays are now called snapshots in the Storage Manager Client.

SED Rekey

Storage Center 7.1 supports enhancements for managing self-encrypting drives (SED).

NOTE: The Self-Encrypting Drives feature must be licensed to use Secure Data.

The following features have been added in Dell Storage Manager 2016 R2:

- You can specify a rekey interval for a Secure Disk folder. When that interval has been reached, a rekey is triggered on each disk in the folder.

  A **Rekey** checkbox has been added to the **Edit Disk Folder Settings** dialog box.
- You can perform an on-demand rekey of a Secure Disk folder.

  A new option called **Rekey Disk Folder** has been added to the **Disks** menu when a Secure Data folder is selected.
- The process called Rescue Data allows you to copy volumes from a Secure Data folder to another folder. The target folder can be either a secure folder or a nonsecure folder. Use the **Copy Volumes to Disk Folder** operation to perform rescue data.

SNMPv3 Support

Storage Center 7.1 supports the use of SNMPv3 and the configuration of SNMPv3 users and trap destinations using Dell Storage Manager 2016 R2.

Storage Redundancy Levels

The storage redundancy recommendations and requirements for HDDs and SSDs have changed in Storage Center 7.1.

NOTE: For SC7020 storage systems, the dual redundancy level is the default for all drives.

Table 1. HDD Redundancy Recommendations and Requirements

Disk Size	Redundancy Level
Up to 966 GB	No recommended or required redundancy level when adding disks of this size to a new or existing page pool
967 GB to 1.9 TB	Dual redundancy is recommended when adding disks of this size to a new or existing page pool
2.0 TB or larger	Dual redundancy is required when adding disks of this size to a new page pool

Disk Size	Redundancy Level
2.79 TB or larger	Dual redundancy is required when adding disks of this size to an existing page pool

Table 2. SSD Redundancy Recommendations and Requirements

Disk Size	Redundancy Level
Up to 1.7 TB	No recommended or required redundancy level when adding disks of this size to a new or existing page pool
1.8 TB to 3.9 TB	Dual redundancy is recommended when adding disks of this size to a new or existing page pool
4.0 TB or larger	Dual redundancy is required when adding disks of this size to a new or existing page pool

T10-PI Support

Storage Center 7.1 adds support for T10 Protection Information (PI) capable drives.

T10 Protection Information is an end-to-end data integrity feature that protects against silent data corruption.

Volume QoS Profiles

Storage Center 7.1 supports Volume QoS Profiles.

When the Volume QoS Profiles feature is enabled, users can create and manage profiles for Quality of Service (QoS) settings using Dell Storage Manager 2016 R2.

The volume QoS feature allows users to define an arbitrary quality of service for volumes by setting hard limits on volume IOPS or throughput. Using the QoS Profiles feature, a user can apply QoS profiles to a single volume or group of volumes.

By default, Dell Storage Manager provides a single default profile which is used for all volumes. Users can create their own custom profiles and apply them to volumes.

VMware Virtual Volumes Support

Storage Center 7.1 supports VMware Virtual Volumes (VVols) technology.

VMware VVols is a storage management and integration framework designed to deliver a more efficient operational model for attached storage.

A key component of the VVols framework is the VASA 2.0 Provider included as part of Dell Storage Manager 2016 R2. VASA (vSphere Storage APIs for Storage Awareness) is a software management interface between the vCenter server and storage systems. To enable VVols operations between VMware vCenter Server and a Storage Center, the VASA Provider is registered with VMware vCenter server.

Storage Manager includes these user interface enhancements to support VVols:

- Addition of the **Register VASA Provider** option to the **Register Server** action.
- New wizards for defining and managing storage containers. A storage container is a pool of storage that is used in a VMware environment in support of virtual volumes. A storage container corresponds to a VVol datastore in the vCenter interface.
- A new datastore type, **VVOL**, can be specified when creating datastores on a VMware vSphere host.
- Updated storage views to include VVol information.

See the *Dell Storage Manager Administrator's Guide* and *Dell Storage Manager Release Notes* for information about VVols requirements and recommendations.

Storage Center 7.1 Feature Availability and Licenses

The core licenses and support for optional licensed features varies depending on the storage system.

SC9000 Features and Licenses

SC9000 storage systems provide the following licensed features and optional value-added bundles.

Core Software Bundle

- Data Instant Replay (Snapshots)
- Data Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate
- Local Data Protection
- Multi-VLAN Tagging
- Virtual Ports
- Volume QoS
- VVols

Optional Licenses

- Replay Manager
- Live Volume and Live Volume with Auto Failover
- Remote Instant Replay (Replication), including Cross-Platform Replication
- SED FIPS Secure Data
- Storage Manager Chargeback

Storage Protection Bundle

- Replay Manager
- Live Volume and Live Volume with Auto Failover
- Remote Instant Replay (Replication), including Cross-Platform Replication

Storage Optimization Bundle

- Data Progression
- Fast Track

Total Feature Bundle

- SED FIPS Secure Data
- Storage Manager Chargeback
- Storage Optimization Bundle
- Storage Protection Bundle

SC8000 Features and Licenses

SC8000 storage systems provide the following licensed features:

Core Licenses

- Data Instant Replay (Snapshots)
- Data Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity

- Dynamic Controllers
- Live Migrate
- Local Data Protection
- Multi-VLAN Tagging
- Volume QoS
- VVols

Optional Licenses

- Replay Manager
- Data Progression
- Fast Track
- Live Volume and Live Volume with Auto Failover
- Remote Instant Replay (Replication), including Cross-Platform Replication
- SED FIPS Secure Data
- Storage Manager Chargeback
- Virtual Ports

SC7020 Features and Licenses

SC7020 storage systems provide the following licensed features and optional value-added bundles.

