

Storage Center 7.3 Release Notes

This document describes the new features, enhancements, fixed issues, and open issues in Storage Center 7.3.

Current Version: 7.3.2

Release Date: 2018 - 08

Previous Version: 7.3.1

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Document Revision History

Document Number: 680-021-021

Revision	Date	Description
A	April 2018	Initial release of Storage Center 7.3
B	May 2018	Updated the Data-in-Place Upgrade and iSCSI HBA Support information
C	August 2018	Updated for Storage Center 7.3.2

Platforms Affected

The following storage systems support Storage Center 7.3:

- SC9000
- SC8000
- SC7020F
- SC7020
- SC5020F
- SC5020
- SC4020
- SCv3000 Series
- SCv2000 Series

New in This Release

The following features were added to Storage Center 7.3.

Advanced Restripe

During a RAID rebalance, the estimated time to complete is now displayed.

Automatic Disk Placement

Automatic disk placement allows you to configure the default disk folder to use for newly-inserted drives.

CloudIQ Support

CloudIQ simplifies storage management by providing:

- Centralized monitoring across your environment.
- Proactive serviceability that informs you about issues before they impact your environment.
- A dashboard that aggregates key information such as system health scores, performance metrics, and current capacity and trends.

For more information about using CloudIQ to monitor Storage Centers, see the [Storage Center CloudIQ Onboarding Quick-Start Guide](#) located on the Dell EMC Support site.

Conservation Mode

A banner provides warning messages when storage space is getting too low for the Storage Center to operate properly. The banner messages reflect the amount of space left, expressed as a percent, before the system stops operating.

Cross-Platform Replication

The following improvements have been made to cross-platform replication:

- Snapshot Management on PS Groups – Storage Center snapshots Time To Live (TTL) is monitored by the PS Group and snapshots are automatically deleted according to schedule. (Requires PS Series version 10.0 firmware.)
- Cross-Platform Replication on a remote Data Collector – If the primary Data Collector is unavailable, a remote Data Collector can be used for cross-platform replication.

Data-in-Place Migration

The Data-in-Place Migration feature in Storage Center 7.3.2 can be used to upgrade an SC4020 storage system to an SC5020 or SC7020 storage system.

Distributed Sparing

Distributed sparing allocates spare disk space across all drives rather than reserving an entire drive as a spare. This allows the system to use all disks in a balanced and optimized manner, and ensures the fastest recovery time following a disk failure.

iSCSI HBA Support

This release supports 25 GbE and 100 GbE iSCSI HBAs for SC5020, SC7020, and SC9000 storage systems.

This release also supports 25 GbE and 100 GbE iSCSI mezzanine cards for SC5020 and SC7020 storage systems.

NOTE: The 25 GbE and 100 GbE iSCSI HBAs/mezzanine cards do not support Data Center Bridging (DCB) in Storage Center 7.3.1. The iSCSI HBAs/mezzanine cards fail to pause traffic after receiving PFC pause frames.

Health Check for Software Updates

Before installing a software update, Storage Center checks the system to make sure it can update properly. If any health checks fail, Storage Manager reports information about the errors found.

Initial Setup and Configuration

Improvements have been made to the Storage Center initial setup and configuration workflow, including the option to use DHCP for assigning IP addresses.

NOTE: The option to use DHCP for assigning IP addresses is not available for SCv2000 series storage systems.

Live Volume ALUA

This release includes full support for Live Volume ALUA, including identification of optimized and non-optimized paths. A guided process is provided to enable this feature after the software update is completed.

Replication for SCv2000 Series Storage Systems

Replication is now supported between SCv2000 Series storage systems and the following storage systems:

- SCv3000 Series
- SC4020
- SC5020
- SC5020F
- SC7020

- SC7020F
- SC8000
- SC9000

SRA Improvements

Changes made to SRA code and API resolve issues found in SRA operation, resulting in:

- Improved SRA error handling and reporting.
- Better stability in multi-threaded environment.
- Resolution to generating duplicate volume IDs.

Storage Manager 2018 R1

Storage Manager 2018 R1 or later is required to manage storage systems running Storage Center 7.3.

Thin Import from VNX and VNXe

Thin import from VNX and VNXe storage systems is supported in Storage Center 7.3.2.

Unisphere for SC Series

Unisphere for SC Series is a new web-based user interface for Storage Center. Unisphere for SC Series allows you to manage a Storage Center and to perform monitoring and administrative tasks.

