

# Storage Center 7.5.1 Release Notes

This document describes the new features and changes in this release of Storage Center.

**Current Release Version:** 7.5.1

**Release Type:** Major (MA)

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## Revision History

**Table 1. Document revision history**

Revision	Date	Description
A	May 2021	Initial release of Storage Center 7.5.1
B	July 2021	Updated the changed features in Storage Center 7.5.1

## Product description

Storage Center 7.5.1 is a major release of the Storage Center operating system for SC9000, SC8000, SC7020F, SC7020, SC5020F, SC5020, SC4020, SCv3000 Series, and SCv2000 Series storage systems. This release of Storage Center includes several new features and enhancements for the supported storage systems.

## Licensed Features

The licensed features that are available for a storage system depend on the storage system model.

**Table 2. SC9000 Licensed Features**

Licenses or Bundles	Licensed Features
Core Software Bundle	<ul style="list-style-type: none"><li>• Data Reduction (Compression and Deduplication)</li><li>• Dell Storage Manager</li><li>• Dynamic Capacity</li><li>• Dynamic Controllers</li><li>• Live Migrate</li><li>• Local Data Protection<ul style="list-style-type: none"><li>○ Data Instant Replay (Snapshots)</li><li>○ Manual Replay (Snapshots)</li></ul></li></ul>

**Table 2. SC9000 Licensed Features (continued)**

Licenses or Bundles	Licensed Features
	<ul style="list-style-type: none"> <li>• Multi-VLAN Tagging</li> <li>• Virtual Ports</li> <li>• Volume QoS</li> <li>• vVols</li> </ul>
Optional Licenses	<ul style="list-style-type: none"> <li>• Live Volume and Live Volume with Auto Failover</li> <li>• Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>• Replay Manager</li> <li>• SED FIPS Secure Data</li> <li>• Storage Manager Chargeback</li> </ul>
Storage Optimization Bundle	<ul style="list-style-type: none"> <li>• Data Progression</li> <li>• Fast Track</li> </ul>
Storage Protection Bundle	<ul style="list-style-type: none"> <li>• Live Volume and Live Volume with Auto Failover</li> <li>• Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>• Replay Manager</li> </ul>
Total Feature Bundle	<ul style="list-style-type: none"> <li>• SED FIPS Secure Data</li> <li>• Storage Manager Chargeback</li> <li>• Storage Optimization Bundle</li> <li>• Storage Protection Bundle</li> </ul>

**Table 3. SC8000 Features and Licenses**

Licenses or Bundles	Licensed Features
Core Software Bundle	<ul style="list-style-type: none"> <li>• Data Reduction (Compression and Deduplication)</li> <li>• Dell Storage Manager</li> <li>• Dynamic Capacity</li> <li>• Dynamic Controllers</li> <li>• Live Migrate</li> <li>• Local Data Protection <ul style="list-style-type: none"> <li>◦ Data Instant Replay (Snapshots)</li> <li>◦ Manual Replay (Snapshots)</li> </ul> </li> <li>• Multi-VLAN Tagging</li> <li>• Virtual Ports</li> <li>• Volume QoS</li> <li>• vVols</li> </ul>
Optional Licenses	<ul style="list-style-type: none"> <li>• Live Volume and Live Volume with Auto Failover</li> <li>• Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>• Replay Manager</li> <li>• SED FIPS Secure Data</li> <li>• Storage Manager Chargeback</li> </ul>

**Table 4. SC7020F and SC5020F Features and Licenses**

Licenses or Bundles	Licensed Features
Total Feature Bundle	<ul style="list-style-type: none"> <li>• Data Progression</li> <li>• Data Reduction (Compression and Deduplication)</li> <li>• Dell Storage Manager</li> <li>• Dynamic Capacity</li> <li>• Dynamic Controllers</li> <li>• Live Migrate</li> <li>• Live Volume and Live Volume with Auto Failover</li> <li>• Local Data Protection <ul style="list-style-type: none"> <li>◦ Data Instant Replay (Snapshots)</li> </ul> </li> </ul>

**Table 4. SC7020F and SC5020F Features and Licenses**

Licenses or Bundles	Licensed Features
	<ul style="list-style-type: none"> <li>○ Manual Replay (Snapshots)</li> <li>● Multi-VLAN Tagging</li> <li>● Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>● Replay Manager</li> <li>● SED FIPS Secure Data</li> <li>● Storage Manager Chargeback</li> <li>● Virtual Ports</li> <li>● Volume QoS</li> <li>● vVols</li> </ul>