Core Software Bundle

- Data Instant Replay (Snapshots)
- Data Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate
- Local Data Protection
- Multi-VLAN Tagging
- Virtual Ports
- Volume QoS
- VVols

Optional Licenses

- Replay Manager
- Live Volume and Live Volume with Auto Failover
- Remote Instant Replay (Replication), including Cross-Platform Replication
- SED FIPS Secure Data
- Storage Manager Chargeback

Storage Protection Bundle

- Replay Manager
- Live Volume and Live Volume with Auto Failover
- Remote Instant Replay (Replication), including Cross-Platform Replication

Storage Optimization Bundle

- Data Progression

- Fast Track

Total Feature Bundle

- SED FIPS Secure Data
- Storage Manager Chargeback
- Storage Optimization Bundle
- Storage Protection Bundle

SC4020 Features and Licenses

SC4020 storage systems provide the following licensed features:

Core Licenses

- Data Instant Replay (Snapshots)
- Data Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate
- Local Data Protection
- Multi-VLAN Tagging
- Volume QoS
- VVols

Optional Licenses

- Replay Manager
- Data Progression
- Fast Track
- Live Volume and Live Volume with Auto Failover
- Remote Instant Replay (Replication), including Cross-Platform Replication
- SED FIPS Secure Data
- Storage Manager Chargeback
- Virtual Ports

Performance/Optimization Bundle

- Data Progression
- Fast Track

Remote Data Protection Bundle

- Remote Instant Replay (Replication)

Remote Data Protection with Live Volume Bundle

- Remote Instant Replay (Replication)
- Live Volume and Live Volume with Auto Failover

SCv2000 Series Features and Licenses

SCv2000 series storage systems provide the following licensed features:

Core Licenses

- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers

Optional Licenses

- Flex Port
- Local Data Protection (Snapshots)
- Remote Data Protection (Asynchronous replication only)

Storage Center 7.1 Scalability

The following scalability guidelines apply to Storage Center 7.1.

Storage System Scalability Guidelines

The following scalability guidelines apply to SC9000, SC8000, SC7020, SC4020, and SCv2000 Series storage systems.

NOTE: Raw storage space is expressed in decimal units (for example, 1 TB = 10^{12} bytes). Addressable storage space is expressed in base 2 units (for example, 1 TB = 2^{40} bytes). Therefore, a 1 TB drive measured in decimal units is equal to 0.909 TB base 2 units.

Storage System	Supported Maximum
SC9000 (Dual-Controller) with 128 GB or 256 GB of memory per controller	• 3.1 PB raw and 2.0 PB addressable storage space using the standard 2 MB page size • 750 TB raw and 500 TB addressable storage space using a 512 KB page size
SC8000 (Dual-Controller) with 64 GB of memory per controller	• 3.1 PB raw and 2.0 PB addressable storage space using the standard 2 MB page size • 750 TB raw and 500 TB addressable storage space using a 512 KB page size
SC8000 (Dual-Controller) with 16 GB of memory per controller	• 750 TB raw and 500 TB addressable storage space using the standard 2 MB page size • 400 TB raw and 300 TB addressable storage space using a 512 KB page size
SC7020 (Dual-Controller) with 128 GB of memory per controller	• 3.1 PB raw and 2.0 PB addressable storage space using the standard 2 MB page size • 750 TB raw and 500 TB addressable storage space using a 512 KB page size
SC4020 with 16 GB of memory per controller	• 1054 TB raw and 700 TB addressable storage space using the standard 2 MB page size • 263 TB raw and 175 TB addressable storage space using a 512 KB page size **NOTE: In previous versions of the Storage Center 7.1 Release Notes, the supported maximum storage space for an SC4020 using a 512 KB page size was incorrectly calculated as 500 TB raw and 400 TB addressable. The correct supported maximum storage space for an SC4020 using a 512 KB page size is 263 TB raw and 175 TB addressable.**
SCv2000 Series with 8 GB of memory per controller	• 672 TB raw and 450 TB addressable storage space using the standard 2 MB page size

Storage Center Scalability Guidelines

The following scalability guidelines are the maximum recommended design guidelines for storage systems running Storage Center 7.1.

SC9000, SC8000, SC7020, and SC4020 Storage Systems

The following scalability guidelines are the maximum recommended design guidelines for SC9000, SC8000, SC7020, and SC4020 storage systems running Storage Center 7.1.

Storage Center Object	Supported Maximum
Disk Folder	10 disk folders
Server	• 500 servers (Total number of servers includes physical servers, virtual servers, and server clusters.) • 500 server folders • 1000 server HBA initiator ports (Total number of HBA initiator ports includes all physical and virtual ports that are visible to the SAN.)
Volume	• 500 TB maximum volume size (or the maximum addressable storage space, whichever is less) • 2000 volumes • 500 volume folders
Deduplication	1 PB data ingestion limit (SC4020 – 500 TB data ingestion limit)
Live Volume	100 Live Volumes
Thin Import	10 volumes (maximum simultaneous imports)
QoS Profiles	• 100 Volume QoS Profiles • 100 Group QoS Profiles • 100 Volumes per Group QoS Profile
Data Instant Replay (Snapshots)	• Snapshots: – **SC9000** – 16,000 snapshots – **SC8000** – 16,000 snapshots – **SC7020** – 16,000 snapshots – **SC4020** – 4000 snapshots • 1000 snapshot profiles • 100 snapshot history profiles • 200 consistency groups • 100 volumes per consistency group (SC4020 – 40 volumes per consistency group)
Replications	• Source replications: – **SC9000** – 500 source replications – **SC8000** – 500 source replications – **SC7020** – 1000 source replications – **SC4020** – 250 source replications • 2000 target replications (SC4020 – 1000 replications for FC and 230 replications for iSCSI)

SCv2000 Series Storage System

The following scalability guidelines are the maximum recommended design guidelines for SCv2000 series storage systems running Storage Center 7.1.