For more information about using Unisphere for SC Series see the *Unisphere and Unisphere Central for SC Series Administrator's Guide*.

Storage Center 7.3 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 Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate
- Local Data Protection
 - Data Instant Replay (Snapshots)
 - Manual Replay (Snapshots)
- Multi-VLAN Tagging

- Virtual Ports
- Volume QoS
- VVols

Optional Licenses

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

Storage Optimization Bundle

- Data Progression
- Fast Track

Storage Protection Bundle

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

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

- Volume QoS
- VVols

Optional Licenses

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

SC7020F and SC5020F Features and Licenses

SC7020F and SC5020F all-flash storage systems provide the following licensed features.

Total Feature Bundle

- Data Progression
- Data Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate
- Live Volume and Live Volume with Auto Failover
- Local Data Protection
 - Data Instant Replay (Snapshots)
 - Manual Replay (Snapshots)
- Multi-VLAN Tagging
- Remote Instant Replay (Replication), including Cross-Platform Replication
- Replay Manager
- SED FIPS Secure Data
- Storage Manager Chargeback
- Virtual Ports
- Volume QoS
- VVols

SC7020 and SC5020 Features and Licenses

SC7020 and SC5020 storage systems provide the following licensed features and optional value-added bundles.

Core Software Bundle

- Data Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers

- Live Migrate
- Local Data Protection
 - Data Instant Replay (Snapshots)
 - Manual Replay (Snapshots)
- Multi-VLAN Tagging
- Virtual Ports
- Volume QoS
- VVols

Optional Licenses

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

Storage Protection Bundle

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

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 Reduction (Compression and Deduplication)
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate

- Local Data Protection
 - Data Instant Replay (Snapshots)
 - Manual Replay (Snapshots)
- Multi-VLAN Tagging
- Virtual Ports
- Volume QoS
- VVols

Optional Licenses

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

Performance/Optimization Bundle

- Data Progression
- Fast Track

Remote Data Protection Bundle

- Remote Instant Replay (Replication), including Cross-Platform Replication

Remote Data Protection with Live Volume Bundle

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

SCv3000 Series Features and Licenses

SCv3000 series storage systems provide the following licensed features and optional value-added bundles.

Core Software Bundle

- Data Compression
- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate
- Local Data Protection
 - Data Instant Replay (Snapshots)
 - Manual Replay (Snapshots)
- Virtual Ports
- Volume QoS

- VVols

Optional Licenses

- Live Volume and Live Volume with Auto Failover
- Replay Manager
- SED FIPS Secure Data
- Storage Manager Chargeback

Storage Protection Bundle

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

Storage Optimization Bundle

- Data Progression
- Fast Track

Total Feature Bundle

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

SCv2000 Series Features and Licenses

SCv2000 series storage systems provide the following licensed features:

Core Licenses

- Dell Storage Manager
- Dynamic Capacity
- Dynamic Controllers
- Live Migrate

Optional Licenses

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

Storage Center 7.3 Scalability

The following scalability guidelines apply to Storage Center 7.3.

Storage System Scalability Guidelines

The following scalability guidelines apply to SC9000, SC8000, SC7020F, SC7020, SC5020F, SC5020, SC4020, SCv3000 Series, and SCv2000 Series storage systems running Storage Center 7.3.

Table 1. Scalability Guidelines for Dual-Controller Storage Systems

Storage System (memory per controller)	Raw (512 KB pages)	Addressable (512 KB pages)	Raw (2 MB pages)	Addressable (2 MB pages)	Raw (4 MB pages)	Addressable (4 MB pages)
SC9000 (128 GB or 256 GB)	1500 TB	1000 TB	6000 TB	4000 TB	12,000 TB	8000 TB
SC8000 (64 GB)	750 TB	500 TB	3000 TB	2000 TB	3000 TB	2000 TB
SC7020F or SC7020 (128 GB)	1000 TB	650 TB	4000 TB	2600 TB	8000 TB	5200 TB
SC5020F or SC5020 (64 GB)	540 TB	350 TB	2160 TB	1400 TB	4320 TB	2800 TB
SC4020 (16 GB)	263 TB	175 TB	1054 TB	700 TB	1054 TB	700 TB
SCv3000 Series (16 GB)	250 TB	169 TB	1000 TB	675 TB	2000 TB	1350 TB
SCv2000 Series (8 GB)	168 TB	112 TB	672 TB	450 TB	N/A	N/A

Storage Center Scalability Guidelines

The following scalability guidelines are the maximum recommended design guidelines for storage systems running Storage Center 7.3.