**Table 5. SC7020 and SC5020 Features and Licenses**

Licenses or Bundles	Licensed Features
Core Software Bundle	<ul style="list-style-type: none"> <li>● Data Reduction (Compression and Deduplication)</li> <li>● Dell Storage Manager</li> <li>● Dynamic Capacity</li> <li>● Dynamic Controllers</li> <li>● Live Migrate</li> <li>● Local Data Protection <ul style="list-style-type: none"> <li>○ Data Instant Replay (Snapshots)</li> <li>○ Manual Replay (Snapshots)</li> </ul> </li> <li>● Multi-VLAN Tagging</li> <li>● Virtual Ports</li> <li>● Volume QoS</li> <li>● vVols</li> </ul>
Optional Licenses	<ul style="list-style-type: none"> <li>● Live Volume and Live Volume with Auto Failover</li> <li>● Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>● Replay Manager</li> <li>● SED FIPS Secure Data</li> <li>● Storage Manager Chargeback</li> </ul>
Storage Protection Bundle	<ul style="list-style-type: none"> <li>● Live Volume and Live Volume with Auto Failover</li> <li>● Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>● Replay Manager</li> </ul>
Storage Optimization Bundle	<ul style="list-style-type: none"> <li>● Data Progression</li> <li>● Fast Track</li> </ul>
Total Feature Bundle	<ul style="list-style-type: none"> <li>● SED FIPS Secure Data</li> <li>● Storage Manager Chargeback</li> <li>● Storage Optimization Bundle</li> <li>● Storage Protection Bundle</li> </ul>

**Table 6. SC4020 Features and Licenses**

Licenses or Bundles	Licensed Features
Core Licenses	<ul style="list-style-type: none"> <li>● Data Reduction (Compression and Deduplication)</li> <li>● Dell Storage Manager</li> <li>● Dynamic Capacity</li> <li>● Dynamic Controllers</li> <li>● Live Migrate</li> <li>● Local Data Protection <ul style="list-style-type: none"> <li>○ Data Instant Replay (Snapshots)</li> <li>○ Manual Replay (Snapshots)</li> </ul> </li> <li>● Multi-VLAN Tagging</li> </ul>

**Table 6. SC4020 Features and Licenses (continued)**

<b>Licenses or Bundles</b>	<b>Licensed Features</b>
	<ul style="list-style-type: none"> <li>• Virtual Ports</li> <li>• Volume QoS</li> <li>• vVols</li> </ul>
Optional Licenses	<ul style="list-style-type: none"> <li>• Live Volume and Live Volume with Auto Failover</li> <li>• Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>• Replay Manager</li> <li>• SED FIPS Secure Data</li> <li>• Storage Manager Chargeback</li> </ul>
Performance Optimization Bundle	<ul style="list-style-type: none"> <li>• Data Progression</li> <li>• Fast Track</li> </ul>
Remote Data Protection Bundle	Remote Instant Replay (Replication), including Cross-Platform Replication
Remote Data Protection with Live Volume Bundle	<ul style="list-style-type: none"> <li>• Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>• Live Volume and Live Volume with Auto Failover</li> </ul>

**Table 7. SCv3000 Series Features and Licenses**

<b>Licenses or Bundles</b>	<b>Licensed Features</b>
Core Software Bundle	<ul style="list-style-type: none"> <li>• Data Compression</li> <li>• Dell Storage Manager</li> <li>• Dynamic Capacity</li> <li>• Dynamic Controllers</li> <li>• Live Migrate</li> <li>• Local Data Protection <ul style="list-style-type: none"> <li>◦ Data Instant Replay (Snapshots)</li> <li>◦ Manual Replay (Snapshots)</li> </ul> </li> <li>• Virtual Ports</li> <li>• Volume QoS</li> <li>• vVols</li> </ul>
Optional Licenses	<ul style="list-style-type: none"> <li>• Live Volume and Live Volume with Auto Failover</li> <li>• Replay Manager</li> <li>• SED FIPS Secure Data</li> <li>• Storage Manager Chargeback</li> </ul>
Storage Protection Bundle	<ul style="list-style-type: none"> <li>• Live Volume and Live Volume with Auto Failover</li> <li>• Remote Instant Replay (Replication), including Cross-Platform Replication</li> <li>• Replay Manager</li> </ul>
Storage Optimization Bundle	<ul style="list-style-type: none"> <li>• Data Progression</li> <li>• Fast Track</li> </ul>
Total Feature Bundle	<ul style="list-style-type: none"> <li>• SED FIPS Secure Data</li> <li>• Storage Manager Chargeback</li> <li>• Storage Optimization Bundle</li> <li>• Storage Protection Bundle</li> </ul>