Storage Center Object	Supported Maximum
Disk Folder	4 disk folders
Server	• 100 servers (Total number of servers includes physical servers, virtual servers, and server clusters.) • 100 server folders • 200 server HBA initiator ports (Total number of HBA initiator ports includes all physical and virtual ports that are visible to the SAN.)
Volume	• 500 TB maximum volume size (or the maximum addressable storage space, whichever is less) • 1000 volumes • 500 volume folders
Thin Import	10 volumes (maximum simultaneous imports)
QoS Profiles	• 100 Volume QoS Profiles • 100 Group QoS Profiles • 100 Volumes per Group QoS Profile
Data Instant Replay (Snapshots) **NOTE: Data Instant Replay is a licensed feature.**	• 2000 snapshots • 1000 snapshot profiles • 100 snapshot history profiles • 100 consistency groups • 25 volumes per consistency group
Replications	• 124 source replications • 500 target replications

Fixed Issues

The following sections summarize the issues fixed in Storage Center 7.1.

Fixed Issues Related to Data Reduction

The following issues are fixed in Storage Center 7.1:

Table 3. Fixed Data Reduction Issues in Storage Center 7.1.30

Issue	Description
SCOS-45843	A large number of events might be generated in the Storage Center system log if a Storage Profile is modified to no longer include the RAID level/tier of the original Storage Profile.
SCOS-43864	A storage system might experience read latency spikes while Deduplication is running.
SCOS-42569	A storage system might experience read latency during ingestion of data on a volume with Deduplication enabled.
SCOS-42446	Data ingestion might fail if a number of drives are removed from a storage system during a RAID restripe operation.
SCOS-42281	Controllers in a storage system might reboot due to stale metadata pointer access.
SCOS-42024	In rare instances, increased latency might occur because of high CPU utilization while performing data progression on a storage system with Deduplication enabled volumes.
SCOS-38263	A storage system might report more used drive space than actual used drive space after the rehydration of compressed data.

Issue	Description
SCOS-21857	A storage system might experience high CPU utilization during data ingestion.

Table 4. Fixed Data Reduction Issues in Storage Center 7.1.20

Issue	Description
SCOS-40135	A storage system with Deduplication enabled might display a false positive metadata validation failure message in the Storage Center console and generate validation failure alerts in the Deduplication map table.
SCOS-39128	A storage system with Deduplication enabled might experience increased latency while expiring deduplicated data or during Data Progression.
SCOS-34642	A controller might reset if too many storage system resources are consumed during Deduplication and snapshot expiration of deduplicated pages.
SCOS-27942	A storage system with Deduplication enabled might fail to remove page pool devices during a RAID rebalance because of performance issues.
SCOS-24830	A controller might reset during lost space recovery in the Deduplication page manager.
SCOS-24167	A storage system with Deduplication enabled volumes might experience performance issues during the Deduplication page manager clean-up process.
SCOS-22379	The Compression and Deduplication page manager defragmentation process might cause high CPU utilization and impact system performance.
SCOS-21671	Rehydration of deduplicated or compressed data does not place the data in the tier specified by the volume storage profile.
SCOS-19002	Enabling deduplication on a storage system while one controller is in a failed state might result in volumes that appear to be deduplicated, when in fact they are not deduplicated.

Table 5. Fixed Data Reduction Issues in Storage Center 7.1.12

Issue	Description
SCOS-32152	A storage system with Deduplication or Compression enabled that is running low on system memory might experience I/O errors, performance degradation, and premature Live Volume failovers.
SCOS-31054	Enabling Deduplication on a volume that is part of a replication might result in hundreds of `Ingestion failure due to SecondaryStorage infrastructure is not ready` log messages.
SCOS-21275	After updating from Storage Center 7.1.1, a storage system might fail to enable Deduplication on some volumes.

Table 6. Fixed Data Reduction Issues in Storage Center 7.1.3

Issue	Description
SCOS-20960	The IOPS of a storage system might decrease, and I/O latency might increase significantly because of high CPU usage during the Data Progression defragmentation process.
SCOS-20449	A controller reset might occur because of out of range memory access during the Data Progression defragmentation process.
SCOS-20240	Data Progression might fail to move pages to tier 3 for volumes that are larger than 32 TB. If a specific history has multiple view volumes, Data Progression might fail to move pages for volumes smaller than 32 TB.

Issue	Description
SCOS-20075	A storage system with Flash Optimized storage types and Deduplication enabled might suffer an outage during On Demand Data Progression if the system is low on space in tier 1 RAID 10.
SCOS-19570	A storage system running Storage Center 7.1 with compression enabled and over 25 TB of data ingested into the Deduplication process might suffer from I/O delays because of high CPU usage at the end of Data Progression.

Table 7. Fixed Data Reduction Issue in Storage Center 7.1.2

Issue	Description
SCOS-19580	The front-end I/O performance of a storage system might degrade during Data Progression after a few terabytes of data are ingested into the Deduplication process.

Table 8. Fixed Data Reduction Issues in Storage Center 7.1.1

Issue	Description
SCOS-14931	On Demand Data Progression may not complete successfully when Deduplication is enabled on a volume.
SCOS-13649	Volumes on separate controllers might show the same Deduplication reduction rates when the Deduplication reduction rates are different.
SCOS-13159	Deduplication and Compression might take volumes offline when responses to storage type status are incorrect.

Fixed Issues Related to Hardware

The following issues are fixed in Storage Center 7.1:

Table 9. Fixed Hardware Issues in Storage Center 7.1.30

Issue	Description
SCOS-41806	Storage system iSCSI ports might hibernate when a failed TCP checksum is received on an inbound packet.
SCOS-41452	Larger than normal Ping payloads might cause a storage system iSCSI I/O card to hibernate.
SCOS-36797	A target port on a storage system with Fibre Channel host bus adapters might fail to respond to an incoming login attempt.
SCOS-20800	In certain degraded conditions, data miscompares might occur when running software FCoE on an Intel X520 adapter in an ESXi 5.5 or 6.0 host.
SCOS-16813	A single disk with failing I/Os might cause storage system-wide performance degradation.