Table 2. Storage Center Scalability Guidelines for SC9000, SC8000, SC7020F, SC7020, SC5020F, SC5020, and SC4020 Storage Systems

Storage Center Object	Supported Maximum
Drives	<ul style="list-style-type: none">SC9000 – 1024 drives total, 192 drives per SAS chainSC8000 – 960 drives total, 168 drives per SAS chainSC7020F or SC7020 – 500 drives total, 192 drives per SAS chainSC5020F or SC5020 – 222 drives total, 192 drives per SAS chainSC4020 – 192 drives total, 168 drives per SAS chain
Disk Folder	10 disk folders
Server	<ul style="list-style-type: none">500 servers (Total number of servers includes physical servers, virtual servers, and server clusters)500 server folders1000 server HBA initiator ports (Total number of HBA initiator ports includes all physical and virtual ports that are visible to the SAN)
Volume	<ul style="list-style-type: none">500 TB maximum volume size (or the maximum addressable storage space, whichever is less)2000 volumes500 volume folders
Deduplication	1 PB data ingestion limit (SC4020 – 500 TB data ingestion limit)

Storage Center Object	Supported Maximum
Live Volume	500 Live Volumes
Thin Import	10 volumes (maximum simultaneous imports)
QoS Profiles	<ul style="list-style-type: none"> • 100 Volume QoS Profiles • 100 Group QoS Profiles • 100 Volumes per Group QoS Profile
Data Instant Replay (Snapshots)	<ul style="list-style-type: none"> • Snapshots: <ul style="list-style-type: none"> – SC9000 – 32,000 snapshots – SC8000 – 16,000 snapshots – SC7020F or SC7020 – 16,000 snapshots – SC5020F or SC5020 – 8000 snapshots – SC4020 – 8000 snapshots • 1000 snapshot profiles • 100 snapshot history profiles • 200 consistency groups • 100 volumes per consistency group <ul style="list-style-type: none"> – SC5020F or SC5020 – 50 volumes per consistency group – SC4020 – 40 volumes per consistency group
Replications	<ul style="list-style-type: none"> • 500 source replications (SC9000 – 1000 source replications) • 2000 target replications <ul style="list-style-type: none"> – SC4020 with Fibre Channel front-end ports – 1000 replications – SC4020 with iSCSI front-end ports – 230 replications

Table 3. Storage Center Scalability Guidelines for SCv3000 Series Storage Systems

Storage Center Object	Supported Maximum
Drives	<ul style="list-style-type: none"> • SCv3000 – 208 drives total, 192 drives per SAS chain • SCv3020 – 222 drives total, 192 drives per SAS chain
Disk Folder	10 disk folders
Server	<ul style="list-style-type: none"> • 250 servers (Total number of servers includes physical servers, virtual servers, and server clusters) • 250 server folders • 500 server HBA initiator ports (Total number of HBA initiator ports includes all physical and virtual ports that are visible to the SAN)
Volume	<ul style="list-style-type: none"> • 500 TB maximum volume size (or the maximum addressable storage space, whichever is less) • 1000 volumes • 500 volume folders
Live Volume	250 Live Volumes
Thin Import	10 volumes (maximum simultaneous imports)
QoS Profiles	<ul style="list-style-type: none"> • 100 Volume QoS Profiles • 100 Group QoS Profiles • 100 Volumes per Group QoS Profile

Storage Center Object	Supported Maximum
Data Instant Replay (Snapshots)	<ul style="list-style-type: none"> • 4000 snapshots • 1000 snapshot profiles • 100 snapshot history profiles • 200 consistency groups • 25 volumes per consistency group
Replications	<ul style="list-style-type: none"> • 250 source replications • 1000 target replications

Table 4. Storage Center Scalability Guidelines for SCv2000 Series Storage Systems

Storage Center Object	Supported Maximum
Drives	<ul style="list-style-type: none"> • SCv2000 – 168 drives total, 156 drives per SAS chain • SCv2020 – 168 drive totals, 144 drives per SAS chain • SCv2080 – 168 drives total, 84 drives per SAS chain
Disk Folder	4 disk folders
Server	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 100 Volume QoS Profiles • 100 Group QoS Profiles • 100 Volumes per Group QoS Profile
Data Instant Replay (Snapshots)	<ul style="list-style-type: none"> • 2000 snapshots • 1000 snapshot profiles • 100 snapshot history profiles • 100 consistency groups • 25 volumes per consistency group
Replications	<ul style="list-style-type: none"> • 124 source replications • 1000 target replications

NOTE: Data Instant Replay is a licensed feature.