**Table 8. SCv2000 Series Features and Licenses**

<b>Licenses or Bundles</b>	<b>Licensed Features</b>
Core Licenses	<ul style="list-style-type: none"> <li>• Dell Storage Manager</li> <li>• Dynamic Capacity</li> <li>• Dynamic Controllers</li> <li>• Live Migrate</li> </ul>
Optional Licenses	<ul style="list-style-type: none"> <li>• Flex Port</li> </ul>

**Table 8. SCv2000 Series Features and Licenses (continued)**

Licenses or Bundles	Licensed Features
	<ul style="list-style-type: none"> <li>● Local Data Protection                             <ul style="list-style-type: none"> <li>○ Data Instant Replay (Snapshots)</li> <li>○ Manual Replay (Snapshots)</li> </ul> </li> <li>● Remote Data Protection (Asynchronous replication only)</li> </ul>

## New features

The following features have been added in this release:

**Table 9. New features in Storage Center 7.5.1**

Feature	Feature Description
Custom port for Syslog server	Added the ability to specify a custom port for sending Storage Center logs to a syslog server.
Deletion of virtual ports from fault domains	Added the ability to delete unused virtual ports from a storage system.
Removal of all ports from fault domains	Added the ability to remove ports from a fault domain and delete a fault domain without any ports. <span style="font-size: 1.2em;">i</span> <b>NOTE:</b> This feature is not supported on SCv2000 Series and SCv3000 Series storage systems.

## Changed features

The following features have been changed in this release:

**Table 10. Changed features in 7.5.1**

Feature	Feature Description
Controller name in Storage Center alerts	Added the controller name to Storage Center alerts to help customers identify the storage system to which an alert applies.
Deduplication and Compression Thread Offload	Deduplication and compression can now use more CPU without impacting front-end I/O on the storage system, which increases the effectiveness of deduplication and compression background operations.
Distributed sparing	Added the ability to see the progress of disk optimization for Distributed Sparing from the Disks view.
Enhanced Disk Fault Management (EDFM)	Enhanced the drive fault processing behavior to reduce the extremely low risk of drive faults negatively impacting storage system performance.
General performance improvements	Improved the performance of supported storage systems.
RAID and Distributed Spare Enhancements	Enabled the recovery of data from RAID stripes with offset media errors that are unrecoverable without smaller sized read attempts.
RAID overhead reporting	Added <b>System RAID Overhead Ratio</b> and <b>Estimated Usable Space</b> to Available Space Usage on the Storage Center Summary page. Added the <b>RAID Overhead Multiplier</b> value to the automated storage reports Disk Folder, Volume, and Volume Folder.
Enhanced space reporting	Improved the reporting of usable space on a Storage Center.
Volume Advisor	Added the ability to lock a volume to a Storage Center to prevent Volume Advisor from recommending that the volume be moved.

# Resolved issues

The following high severity issues are resolved in this release:

**Table 11. Issues resolved in Storage Center 7.5.1**

Issue	Functional area	Description
SCOS-61427	Alerts, Logs, and Reports	Storage Center might generate alerts about pagepools entering conservation mode despite plenty of free space on the disks. This issue occurs when the Threshold Allocation value is less than the Threshold Conservation value, which prevents Add Space from running before the storage system enters Conservation mode.
SCOS-61253	Alerts, Logs, and Reports	If the rsyslogd process stops working on a controller, it does not restart until the controller is rebooted, which can result in missing entries in the syslog.
SCOS-61116	Alerts, Logs, and Reports	If a replication link goes down, an alert with the confusing message <code>Disk xx all paths to device are down</code> might be displayed. The alert with the message <code>Disk xx all paths to device are down</code> is an alert about replication, not an alert about a disk being down.
SCOS-60431	Alerts, Logs, and Reports	The LDAP logging functionality in Storage Center does not log enough authentication activity information to troubleshoot LDAP authentication issues.
SCOS-55150	Alerts, Logs, and Reports	Storage Center might generate invalid alerts and syslog entries for validation failures due to short-term failures like IPC connectivity issues or out of memory conditions.
SCOS-61819	Data Reduction	An issue with data compression might cause volume I/O to stall on a storage system.
SCOS-60541	Data Reduction	The deduplication garbage collection process might miss pages on large storage systems.
SCOS-60114	Data Reduction	Reduced the data progression runtime for storage systems that are using compression or deduplication.
SCOS-59577	Data Reduction	In rare cases, a segmentation fault might occur during deduplication ingestion.
SCOS-58642	Data Reduction	High latency on read I/O can be caused by deduplication metadata locks.
SCOS-62567	Front-End Communication	ESXi hosts might lose access to datastores because of path failures between ESXi hosts and storage systems with SAS front-end ports.
SCOS-61920	Front-End Communication	When a storage system Fibre Channel (FC) port is connected to a fabric switch that initiates login from its name server address, a port restart may occur during a local port rebalance.
SCOS-61731	Front-End Communication	Performing a Jumbo Frame ping to a Chelsio T3 port with VLAN tagging enabled might fail
SCOS-61060	Front-End Communication	A controller might reset because of an issue with the QRQCM driver.
SCOS-60715	Front-End Communication	Storage Center does not allow the removal of Virtual Port entries that were associated with a Preferred Physical Port entry that has been removed from the fault domain.
SCOS-60710	Front-End Communication	Storage Center does not allow the removal of all ports from a fault domain and the removal of a fault domain without ports.
SCOS-61760	Hardware	Some SC280 expansion enclosures do not support sending diagnostic messages to SES vendor pages 0x91, 0x92, and 0x93.
SCOS-61130	Hardware	A SCv3000 Series controller might reset because of a memory allocation issue with a Chelsio driver.
SCOS-60200	Hardware	Performing cluster validation on a Windows 2019 Hyper-V cluster might fail if the server has two SAS HBAs, and a single port from each HBA is in a single fault domain on the Storage Center.

**Table 11. Issues resolved in Storage Center 7.5.1 (continued)**

<b>Issue</b>	<b>Functional area</b>	<b>Description</b>
SCOS-60106	Hardware	Improved debugging when an SC200 or SC220 expansion enclosure might boot into split after replacing the midplane in the enclosure. Improves debugging when an SC280 expansion enclosure might report that the enclosure temperature is lower than critical threshold even when enclosure is at a normal temperature.
SCOS-60076	Hardware	SC280 expansion enclosures might report invalid values for the <code>Low critical threshold</code> , which can result in false positive error messages stating that the enclosure temperature is lower than critical threshold, even when the enclosure temperature is normal.
SCOS-59908	Hardware	Chassis firmware might fail to update on a replacement controller for an SC4020 storage system.
SCOS-59479	Hardware	SCv2000 Series and SC4020 storage systems running Storage Center 7.4.x might be unable to initialize replacement batteries or charge batteries.
SCOS-62211	Live Volume and Replication	Live Volumes cannot be protected if HTTP client requests fail to timeout when the request queue for the tiebreaker service is full.
SCOS-62018	Live Volume and Replication	A storage system might experience unnecessary Live Volume backend-error swaps caused by deduplication memory allocation failures.
SCOS-61408	Live Volume and Replication	A non-recoverable IORP failure on a Live Volume might result in a back-end error swap role that is initiated for peer side volume access and recovery.
SCOS-61357	Live Volume and Replication	If the system monitor failover did not complete successfully after a controller failover, remote disks might be unavailable and Storage Center cannot create replications on the surviving controller.
SCOS-60819	Live Volume and Replication	Storage Center might be unable to re-enable automatic failover on a Live Volume if automatic failover was disabled on the Live Volume while connectivity to the tiebreaker service was down.
SCOS-59974	Live Volume and Replication	When an external disk is deleted from a Storage Center during cross-platform replication, configuration changes might cause the controller to reset, but the controller is prevented from fully initializing during the reboot.
SCOS-59299	Live Volume and Replication	When a server running Windows 2016 Server or later is rebooted, the server might lose access to a Live Migrated volume because of changes to the target port group (TPG) IDs that are sent from Storage Center.
SCOS-62777	Storage Management	A partially destroyed secondary storage device might cause lost space detection to function incorrectly.
SCOS-62498	Storage Management	Activating the inactive histories on the lead controller of a storage system might result in a staggered outage that causes the controllers to deadlock during volume activation.
SCOS-62470	Storage Management	A controller might fail to boot if Remote Chap Initiators are created on every port in the fault domain instead of just the control port.
SCOS-62131	Storage Management	Copy-Mirror-Migrate (CMM) schedules might fail on source volumes that are owned by the peer controller.
SCOS-61862	Licensing, SupportAssist, and Updating	If the iDRAC login credentials have been changed on an SC5020 or SC5020F storage system that is running Storage Center 7.4.20 or being updated to Storage Center 7.4.20, the storage system controllers might fail to boot.
SCOS-61592	Storage Management	A controller might reset when a snapshot attach is performed on a view volume after the size of the parent volume is expanded.
SCOS-61082	Storage Management	A controller might reset because of a segmentation fault caused by a corruption of the CA IP Object List.
SCOS-61042	Storage Management	A controller might reset with a signal for memory access violation when a secondary storage object is activated, failed over during activation, and then deactivated.