Table 10. Fixed Hardware Issues in Storage Center 7.1.20

Issue	Description
SCOS-41017	An iSCSI I/O card might fail to exit hibernate mode after a reset.
SCOS-40447	On SCv2000 series and SC4020 storage systems, the Eth1 IPC path down might go down due to system resource issues.
SCOS-40207	On storage systems running Storage Center 7.1.3 or 7.1.4, an iSCSI I/O card might reset because of an IORP timeout that is 10 seconds greater than the IORP requested timeout.

Issue	Description
SCOS-35618	On SCv2000 series and SC4020 storage systems, the battery backup unit (BBU) might fail to recover from a BMC reset.

Table 11. Fixed Hardware Issues in Storage Center 7.1.12

Issue	Description
SCOS-22733	A Cisco UCS blade server running ESXi might fail to boot from SAN after updating the Storage Center software on a storage system.
SCOS-22018	Unknown drive vendor I/O errors that are not handled correctly during a Storage Center error condition might cause an increase in system latency.
SCOS-19991	An SC9000 controller might reset because of issues with the cache card during controller failover.
SCOS-19920	The drive fault LED might remain lit if the ready for removal command is sent after the drive is removed.
SCOS-15234	A storage controller in an SC4020 storage system might reset if the driver for internal communication finds a fatal error reported in the register.
SCOS-13232	A Fibre Channel port or controller might reset due to RISC pause errors on a QLogic 8 Gb Fibre Channel HBA.

Table 12. Fixed Hardware Issues in Storage Center 7.1.1

Issue	Description
SCOS-16637	A 10 Gb iSCSI I/O card is unable to receive data from an Oracle Linux server if the write command is 8,126,464 bytes or larger.
SCOS-15864	A dual controller reset might occur if a single volume is mapped to more than 10 local ports per controller.
SCOS-15697	A dual controller reset might occur due to a data overflow issue with a 10 Gb iSCSI I/O card.
SCOS-15264	A dual controller reset might occur following the deletion of iSCSI remote port configurations.
SCOS-15263	The embedded iSCSI ports might reset because of connection timeouts to remote storage systems.
SCOS-15002	A controller reset might occur because of high memory usage caused by login requests that take a long to time process during heavy I/O.
SCOS-14901	An SCv2000 series controller reset might occur due to an issue with the system profile size.
SCOS-14257	A controller reset might occur because of an issue with deduplication.
SCOS-13499	An SC400 expansion enclosure might report incorrect high temperature warnings.
SCOS-13353	SC8000 controllers with CHA3 cache cards might reset due to a reference to a no longer supported Storage Center subsystem.
SCOS-12881	An SC400 or SC420 expansion enclosure might incorrectly report high temperature warnings.
SCOS-10740	An SCv2000 series storage system might unexpectedly shut down because of a high operating temperature issue.
SCOS-10012	VMotioning VMs to an SC7020 might cause the datastore to go offline.
SCOS-10010	Auto discovery of an SC7020 might fail in some installation environments.
SCOS-9033	An SCv2000 series or SC4020 storage system running Storage Center 6.5.2 might incorrectly create swap alerts.

Issue	Description
SCOS-7943	A controller might reset if the iSCSI initiator logs out from the target, but the initiator fails to terminate the connection.
SCOS-6420	An SCv2000 series controller reset might occur due to an incorrect front-end SAS I/O card critical temperature alert.
SCOS-6338	Storage Center UPS monitoring does not support newer UPS network cards.
SCOS-3400	The embedded iSCSI ports on an SCv2080 series storage system might reset on configurations where there is congestion at the initiator, causing flow control back to the storage system.
SCOS-2570	In rare instances, a RAID device might not be degraded properly when a second write failure is reported for the same device.
SCOS-2548	An SC9000 controller might reset due to an issue during controller failover.
SCOS-2534	After updating to Storage Center 6.6.5 a controller with iSCSI I/O cards might reset during a front-end rebalance, resulting in an outage.
SCOS-2390	An iSCSI I/O card might send out an Address Resolution Protocol (ARP) request for IP on another network if it cannot find a gateway.
SCOS-2386	A controller might reset if an iSCSI host sends a non-512 byte aligned first burst size when Immediate Data is enabled.
SCOS-2098	Performing a non-service affecting upgrade from a CHA3 cache card to a 4 GB Write cache card might cause the upgrade to fail due to card installation errors.
SCOS-1476	A controller might reset and fail-over might be unsuccessful due to an iSCSI I/O cache card memory leak with iSCSI attached Oracle and Linux servers.
SCOS-1408	If TCP RX fragmentation is enabled on iSCSI I/O cards, the card might enter and exit hibernation mode, causing replications to fail.
SCOS-1380	In rare instances, a single-disk predictive failure might cause high latency because of long disk recovery during I/O.
SCOS-684	A short duration AC line brownout on an SCv2000 series or SC4020 storage system might cause unnecessary controller failover.
SCOS-208	Disks might get a BadRegionsPresent health code during a rebuild, even when they are down, due to the multiple RIPExpired errors.
SCOS-206	Disks might get excessive health codes because of RIPExpired issues codes on devices that are down.

Fixed Issues Related to Replication and Live Volume

The following issues are fixed in Storage Center 7.1:

Table 13. Fixed Replication and Live Volume Issues in Storage Center 7.1.20

Issue	Description
SCOS-36665	A controller reset might occur while attempting to fail over a Windows cluster on an RDM volume mapped to non-unified ESXi hosts when using Live Volume High Consistency.
SCOS-35656	Live Volume proxy disk space might be counted towards the total available system disk space.
SCOS-32134	Access to a volume might be lost if out of memory errors occur before the replication enters the suspending state.

Issue	Description
SCOS-7793	A storage system might fail to delete a replication when the QoS node is blocked and there is outstanding I/O.