Fixed Issues

The following sections summarize the issues fixed in Storage Center 7.3.

Fixed Issues Related to Alerts and Reporting

The following issues are fixed in Storage Center 7.3:

Table 5. Fixed Alert and Reporting Issues in Storage Center 7.3.1

Issue	Description
SCOS-46024	A storage system with a scaled SED backend sends an unnecessarily large number of trusted peripheral device authentication success messages to the syslog server.
SCOS-45412	On a SC7020 storage system, a customer might receive false <code>Cache battery alert detected</code> alerts because the remaining capacity alarm threshold does not adjust over time to match the real-time capacity of the battery.
SCOS-44972	If a storage system or storage controller reset is initiated from Storage Manager, the reset might not be recorded in Storage Center logs.
SCOS-44159	The logs for the peer storage controller might not be sent when the Send SupportAssist Information Now option is initiated from Storage Manager.
SCOS-42702	Disk alerts might occur for drives that have been archived.
SCOS-38023	The email alert message that provides the location of a failed drive might be confusing.
SCOS-18986	The Secure Console connection alert might fail to clear after Secure Console is disabled.

Fixed Issues Related to Data Reduction

The following issues are fixed in Storage Center 7.3:

Table 6. Fixed Data Reduction Issues in Storage Center 7.3.2

Issue	Description
SCOS-50937	A controller might reset if the Deduplication Page Manager (DPM) defragmentation process is paused during Data Progression and the <code>PagesBeingRead</code> list is not cleared before the DPM defragmentation process resumes.
SCOS-50517	Deleting volumes that use deduplication might take longer than normal to complete and result in increased latency on the Storage Center.

Table 7. Fixed Data Reduction Issues in Storage Center 7.3.1

Issue	Description
SCOS-49069	In rare instances, increased latency might occur on a storage system if a pagepool consolidation process is active.
SCOS-48621	In rare instances, deduplication and compression might erroneously return pagepool pages with incorrect tags, which cause payload error counts to be incremented on the pagepool freelist.
SCOS-47507	Slow deduplication ingest rates might occur when multiple Storage Center processes are working on the same volume simultaneously.
SCOS-46684	A controller might reset because of multiple small memory allocation requests.

Issue	Description
SCOS-46391	On a storage system in an unbalanced state that has volumes with deduplication or compression enabled, rebalancing the local ports might fail after creating a Copy Mirror Migrate to new volumes with deduplication or compression enabled.
SCOS-44165	Increased Data Progression run times might occur if a storage system is using deduplication and switches to compression only because of delays in freeing metadata space.
SCOS-44137	Storage Center data optimization might fail to stop after 72,000 seconds (20 hours).
SCOS-43550	Data optimization pause settings are not enforced for compression to deduplication and deduplication to compression data migrations.
SCOS-42781	In rare instances, increased latency might occur during deduplication or data progression on a storage system running Storage Center 7.2.11
SCOS-42539	The defragmentation process that runs at the end of the data progression post stage is a lengthy process and increases the data progression run time.
SCOS-42286	Deduplication ingest might fail to occur when expected on an unbalanced storage system after a Rebalance Local Ports operation is performed.
SCOS-42026	Deduplication and compression might continually skip some volumes due to reaching the 20 hour runtime limit.
SCOS-41825	The deduplication and compression statistics at the volume level are inaccurate.

Fixed Issues Related to Hardware

The following issues are fixed in Storage Center 7.3:

Table 8. Fixed Hardware Issues in Storage Center 7.3.2

Issue	Description
SCOS-51118	An SC9000 controller might reset because of alignment changes to the virtual address space.
SCOS-49956	On SCv3000 series, SC5020, and SC7020 storage systems, rebooting the storage controllers might result in a BMC split-brain condition.
SCOS-49899	SCv360 and SC460 expansion enclosures might report false alerts for the cooling fan sensors and power supplies.
SCOS-49758	Improved HDD and SSD failure handling.