**Table 11. Issues resolved in Storage Center 7.5.1 (continued)**

<b>Issue</b>	<b>Functional area</b>	<b>Description</b>
SCOS-60805	Storage Management	Distributed Spare Optimizer might fail to run if it is enabled on a storage system during a Storage Center update.
SCOS-60788	Storage Management	During a system restripe cycle, Storage Center might encounter a loop that selects a pagepool device to prune as excess, prunes the device, and then re-creates the device after it is pruned.
SCOS-60784	Storage Management	In rare cases, two progression cycles might run simultaneously after controller failover.
SCOS-60780	Storage Management	In rare cases, data progression might stall due to a missed data progression completion.
SCOS-60719	Storage Management	Secondary storage might fail to load after rebooting a controller because of inconsistent metadata.
SCOS-60380	Storage Management	Storage Center might be unable to manage disks that have added to and removed from a different storage system.
SCOS-60342	Storage Management	Improved the KCS driver scheduling priority to reduce controller resets.
SCOS-60146	Storage Management	A controller might reset because of an issue in the KCS driver.
SCOS-60097	Storage Management	An Add Space operation might fail because the Block Device Identify process pauses before releasing the disk management lock when the Disk Management Discipline conflicts with disk label.
SCOS-60087	Storage Management	A controller might reset due to resource allocation on KCS driver.
SCOS-60022	Storage Management	Important update to detect KCS driver issues when a controller resets.
SCOS-59682	Storage Management	Secondary storage might log an erroneous Emergency Mode message when a storage system reboots.
SCOS-59665	Storage Management	A controller might reset if a <code>reqorder showdeadlocked</code> command is performed on an index that has over 12000 queued requests.
SCOS-59018	Storage Management	Pagepool pages might be returned twice during a controller failover.
SCOS-58266	Storage Management	In rare cases, an incomplete metadata cleanup operation might cause a controller to reset and impact volume accessibility.
SCOS-56019	Storage Management	A partial outage might occur if Storage Center tries to allocate resources for certain types of SCSI Target requests, but not enough memory is available to allocate the resources.
SCOS-61444	User Interface	During a controller failover, the option to rebalance ports might be displayed in the Storage Manager Client before the Storage Center is ready to perform a port rebalance.
SCOS-60535	User Interface	A controller might reset because of the format and length of the Uniform Resource Identifier (URI) string that is used when configuring Directory Services.
SCOS-62474	User Interface	When the Summary tab for a Storage Type is selected in Storage Manager Client for a storage system with a distributed sparing enabled, the message <code>Storage Size is not a correct format</code> might be displayed if the lowest index disk in the Storage Type has more free space than other disks.
SCOS-59673	User Interface	The calculation of Historical Available Space on a storage system might be incorrect because the calculation does not subtract the Spare Block Count from the Total Block Count.
SCOS-56519	User Interface	Storage Center does not allow the privilege level of a directory user that is managed at the individual level to become managed at a group level.
SCOS-60795	User Management	Storage Center cannot authenticate directory service users that are configured to use an alternate DNS suffix.
SCOS-60511	User Management	Attempting to unlock a Storage Center user might fail if the user was locked because of authentication failures.



**Table 11. Issues resolved in Storage Center 7.5.1 (continued)**

Issue	Functional area	Description
SCOS-61101	Vendor	If a Veeam backup job fails, but the failed backup job is successful when it is retried, Veeam might create a snapshot without an expiration date on the Storage Center.