Table 14. Fixed Replication and Live Volume Issues in Storage Center 7.1.12

Issue	Description
SCOS-22156	The VVols feature in ESXi 6.0 Update 2 fails to work properly with Storage Center 7.1.2.
SCOS-21399	A controller might reset during cross-platform replication initialization with a PS Series array.
SCOS-19269	In a two controller storage system, the active controller might reset during failover after performing a Storage Center update on the peer controller.
SCOS-16677	When creating a Live Volume, choosing a destination volume that is mapped to a server might cause the Live Volume to go offline. This might cause other volumes that use Deduplication or Compression on the destination Storage Center to go offline.
SCOS-16377	In rare instances, a storage system with Live Volumes might reset when multiple changes are made to the Fibre Channel switch configurations within a short time period.

Table 15. Fixed Replication and Live Volume Issues in Storage Center 7.1.1

Issue	Description
SCOS-14576	Unable to perform Storage Center to PS Series group replication if the Storage Center volume name contains Chinese, German, French, Japanese, or Spanish characters.
SCOS-14065	Thin Import setup is unable to activate the destination volume on a Storage Center when iSCSI is not configured on the storage system.
SCOS-13152	A cross-platform replication snapshot from a PS Series array to a Storage Center might display the wrong volume icon.
SCOS-1928	In ESXi 5.5 or later hosts, the status of a secondary Live Volume remains down after bringing the primary Storage Center back online.
SCOS-706	Converting an existing ESXi datastore volume to Live Volume might cause the volume to disconnect from the ESXi hosts.

Fixed Issues Related to Alerts and Reporting

The following issues are fixed in Storage Center 7.1:

Table 16. Fixed Alert and Reporting Issues in Storage Center 7.1.30

Issue	Description
SCOS-45091	The SNMP service might stop unexpectedly and require a restart.

Table 17. Fixed Alert and Reporting Issues in Storage Center 7.1.20

Issue	Description
SCOS-29664	The storage system might report hundreds of Log Corrupt Page Address error messages during a RAID restripe.

Table 18. Fixed Alert and Reporting Issues in Storage Center 7.1.12

Issue	Description
SCOS-21331	The Storage Center email process might stop and fail to restart. This issue causes the Storage Center alert email queue to fill up, which might cause a controller to reset.

Table 19. Fixed Alert and Reporting Issues in Storage Center 7.1.1

Issue	Description
SCOS-12602	In rare instances, enabling SNMP causes the SNMP agent to stop unexpectedly and it cannot be restarted.
SCOS-12287	Incorrect SSD endurance tracker alerts might appear if duplicate endurance tracker entries are created.
SCOS-2906	For SCv2000 series storage systems, the Storage Center does not report if the SAS backend is disconnected.
SCOS-2492	In Storage Center 6.6, enabling the AUTH LOGIN option in the SMTP Server settings might cause the email manager to fail.
SCOS-1852	In Storage Center 6.5.10 or later, snapshot messages in system logs might contain an incorrect `Position 3072 is past the expected bound` error message.
SCOS-1546	The Storage Center admin user does not receive an email when a disk folder is close to being full.
SCOS-1136	When compression is enabled, volume storage usage statistics are not reported correctly.
SCOS-600	In Storage Center 6.5 and 6.6, the SMTP service might not function properly due to ARP reply packet rejection.

Fixed Issues Related to Security

The following issues are fixed in Storage Center 7.1:

Table 20. Fixed Security Issues in Storage Center 7.1.20

Issue	Description
SCOS-40490	Updated the OpenSSL version on the Storage Center to OpenSSL 1.0.1u to address the following security vulnerabilities: • CVE-2016-2177 – www.cvedetails.com/cve/CVE-2016-2177/ • CVE-2016-2178 – www.cvedetails.com/cve/CVE-2016-2178/ • CVE-2016-2179 – www.cvedetails.com/cve/CVE-2016-2179/ • CVE-2016-2180 – www.cvedetails.com/cve/CVE-2016-2180/ • CVE-2016-2181 – www.cvedetails.com/cve/CVE-2016-2181/ • CVE-2016-2182 – www.cvedetails.com/cve/CVE-2016-2182/ • CVE-2016-2183 – www.cvedetails.com/cve/CVE-2016-2183/ • CVE-2016-6302 – www.cvedetails.com/cve/CVE-2016-6302/ • CVE-2016-6303 – www.cvedetails.com/cve/CVE-2016-6303/
SCOS-40083	Clickjacking vulnerability found on web server ports in Storage Center.

Table 21. Fixed Security Issues

Issue	Description
SCOS-10577	Security enhancement regarding the following vulnerabilities: • CVE-2012-4930 – www.cvedetails.com/cve/CVE-2012-4930/

Issue	Description
	• CVE-2012-4929 – www.cvedetails.com/cve/CVE-2012-4929/
SCOS-7936	Security enhancement regarding Apache HTTPD and OpenSSL vulnerabilities.
SCOS-3356	Security enhancement regarding the following vulnerability: CVE-2015-1283 – www.cvedetails.com/cve/CVE-2015-1283/
SCOS-3254	A controller reset may occur due to a TCP connection LAST_ACK socket state error.

Fixed Issues Related to Storage Management

The following storage management issues are fixed in Storage Center 7.1:

Table 22. Fixed Storage Management Issues in Storage Center 7.1.30

Issue	Description
SCOS-41405	An SSD with an endurance life that extends beyond February 2106 displays a premature end of endurance life.
SCOS-41036	A single large raid device consumes all SSD drive space when adding only a small amount of drives.
SCOS-41018	A controller might reboot when deleting a very large number of objects such as volumes, servers, or volume mappings.
SCOS-40063	A replacement drive cannot be managed in the same enclosure slot as a failed drive that could not complete the system archiving process.
SCOS-2658	A rare timing window in which rebalancing local ports at the same time as volume level operations (view volume creation, mapping/unmapping to a server, etc.) leads to the rebalance not completing.
SCOS-1392	When upgrading from a 3G SAS I/O card to a 6G SAS I/O card using the hardware change wizard, the new I/O card is displayed in slot 100x, where x is the slot number.