Table 9. Fixed Hardware Issues in Storage Center 7.3.1

Issue	Description
SCOS-45629	If unsupported drives were added to a storage system by technical support using CLI commands, the drives might go offline when the Storage Center software is updated on the storage system.
SCOS-45475	A controller might reset because of multiple FCoE RISC PAUSE hangs.
SCOS-45155	While attempting to gather enclosure logs from an SC400 and SC420 expansion enclosure, the expansion enclosure might unexpectedly reset.
SCOS-43877	On an SC4020 storage system, a storage controller might incorrectly report "Cache board battery charge is low".

Issue	Description
SCOS-43848	On SCv2000 series, SCv3000 series, SC4020, SC5020, and SC7020 storage systems that are destinations for replications using the embedded iSCSI ports, if the source system uses 10 GbE iSCSI host bus adapters, replication performance may significantly drop until the source system 10 GbE iSCSI HBAs are restarted.
SCOS-43703	On SCv2000 series and SC4020 storage systems, the write cache might go down if one of the redundant power supply fails.
SCOS-43176	On SCv3000 series, SC5020, and SC7020 storage systems, the PCIe Link Reset command might fail for 10 GbE iSCSI host bus adapters, which causes the HBA to go down.
SCOS-42250	When an initiator performs an iSCSI login to a 10 GbE iSCSI host bus adapter, the HBA might reset and fail to exit the hibernate mode.
SCOS-39114	A single SSD failure might cause high latency on a storage system.
SCOS-22260	iSCSI I/O cards fail to honor an MTU value change made on a router.
SCOS-22152	A drive might become stuck performing a survey if the drive goes down and the drive does not receive writes after becoming unhealthy.
SCOS-21161	A single disk failure might cause system wide performance issues on storage system running Storage Center 6.6.11
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.

Fixed Issues Related to Licensing, SupportAssist, and Updating

The following issues are fixed in Storage Center 7.3:

Table 10. Fixed Licensing, SupportAssist, and Updating Issues in Storage Center 7.3.2

Issue	Description
SCOS-49445	After updating an SCv2000 series or SC4020 storage system to Storage Center 7.3, a down cache device might be displayed for slot 0 because the cache device moved to slot 32. This issue required intervention from technical support to allow future Storage Center updates to occur.

Table 11. Fixed Licensing, SupportAssist, and Updating Issues in Storage Center 7.3.1

Issue	Description
SCOS-46903	An SSL certificate with an MD5 signature is no longer supported by Storage Center. Do not allow a storage system to be updated to Storage Center 7.3 if it uses an SSL certificate with an MD5 signature.
SCOS-46480	On a dual-controller storage system, if a Storage Center ISO update is performed on controller 2 and the storage system fails over to controller 1 before it is updated, the Storage Center software version on controller 2 might be downgraded to the version on controller 1, which can damage the Storage Center configuration.
SCOS-45573	When updating a dual-controller storage system, the iDRAC or BMC firmware updates might fail to install, which can cause the lead controller to go down and result in a full outage when the peer controller reboots to perform updates.
SCOS-44945	When updating a dual controller storage system, controller resets might occur during iDRAC firmware updates.

Issue	Description
SCOS-43069	If a Storage Center contains pending firmware updates, newly downloaded firmware updates are not applied to the FRUs of a controller replacement or new expansion enclosure.
SCOS-41547	This issue is limited to a storage system on which a new version of the Storage Center software has been downloaded, but not yet installed. When a storage controller is replaced in the storage system, the storage system might fail to automatically update the low-level firmware to the same version as the active storage controller. As a result, the storage controllers in the storage system might end up with different versions of the low-level firmware.
SCOS-32283	On SCv2000 series and SC4020 storage systems, the Storage Center software might indicate that a prior version of software is available to install after performing a Storage Center ISO update.
SCOS-19264	When updating a dual controller storage system, controller reset might occur because of multiple Storage Center update requests occurring at the same time and performing the same function.

Fixed Issues Related to Replication and Live Volume

The following issues are fixed in Storage Center 7.3:

Table 12. Fixed Replication and Live Volume Issues in Storage Center 7.3.1

Issue	Description
SCOS-51183	A memory leak might occur on a Storage Center that is performing cross-platform replication over an iSCSI connection with a PS Series storage array.