## Known issues

The following high severity issues remain unresolved in this release:

**Table 12. Known issues in Storage Center 7.5.1**

Issue	Functional area	Description	Workaround/Resolution
SCOS-62354	Alerts, Logs, and Reports	For SCv3000 Series, SC5020, and SC7020 storage systems, the BIOS and iDRAC may not display the correct DIMM speed.	The incorrect DIMM speed displayed in the BIOS and iDRAC can be ignored.
SCOS-60273	Alerts, Logs, and Reports	Applications that use third-party LDAP clients may cause Windows to generate incorrect Event ID 2889 message entries. This issue occurs if LDAP interface events are logged and the LDAPServerIntegrity setting is set to 2.	The Event ID 2889 message entries can be ignored.
SCOS-38226	Alerts, Logs, and Reports	In rare instances, a Sync LiveVolume Auto Failover alert is not cleared when the condition is corrected.	Use Storage Manager to manually acknowledge and clear the alert.
SCOS-13237	Data Reduction	The Storage Type Data Reduction statistics might be incorrect if the amount of data eligible for Data Reduction contains fewer than 256 pages.	None
SCOS-52646	Hardware	The boot cycle of an SC9000 controller might stop responding or restart several times because of an issue in the BIOS or pre-boot sequence.	Perform a cold boot of the SC9000 controller by disconnecting both power cables from the controller, waiting one minute, and then reconnecting the power cables to controller.
SCOS-49735	Hardware	On SCv3000 series, SC5020, or SC7020 storage systems, the ports on Intel branded SFP+ modules in XL710 mezzanine cards might go into an infinite up and down loop.	Use Dell branded SFP+ modules in XL710 mezzanine cards instead of Intel branded SFP+ modules.
SCOS-60092	Live Volume and Replication	If Live Volume is enabled on a storage system, and a Live Volume auto failover occurs during a Storage Center firmware upgrade, the Live Volume on the storage system might become inaccessible.	Disable Live Volume Auto Failover before performing upgrades or known maintenance on a storage system. Enable Live Volume Auto Failover after the work on the storage system is complete.
SCOS-59752	Live Volume and Replication	When replicating from a Storage Center to a PS Group, if the size of the replica reserve is set to 105%, an in-progress replica is deleted on the destination PS Group when the borrowing space limit is exceeded. The source Storage Center reports that the remote disk is down and it enters a retrying state.	Reseed the replication and set the size of the replica reserve to 200%.
SCOS-41280	Live Volume and Replication	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	Use redundant physical switches to reduce the possibility of the I/O failure.

**Table 12. Known issues in Storage Center 7.5.1 (continued)**

<b>Issue</b>	<b>Functional area</b>	<b>Description</b>	<b>Workaround/Resolution</b>
		condition where one of the Windows hosts is isolated from both its peer and its quorum witness.	
SCOS-17981	Live Volume and Replication	Server mappings may not be removed completely when a server is removed from a cluster using Storage Manager before the server is removed from the cluster.  When a server is removed from one Storage Center only, or a volume is unmapped on one Storage Center only, the persistent reservations might not stay consistent between primary volume and secondary volume.	Remove the server from the cluster through the operating system first. After the server is rebooted, remove the server object using Storage Manager.  When removing a server from a cluster or unmapping a volume, perform the following steps:  1. Remove the server from the cluster, or unmap the volume on the server side before making changes on the Storage Centers.  2. Delete the server on both Storage Centers, or unmap the volume on both Storage Centers.
SCOS-14322	Live Volume and Replication	A one path to disk alert is generated when a Live Volume is created and there is only one replication path per controller.	None
ENHTKR-90	Live Volume and Replication	When importing a volume, Storage Manager does not allow you to select 0 as the LUN number.	Change the LUN number of the volume to 0 after importing the volume.
SCOS-59639	Storage Management	A controller might reset due to a timeout caused by IPMI/KCS driver errors.	Set the IP address of the iDRAC (BMC) on each controller to a non-routable address such as 0.0.0.0.
SCOS-40588	Storage Management	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.	Use the Storage Manager Client to connect directly to the storage system and then set up an iSCSI fault domain in legacy mode.
SCOS-22150	Storage Management	In rare instances, a controller failover on an SC7020 or SC5020 storage system might prevent Secure Console access.	Contact technical support.
SCOS-22026	Storage Management	Removing an HBA or deleting a server object before unmapping it from volumes might result in the server losing access to volumes and prevent controller failover from completing properly.	Contact technical support.
HPEM-541	Storage Management	In rare instances, SC7020 updates do not complete successfully and the Storage Center might indicate that updates are still required.	Contact technical support.
SCOS-62922	Vendors	A Fibre Channel port may restart after being plugged into a Brocade Fibre Channel switch running Fabric OS v8.2.0, v8.2.1, or v8.2.2 that also has multiple logical switches configured.	Set the <code>fabric.rdp_poll_cycle</code> setting to 0 in the switch configuration for Fabric OS v8.2.0, v8.2.1, or v8.2.2. This issue is fixed in Fabric OS v8.2.3 and v9.0.0.
SQAI-9	Vendors	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.	Update the QLogic firmware on the adapter. The QLogic firmware is available at <a href="https://">https://</a>