Table 23. Fixed Storage Management Issues in Storage Center 7.1.20

Issue	Description
SCOS-40999	Metadata on inconsistent RAID mirrors/stripes might cause Data Progression failures and lead to inefficient system space usage and performance degradation.
SCOS-40725	A controller might reset when updating statistics for page moves between classes if the source page is on a device marked for deletion.
SCOS-40529	A controller reset might occur if there are a large number of metadata space allocation requests at the same time for a volume.
SCOS-40491	SNMP management queries might fail to function properly on storage systems running Storage Center 7.1.
SCOS-37561	A controller might reset unexpectedly under certain rare timing conditions.
SCOS-40094	Storage Center might delay Data Progression/restripe activity to unacceptable levels if there are other higher priority background processes.
SCOS-37719	A controller might reset after updating to Storage Center 7.1.3, 7.1.4, or 7.1.5. because of an issue with memory fragmentation.
SCOS-36475	A storage system might encounter high CPU usage during page validation stage of Data Progression. This issue is limited to pages consumed from the storage type.

Issue	Description
SCOS-36534	Storage Center is unable to create more than a single spare drive on an SC280 enclosure if an SC220 and SC280 were connected to the storage system during the initial system configuration.
SCOS-36336	A controller might reset when the lock associated with a particular message type cannot be found. Due to variable timing conditions within the platform, messages can arrive out of order.
SCOS-36319	On storage systems that only have spinning drives and have large volumes with a large number of new page writes, existing snapshots take a very long to expire.
SCOS-35648	Removing a port from a fault domain while a controller is down might result in storage system configuration issues.
SCOS-32925	In rare instances, a storage system might experience performance degradations due to a mismatch in a virtualization threshold value.
SCOS-31707	Importing multiple volumes from an external device using Thin Import causes the volumes to appear as external devices with the following error: `illegal character found for Attribute: Name [Illegal Chracters: [<, >, &] ]]`

Table 24. Fixed Storage Management Issues in Storage Center 7.1.12

Issue	Description
SCOS-40856	A controller might reset if the iSCSI initiator is redirected to an IPv4 address of 0.0.0.0.
SCOS-40529	A storage controller might reset because of resource depletion issues on large control space allocations.
SCOS-36717	On an SC4020 storage system, Data Progression might fail because of memory allocation issues.
SCOS-34081	Data Progression might not complete because of a missing Compression freelist entry.
SCOS-32882	A storage controller in an SC4020 storage system might reset because of memory allocation issues for unaligned RAID 10 I/Os.
SCOS-26905	A storage system that performs Deduplication might send SupportAssist information to Dell Technical Support that cannot be properly processed.
SCOS-26753	A replacement drive might fail to initialize because of depleted Storage Center software resources.
SCOS-24830	A storage controller might reset while Data Progression performs a clean-up action on compressed data.
SCOS-21900	Updating to Storage Center 6.7.5 might cause an increase in BadRegionsPresent health code errors for drives.
SCOS-20142	A controller might reset when the settings of a new Fault Domain are modified.
SCOS-19766	A storage system might enter emergency mode if it is unable to create page pool devices due to CA out of space errors.
SCOS-18185	A controller might reset when removing an enclosure or reinserting a previously archived or deleted drives into the enclosure from which it was removed.
SCOS-16637	A storage system with Chelsio 10 Gb iSCSI HBAs might be unable to handle large I/O sizes.

Table 25. Fixed Storage Management Issues in Storage Center 7.1.4

Issue	Description
SCOS-22591	The defragmentation attributes have been modified to reduce CPU usage that could impact server I/O latency.

Table 26. Fixed Storage Management Issues in Storage Center 7.1.3

Issue	Description
SCOS-21562	In Storage Center 7.1, manual and scheduled restripes are restricted to 12 hours per day.
SCOS-18899	A storage system might incorrectly report snapshot bad pages when the system is low on memory.
SCOS-20668	An SCv2000 series or SC4020 storage system might trigger alerts or reset because of high memory utilization caused by memory fragmentation.
SCOS-18540	A controller revert might take several minutes to complete while deactivating the history of a large volume (several TBs) if the storage system has space management snapshots.

Table 27. Fixed Storage Management Issue in Storage Center 7.1.2

Issue	Description
SCOS-18932	Using Offloaded Data Transfer (ODX) in Hyper-V might result in degraded MPIO paths.

Table 28. Fixed Storage Management Issues in Storage Center 7.1.1

Issue	Description
SCOS-17884	When deduplication is enabled, Data Progression might not complete successfully due to memory allocation recovery issues.
SCOS-16576	In rare instances, a short timing window might occur during a RAID rebalance where inaccurate pagepool information is read from the system resulting in volumes becoming inaccessible for a brief period.
SCOS-15831	A controller reset might occur while modifying or deleting an iSCSI fault domain.
SCOS-15651	Data Progression failures might occur if Data Progression is running on a volume with snapshots that expire at the same time.
SCOS-15239	After updating to Storage Center 7.0, Data Progression times might increase when compression or deduplication is enabled.
SCOS-14111	Secondary storage deactivation process is not flushing prefetch pages.
SCOS-13724	A single controller storage system shows servers as partially connected when servers are connected using Fibre Channel.
SCOS-10256	Creation of the first volume on a storage system with 7K drives might result in a false `PagePool 7K Down` alert condition.
SCOS-9946	Data optimization statistics might fail to update after a snapshot coalescence.
SCOS-8853	Data Progression might fail to start after updating a storage system to Storage Center 6.7.
SCOS-8742	Performing a thin import to a destination volume with compression enabled causes all volumes on the storage system with compression enabled to transition to a down state.
SCOS-8543	When the compression feature is enabled for a volume, the volume might become inaccessible.