Table 13. Fixed Replication and Live Volume Issues in Storage Center 7.3.1

Issue	Description
SCOS-47224	Write latency might increase for synchronous replications that have a sequential write I/O pattern.
SCOS-46819	On a storage system with Automatic Fail Over Live Volumes, a Live Volume fail over might cause an error because IORP codes are not transferred back to the originating controller over IPC.
SCOS-46572	The source and destination volumes associated with a replication might become different sizes if the source volume fails to expand due to Storage Center scalability limitations.
SCOS-45553	Storage Center might be able to manage replication volumes as physical drives.
SCOS-41191	When the Storage Manager Client is directly connected to a Storage Center, the option to delete a volume associated with a Live Volume or Live Migration is displayed, but it is not supported.
SCOS-27263	The replication of volumes with many recovered (unmapped) pages might be slower than expected.
SCOS-18102	The status of a cross-platform replication partner changes to down when the number of snapshots exceed 1025.

Fixed Issues Related to Security

The following issues are fixed in Storage Center 7.3:

Table 14. Fixed Security Issues in Storage Center 7.3.1

Issue	Description
SCOS-44666	A security scan showed possible security vulnerabilities on the iDRAC of SC8000 controllers.
SCOS-42015	A security scan showed a possible security vulnerability on the iDRAC of SC8000 and SC9000 controllers.
SCOS-41311	A security scan showed possible security vulnerabilities on the BMC of SCv2000 series and SC4020 storage systems.
SCOS-40684	A security scan shows possible security vulnerabilities on the iDRAC of SC9000 controllers. In addition, the following error might occur during a warm boot of an SC9000 controller: <code>MEM0001 Multi-bit memory errors detected on a memory device at location(s) DIMM_XX</code>
SCOS-24991	Removed support for SSL 3.0 and TLS 1.0 from the Storage Center to address security vulnerabilities.

Fixed Issues Related to Storage Management

The following issues related to storage management are fixed in Storage Center 7.3:

Table 15. Fixed Storage Management Issues in Storage Center 7.3.2

Issue	Description
SCOS-51533	On SCv2000 series or SC4020 storage systems, a controller might reset because of a memory acquisition failure for a RAID operation.
SCOS-51430	When using the SCVMM interface to create a LUN on a Storage Center that only has a 512 KB storage type, a new 2 MB storage type is created and the LUN is assigned to the 2 MB storage type instead of the 512 KB storage type.
SCOS-50614 SCOS-47361	If a drive failure occurs on a storage system that contains drives of multiple sizes, a larger spare drive might be resized to match the size of the smaller drives in the Storage Center.
SCOS-49683	When iSCSI TCP connections are unstable on embedded iSCSI ports, the Max Burst Window might be reduced, which could result in read performance degradation.
SCOS-49452	A dual-controller storage system might reset because of a CPU issue that occurs when there are a large number of RAID copies and RAID rebuilds.
SCOS-48583	An expansion enclosure with back-end communication issues might mark all of the drives in the expansion enclosure with a SCOSPredictedError.

Table 16. Storage Management Issues Fixed in Storage Center 7.3.1

Issue	Description
SCOS-46611	A controller might reset due to multiple back-end I/O card firmware faults.
SCOS-46365	A controller might reset because of excessive memory consumption during a RAID rebuild. In addition, a RAID rebuild might fail to start due to excessive memory consumption caused by a rebuild read failure.
SCOS-45755	The volume space consumption limit cannot be set above 2 TB using Storage Manager.
SCOS-45304	Storage Center is unable to create a mapping profile for a volume that is mapped to a Linux server without an HBA.
SCOS-45181	On SCv2000 series, SCv3000 series, SC4020, SC5020, and SC7020 storage systems, a controller might reset if a boot personality is detached and then the IPv6 address is removed from the embedded iSCSI ports.
SCOS-45042	A controller might reset because of a double delete on an alert object.
SCOS-44898	If a pagepool is creating a device and progression prune evaluation logic works on the same device at the same time, Data Progression might identify the device as being too small and mark the device for pruning.
SCOS-44409	A Storage Center might be unable to join an Active Directory environment using LDAP.
SCOS-44163	A controller might reset because of IPMI errors that occur when attempting to communicate with the iDRAC or BMC.
SCOS-43994	A RAID rebalance might stall or fail if a snapshot is active and it is past the expiration time/date of the snapshot.
SCOS-43076	SSD initialization allocations might cause disk queuing, resulting in a possible server timeouts.
SCOS-42003	Volume might suffer from high read/write latency while Offloaded Data Transfer (ODX) operations are in process.
SCOS-41309	A controller might reset because of out of space secondary storage get page aborts.
SCOS-35462	Storage Center might be unable to prune out pagepool devices because of control pages that cannot be moved or released from the storage system.
SCOS-21053	On an SC8000 controller, lost space messages might flood the console log at the end of a Data Progression cycle.
SCOS-18314	On an SC4020 storage system, the balancing of multi-threading CPU affinities increases performance and improves resilience of the BMC watchdog services.