**Table 12. Known issues in Storage Center 7.5.1 (continued)**

Issue	Functional area	Description	Workaround/Resolution
SQAI-3	Vendors	Software FCoE timeouts might occur when using CNAs in NIC mode.	Update the QLogic firmware on the adapter. The QLogic firmware is available at <a href="https://www.dell.com/support/home/us/en/19/Drivers/DriversDetails?driverId=6RGDW">https://www.dell.com/support/home/us/en/19/Drivers/DriversDetails?driverId=6RGDW</a> .
SQAI-2	Vendors	An ESXi 5.5 or 6.0 host with an Emulex FC/FCoE HBA running driver version 11.0.x.x might reset during a controller failover.	Update to the latest Dell custom images of ESXi 5.5, 6.0, or 6.5.
SQAI-1	Vendors	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.	Update to Emulex 12002 boot code version 11.20a8 or later.
SCOS-27133	Vendors	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 or enabled.	For a Windows server, disable interrupt moderation on the iSCSI cards as described in <a href="#">Dell EMC SC Series Storage: Microsoft Multipath I/O Best Practices</a> . For operating systems other than Windows, review the operating system documentation for instructions on changing interrupt moderation settings. For example, on Linux use the <code>ethtool</code> utility to change interrupt moderation settings.

## Limitations

The following limitations exist in this release:

**Table 13. Limitations in Storage Center 7.5.1**

Limitation	Description
Portable Volumes	Storage Center 7.5.1 does not support Portable Volumes. Portable Volumes are supported in Storage Center 7.2 or earlier.

## Environmental and system requirements

This section describes environmental and system requirements in this release.

Storage Manager 2020 R1 or later is required to manage storage systems running Storage Center 7.5.1 and Storage Center 7.5.1 supports the following storage system models:

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

**NOTE:** Storage Center 7.5.1 supports cabling mixed-speed expansion enclosures. SC400, SC420, and SC420F expansion enclosures can be cabled with SC200 and SC220 expansion enclosures.

## Storage System Scalability Guidelines

The following table lists the scalability guidelines for dual-controller storage systems:

**Table 14. 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

**NOTE:** In the release notes for Storage Center 7.2 and Storage Center 7.1, 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.

## Storage Center Scalability Guidelines

The following tables list the Storage Center scalability guidelines:

**Table 15. Storage Center Scalability Guidelines (except for SCv3000 Series and SCv2000 Series Storage Systems)**

Storage Center Object	Supported Maximum
Drives	<ul style="list-style-type: none"> <li>• SC9000 – 1024 drives total, 192 drives per SAS chain</li> <li>• SC8000 – 960 drives total, 168 drives per SAS chain</li> <li>• SC7020F or SC7020 – 606 drives total, 192 drives per SAS chain</li> <li>• SC5020F or SC5020 – 222 drives total, 192 drives per SAS chain</li> <li>• SC4020 – 192 drives total, 168 drives per SAS chain</li> </ul>
Disk Folder	10 disk folders
Server	<ul style="list-style-type: none"> <li>• 500 servers (Total number of servers includes physical servers, virtual servers, and server clusters)</li> <li>• 500 server folders</li> <li>• 1000 server HBA initiator ports (Total number of HBA initiator ports includes all physical and virtual ports that are visible to the SAN)</li> </ul>
Volume	<ul style="list-style-type: none"> <li>• 500 TB maximum volume size (or the maximum addressable storage space, whichever is less)</li> <li>• 2000 volumes</li> <li>• 500 volume folders</li> </ul>
Deduplication	1 PB data ingestion limit (SC4020 – 500 TB data ingestion limit)
Data Instant Replay (Snapshots)	<ul style="list-style-type: none"> <li>• Snapshots: <ul style="list-style-type: none"> <li>○ SC9000 – 32,000 snapshots</li> <li>○ SC8000 – 16,000 snapshots</li> <li>○ SC7020F or SC7020 – 16,000 snapshots</li> <li>○ SC5020F or SC5020 – 8000 snapshots</li> <li>○ SC4020 – 8000 snapshots</li> </ul> </li> <li>• 1000 snapshot profiles</li> <li>• 100 snapshot history profiles</li> </ul>