Issue	Description
SCOS-8248	In a Windows 2012 R2 virtual machine running in ESXi 5.5 or Hyper-V on Windows Server 2012, an iSCSI Offloaded Data Transfer (ODX) attempt is causing volume access to hang when the volumes are on different storage systems.
SCOS-7932	Adding a storage system to Dell Storage Manager might fail if the storage system is licensed for SEDs, but it does not have any SED drives.
SCOS-7533	On a storage system with compression enabled, performance degradation might occur during the first few minutes of Data Progression because of table validation.
SCOS-7269	In Storage Center 6.7.5, setting the VLAN Priority to a value above 0 on a fault domain with an iSCSI I/O card that is doing VLAN tagging might prevent iSCSI initiators from logging in.
SCOS-6821	After performing an import from a PS Series storage array, Storage Center continues to attempt to log in to the PS Series storage array, which causes multiple failure logs.
SCOS-3276	Web services under a sustained heavy workload might fail to restart resulting in a loss of access to the Storage Center management interface.
SCOS-2410	In rare instances, snapshots might fail to expire in Storage Center 6.5.20.
SCOS-1920	Directly connecting to an SCv2000 series storage system with the Dell Storage Client and modifying Storage Center user preferences might result in an error.
SCOS-1200	Command timeouts and errors might occur after installing FIPS WI-SSDs on a storage system running Storage Center 6.6.5.
SCOS-928	Storage systems might report increased memory usage due to improper release of sockets.
SCOS-104	A volume restripe operation with large amounts of compressed data might take an extended amount of time to restripe due to Data Progression errors.
SCOS-100	In rare instances, Data Progression and subsequent rebalancing might fail due to snapshot full page memory limitations.

Fixed Issues Related to Updating, SupportAssist, and Licensing

The following issues are fixed in Storage Center 7.1:

Table 29. Fixed Updating, SupportAssist, and Licensing Issues in Storage Center 7.1.30

Issue	Description
SCOS-40558	A storage system with SupportAssist enabled that is unable to successfully complete the sending of SupportAssist information might be unable to manage new drives or manually remove drives safely.

Table 30. Fixed Updating, SupportAssist, and Licensing Issues in Storage Center 7.1.20

Issue	Description
SCOS-40141	After updating a storage system to Storage Center 7.1.4, controllers might reset while processing the Link Configuration initialization step.
SCOS-35674	An SC4020 storage system might suffer an outage after updating from Storage Center 6.7 to 7.1 if the storage system exceeds the maximum number of snapshots.

Table 31. Fixed Updating, SupportAssist, and Licensing Issues in Storage Center 7.1.12

Issue	Description
SCOS-24853	In a dual-controller storage system, a license file conflict might cause the controllers to reboot.
SCOS-21811	A controller might fail to boot if the Disk Folder is deleted after updating to Storage Center 7.1.
SCOS-20769	If there is an existing invalid trap on the Storage Center, a storage controller might fail to boot after updating to Storage Center 7.1.2 because of the changes made to support SNMPv3.

Table 32. Fixed Updating, SupportAssist, and Licensing Issues in Storage Center 7.1.3

Issue	Description
SCOS-20301	The disk initialization feature is not fully enabled on storage systems that are updated to Storage Center 7.1.

Table 33. Fixed Updating, SupportAssist, and Licensing Issues in Storage Center 7.1.2

Issue	Description
SCOS-18287	Firmware updates might fail when updating an SCv2000 series storage system or an SC4020 storage system from Storage Center 6.6 to Storage Center 7.1.

Table 34. Fixed Updating, SupportAssist, and Licensing Issues in Storage Center 7.1.1

Issue	Description
SCOS-3438	After updating an SCv2000 series or SC4020 storage system to Storage Center 6.6, performing an update to Storage Center 6.7 might cause performance issues due to improperly handled update file links.
SCOS-3370	Sending diagnostic data using SupportAssist might fail after updating from Storage Center 6.4 or 6.5 to Storage Center 6.6 and later due to previous, pending requests that are unable to complete.
SCOS-2938	Applying the incorrect version of a license file to an SC4020 storage system might cause issues with the Flex Port feature and management of legacy disks.
SCOS-1868	For SC4020 storage systems, an enclosure firmware update might fail due to missing electronically stored information (ESI) paths during installation.
SCOS-694	In rare instances, a controller might reset due to duplicate and/or overlapping data writes when performing a non-service affecting update.

Fixed Issues Related to User Management

The following issues are fixed in Storage Center 7.1:

Table 35. Fixed User Management Issues

Issue	Description
SCOS-14309	Storage Center does not restrict directory service communication to manually defined LDAP servers. This issue might cause delays when joining Storage Center to a directory environment or failures when adding directory users and groups to Storage Center for authentication.
SCOS-13835	The password of the Baseboard Management Controller (BMC) resets to the default value after a controller reset.
SCOS-13236	An error might occur in the Dell Storage Manager Client if the user preferences snapshot profile list is invalid.

Open Issues

The following issues are present in Storage Center 7.1.

Open Issues Related to Data Reduction

The following open issues are related to Data Reduction:

Table 36. Open Data Reduction Issues

Issue	Description
SCOS-13237	The Storage Type Data Reduction statistics might be incorrect if the amount of data eligible for Data Reduction contains fewer than 256 pages. **Workaround**: None

Open Issues Related to Hardware

The following open issues are related to hardware:

Table 37. Open Hardware Issues

Issue	Description
SCOS-18759	The QLe246x Fibre Channel I/O Card takes longer to rebalance in Storage Center 7.1 than it did in previous versions of Storage Center. **Workaround**: The QLe246x I/O card is not supported in Storage Center 7.1 and must be replaced with a supported Fibre Channel I/O card.
SCOS-18490	When connected directly to the Storage Center using the Storage Manager Client, an error occurs in the hardware change wizard while performing a hardware migration from an SC040 running Storage Center 6.7 to an SC8000 running Storage Center 7.1. **Workaround**: Connect to the Storage Manager Data Collector using the Storage Manager Client and then run the hardware change wizard on the Storage Center.
SCOS-10427	In rare instances, an SCv2000 series or SC4020 storage system may not initialize following a reset or power cycle. **Workaround**: Reboot the storage system by performing a power cycle on the controllers. After the controllers are power cycled, the storage system boots up successfully.
SCOS-6516	In rare instances, the internal boot device on an SC9000 controller may become unusable following an unexpected power event and the controller will not boot. **Workaround**: Contact Dell Technical Support.