Fixed Issues Related to the User Interface

The following issues related to the user interface are fixed in Storage Center 7.3:

Table 17. User Interface Issues Fixed in Storage Center 7.3.2

Issue	Description
SCOS-49176	For SCv2000, SCv2020, SCv2080, and SC4020 storage systems and legacy SAS enclosures, when the Storage Manager Client is directly connected to a Storage Center, the Request DC Undervoltage Clear command fails to clear the undervoltage indicator.

Table 18. User Interface Issues Fixed in Storage Center 7.3.1

Issue	Description
SCOS-41051	When the Storage Manager Client is connected to a Storage Center through a Data Collector, the Storage Manager Client does not allow you to change the name of an enclosure and asset tag.
SCOS-25031	After a controller failover, the peer controller might be reported as down by both SNMP and a Storage Manager Client that is directly connected to the peer controller.
SCOS-14951	After deleting volumes and snapshots, Storage Center does not immediately report the deleted volume space as free space for a disk folder.

Fixed Issues Related to User Management

The following issues related to user management are fixed in Storage Center 7.3:

Table 19. Fixed User Management Issues in Storage Center 7.3.1

Issue	Description
SCOS-42985	A Storage Center user with privileges based on a Directory Group might be unable to set some user preferences.

Fixed Issues Related to Virtual Volumes

The following issues related to virtual volumes are fixed in Storage Center 7.3:

Table 20. Fixed Virtual Volumes Issues in Storage Center 7.3

Issue	Description
SCOS-47784	A dual-controller storage system might reset following the VMotion of a VM from a VVol container to regular Storage Center datastore.

Fixed Issues Related to Vendors

The following issues related to vendors are fixed in Storage Center 7.3:

Table 21. Fixed Vendors Issues in Storage Center 7.3

Issue	Description
SQAI-7	Emulex 8 Gb Fibre Channel host bus adapters (for example, LPe1200x, LPe1205, and OEM equivalents) are unable to boot from SAN when using Emulex boot code 7.x.

Open Issues

The following sections summarize the open issues in Storage Center 7.3.

Open Issues Related to Alerts and Reporting

The following open issues are related to alerts and reporting:

Table 22. Open Alerts and Reporting Issues

Issue	Description
SCOS-38226	In rare instances, a Sync LiveVolume Auto Failover alert is not cleared when the condition is corrected. Workaround: Use Storage Manager to manually acknowledge and clear the alert.

Open Issues Related to Data Reduction

The following open issues are related to Data Reduction:

Table 23. 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 Replications and Live Volumes

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

Table 24. Open Replication and Live Volume Issues

Issue	Description
SCOS-41280	Using a cluster shared volume (CSV) on a Storage Center within a Windows 2016 cluster solution might result in an I/O failure during an infrastructure fault condition where one of the Windows hosts is isolated from both its peer and its quorum witness. Workaround: Use redundant physical switches to reduce the possibility of the I/O failure.
SCOS-17981	Server mappings may not be completely removed when a server is removed from an OS cluster using Storage Manager before the server is 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. When a server is removed from one Storage Center only, or a volume is un-mapped on one Storage Center only, the persistent reservations might not stay consistent between primary volume and secondary volume.

Issue	Description
	<p>Workaround: When removing a server from a cluster or simply un-mapping a volume, follow the below order</p> <ol style="list-style-type: none"> 1 Remove/un-map on the server side prior to make changes on the Storage Centers. 2 Delete the server on both Storage Centers, or un-map the volume on both Storage Centers using Dell Storage Manager.
SCOS-14322	<p>A <code>one path to disk</code> alert is generated when a Live Volume is created and there is only one replication path per controller.</p> <p>Workaround: None</p>
SCOS-12067	<p>When importing a volume, Storage Manager does not allow you to select 0 as the LUN number.</p> <p>Workaround: None</p>

Open Issues Related to Storage Management

The following open issues are related to Storage Management:

Table 25. Open Storage Management Issues

Issue	Description
SCOS-40588	<p>Connecting to a storage system through Storage Manager Data Collector and setting up an iSCSI fault domain in legacy mode might result in the error <code>Unable to access controller port information</code> and an iSCSI fault domain with only one port.</p> <p>Workaround: Use the Storage Manager Client to connect directly to the storage system and then set up an iSCSI fault domain in legacy mode.</p>
SCOS-22150	<p>In very rare instances, a controller failover on an SC7020 or SC5020 storage system might prevent Secure Console access.</p> <p>Workaround: Contact technical support.</p>
SCOS-22026	<p>Removing an HBA or deleting a server object before unmapping it from volumes could result in the server losing access to volumes and a controller failover will not complete properly.</p> <p>Workaround: Remove volume mappings from the HBA prior to removing the HBA or server object from the system.</p>
HPEM-541	<p>In rare instances, SC7020 updates do not complete successfully and the Storage Center might indicate that updates are still required.</p> <p>Workaround: Contact technical support.</p>

Open Issues Related to User Management

The following open issues are related to user management:

Table 26. Open User Management Issues

Issue	Description
SCOS-11192	<p>Storage Center cannot authenticate directory service users that are configured to use an alternate DNS suffix.</p>

Issue	Description
	Workaround: None

Open Issues Related to Vendors

The following open issues are related to vendors:

Table 27. Open Vendor Issues

Issue	Description
SQAI-9	An ESXi 5.5 (Update 3b) host using FCoE and QLogic 8262 converged network adapters (CNAs) might cause the host to fail during controller failovers. Workaround: Update the QLogic firmware on the adapter. The QLogic firmware is available at http://www.dell.com/support/home/us/en/19/Drivers/DriversDetails?driverId=6RGDW .
SQAI-3	Software FCoE timeouts might occur when using CNAs in NIC mode. Workaround: Update the QLogic firmware on the adapter. The QLogic firmware is available at http://www.dell.com/support/home/us/en/19/Drivers/DriversDetails?driverId=6RGDW
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 to the latest Dell custom images of ESXi 5.5, 6.0, or 6.5.
SQAI-1	Fibre-Channel boot from SAN does not work with Emulex LPe12002 boot code version 7.00a2 and the Linux servers RHEL 6.8, SLES 12, and XenServer 7.0. Workaround: Update to Emulex 12002 boot code version 11.20a8 or later.
SCOS-27133	Server bandwidth to the onboard 10 Gb Ethernet ports on an SC7020 drops significantly on reads when the server iSCSI initiator has interrupt moderation set to default (enabled). Workaround: From the server, disable interrupt moderation on the iSCSI cards as described in Dell EMC SC Series Storage: Microsoft Multipath I/O Best Practices .
CVSE-3	Storage Center 7.3.1 and 7.3.2 does not support Commvault Simpana Backup. Workaround: None

Limitations

The following limitations exist in Storage Center 7.3:

Portable Volumes

Storage Center 7.3 does not support Portable Volumes.

Portable Volumes are supported in Storage Center 7.2 or earlier.

Support Resources

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

Storage Center Update Information

Contact technical support to determine the Storage Center software version that is required to update to Storage Center 7.3.

NOTE: When updating both the Storage Center and Storage Manager software, update the Storage Manager software before updating the Storage Center software. A storage system that is running a newer version of the Storage Center software cannot be managed by an older version of Storage Manager software.

Related Documentation

The following documents are available for a storage system running Storage Center 7.3.

- *Storage Center Software Update Guide*
Describes how to update Storage Center software from an earlier version to the current version.
- *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.
- *Storage Manager Release Notes*
Provides information about Storage Manager software releases, including new features, enhancements, fixed issues, and open issues.
- *Storage Manager Installation Guide*
Provides installation and setup instructions for the Storage Manager software.
- *Storage Manager Administrator's Guide*
Provides instructions for using the Storage Manager software.
- *Unisphere and Unisphere Central for SC Series Administrator's Guide*
Provides instructions and information for managing storage systems using Unisphere and Unisphere Central for SC Series.
- *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 Storage Center products:

- *Dell Support*
Provides documentation for Storage Center storage systems. Go to www.dell.com/support.
- *Dell TechCenter*
Provides technical white papers, best practice guides, and frequently asked questions about Storage Center storage systems. 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.