Open Issues Related to Replications and Live Volumes

The following open issues are related to replications and Live Volumes:

Table 38. Open Replication and Live Volume Issues

Issue	Description
SCOS-18102	The status of a cross-platform replication partner changes to down when the number of snapshots exceed 1025. **Workaround**: The maximum number of supported snapshots for a cross-platform replication is 512. To resolve this issue, manually remove the snapshots until there are less than 512 snapshots

Issue	Description
	and change the expiration dates of snapshots for the replication volume to a manageable expiration time.
SCOS-17981	Server mappings may not be completely removed when a server is removed from an OS cluster using Dell Storage Manager prior to the server being removed from the OS cluster. **Workaround**: Remove the server from the cluster through the OS first. After the server is rebooted, remove the server object using Dell Storage Manager.
SCOS-12067	When importing a volume, Storage Manager does not allow you to select 0 as the LUN number. **Workaround**: None

Open Issues Related to Storage Management

The following open issues are related to Storage Management:

Table 39. Open Storage Management Issues

Issue	Description
SCOS-14951	After deleting volumes and snapshots, Storage Center does not immediately report the deleted volume space as free space for a disk folder. **Workaround**: Contact Dell Technical Support.

Open Issues Related to Updating, SupportAssist, and Licensing

The following open issues are related to updating , SupportAssist, and licensing:

Table 40. Open Updating, SupportAssist, and Licensing Issues

Issue	Description
SCOS-18488	The Storage Center System Manager user interface is not disabled after updating a dual-controller storage system from Storage Center 6.6.5 to Storage Center 7.1.1. **Workaround**: Reboot the storage system.

Open Issues Related to Vendors

The following open issues are related to vendors:

Table 41. Open Vendor Issues

Issue	Description
SCOS-18123	Fibre Channel volumes that are mapped to a Hyper-V virtual machine using NPIV are not discovered by the virtual machine when the server has a QLogic HBA with out-of-date drivers. **Workaround**: Update the HBA to the latest version of the QLogic driver listed in the *Dell Storage Compatibility Matrix*.
SQAI-2	An ESXi 5.5 or 6.0 host with an Emulex FC/FCoE HBA running driver version 11.0.x.x might crash during a controller failover. **Workaround**: Update the Emulex FC/FCoE HBA to driver version 11.1.145.18 or later, which is available on the VMware website.
SQAI-3	Software FCoE timeouts might occur when using QLogic CNAs in NIC mode.

Issue	Description
	Workaround: See the *Dell Storage Compatibility Matrix* for the list of supported firmware and drivers.
SCOS-10166	Emulex FC and FCoE driver version 10.7.170.0 might cause an ESXi 5.5 or 6.0 host to fail during controller failovers. **Workaround:** Use the latest recommended driver version for the Emulex adapters. See the *Dell Storage Compatibility Matrix*.
SCOS-10155	Data Center Bridging bandwidth utilization of traffic classes might cause I/O to stop on iSCSI initiators when using an Intel X520 Dual Port 10 Gb server adapter. **Workaround:** The server must be reset to recover from the issue.
CQ00358236	ESXi 5.x hosts with QxE82xx iSCSI adapters using QLA4xxx driver version 634.5.18 (ESXi 5.1) or 6.34.55.20 (ESXi 5.5) might fail to log in to the Storage Center after a controller reset or failover. **Workaround:** Use the latest recommended driver version for the QLogic adapters. See the *Dell Storage Compatibility Matrix*.
CQ00252780	On a storage system with iSCSI front-end ports, if a controller or port is in a failover process when a Windows boot from SAN is requested, the boot might fail. **Workaround:** Subsequent boot from SAN requests succeed when the controller or port is up.

Storage Center Update Information

The following information must be considered before updating to Storage Center 7.1.

A storage system must be running Storage Center 6.6.4 or later to perform a SupportAssist update to Storage Center 7.1. For more information, see the *Dell Storage Center Software Update Guide*.

NOTE: When performing an update of both Storage Center and Dell Storage Manager, update Dell Storage Manager before updating Storage Center.

Support Resources

The following section provides resources for finding more information on using a Storage Center storage system.

Related Documentation

The following documents are available for a storage system running Storage Center 7.1.

- *Dell Storage Center Software Update Guide*
  Describes how to update Storage Center software from an earlier version to the current version.
- *Dell Storage Center Update Utility Administrator's Guide*
  Describes how to use the Storage Center Update Utility to install Storage Center software updates. Updating Storage Center software using the Storage Center Update Utility is intended for use only by sites that cannot update Storage Center using standard methods.
- *Dell Storage Manager Installation Guide*
  Provides installation and setup instructions.
- *Dell Storage Manager Administrator's Guide*
  Provides instructions for using the Data Collector Manager and the Dell Storage Manager Client.
- *Dell Storage Manager Online Help*
  Provides context-sensitive help for the Dell Storage Manager Client, Data Collector Manager, and Storage Manager Server Agent.

- *Dell Storage Manager Release Notes*
  Provides information about Dell Storage Manager releases, including new features, enhancements, fixed issues, and open issues.
- *Dell Storage REST API Release Notes*
  Provides information about the Dell Storage REST API, which allows you to manage the Storage Manager Data Collector and Storage Centers.

Finding Documentation

The following locations contain documentation for a storage system running Storage Center 7.1.

- *Dell Support*
  Provides documentation for Dell storage products. Go to www.dell.com/support.
- *Dell TechCenter*
  Provides technical white papers, best practice guides, and frequently asked questions about Dell storage products. Go to http://en.community.dell.com/techcenter/storage/.

Contacting Dell

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services might not be available in your area.

To contact Dell for sales, technical support, or customer service issues, go to www.dell.com/support.

- For customized support, type your system service tag on the support page and click **Submit**.
- For general support, browse the product list on the support page and select your product.