**Table 15. Storage Center Scalability Guidelines (except for SCv3000 Series and SCv2000 Series Storage Systems) (continued)**

<b>Storage Center Object</b>	<b>Supported Maximum</b>
	<ul style="list-style-type: none"> <li>● 200 consistency groups</li> <li>● 100 volumes per consistency group                             <ul style="list-style-type: none"> <li>○ SC5020F or SC5020 – 50 volumes per consistency group</li> <li>○ SC4020 – 40 volumes per consistency group</li> </ul> </li> </ul>
Replications	<ul style="list-style-type: none"> <li>● Source replications:                             <ul style="list-style-type: none"> <li>○ SC9000 – 1000 source replications</li> <li>○ SC8000 – 500 source replications</li> <li>○ SC7020F or SC7020 – 1000 source replications</li> <li>○ SC5020F or SC5020 – 500 source replications</li> <li>○ SC4020 – 500 source replications</li> </ul> </li> <li>● 2000 target replications                             <ul style="list-style-type: none"> <li>○ SC4020 with Fibre Channel front-end ports – 1000 replications</li> <li>○ SC4020 with iSCSI front-end ports – 230 replications</li> </ul> </li> </ul>
Live Volumes	<ul style="list-style-type: none"> <li>● 500 Live Volumes</li> <li>● 150 Live Volumes with Auto-Failover</li> </ul>
QoS Profiles	<ul style="list-style-type: none"> <li>● 100 Volume QoS Profiles</li> <li>● 100 Group QoS Profiles</li> <li>● 100 Volumes per Group QoS Profile</li> </ul>
Thin Import	10 volumes (maximum simultaneous imports)

**Table 16. Storage Center Scalability Guidelines for SCv3000 Series Storage Systems**

<b>Storage Center Object</b>	<b>Supported Maximum</b>
Drives	<ul style="list-style-type: none"> <li>● SCv3000 – 208 drives total, 192 drives per SAS chain</li> <li>● SCv3020 – 222 drives total, 192 drives per SAS chain</li> </ul>
Disk Folder	10 disk folders
Server	<ul style="list-style-type: none"> <li>● 250 servers (Total number of servers includes physical servers, virtual servers, and server clusters)</li> <li>● 250 server folders</li> <li>● 500 server HBA initiator ports (Total number of HBA initiator ports includes all physical and virtual ports that are visible to the SAN)</li> </ul>
Volume	<ul style="list-style-type: none"> <li>● 500 TB maximum volume size (or the maximum addressable storage space, whichever is less)</li> <li>● 1000 volumes</li> <li>● 500 volume folders</li> </ul>
Data Instant Replay (Snapshots)	<ul style="list-style-type: none"> <li>● 4000 snapshots</li> <li>● 1000 snapshot profiles</li> <li>● 100 snapshot history profiles</li> <li>● 100 snapshots per volume</li> <li>● 200 consistency groups</li> <li>● 25 volumes per consistency group</li> </ul>
Replications	<ul style="list-style-type: none"> <li>● 250 source replications</li> <li>● 1000 target replications</li> </ul>
Live Volumes	<ul style="list-style-type: none"> <li>● 250 Live Volumes</li> <li>● 150 Live Volumes with Auto-Failover</li> </ul>
QoS Profiles	<ul style="list-style-type: none"> <li>● 100 Volume QoS Profiles</li> <li>● 100 Group QoS Profiles</li> <li>● 100 Volumes per Group QoS Profile</li> </ul>
Thin Import	10 volumes (maximum simultaneous imports)

**Table 17. Storage Center Scalability Guidelines for SCv2000 Series Storage Systems**

<b>Storage Center Object</b>	<b>Supported Maximum</b>
Drives	<ul style="list-style-type: none"><li>● SCv2000 – 168 drives total, 156 drives per SAS chain</li><li>● SCv2020 – 168 drive totals, 144 drives per SAS chain</li><li>● SCv2080 – 168 drives total, 84 drives per SAS chain</li></ul>
Disk Folder	4 disk folders
Server	<ul style="list-style-type: none"><li>● 100 servers (Total number of servers includes physical servers, virtual servers, and server clusters.)</li><li>● 100 server folders</li><li>● 200 server HBA initiator ports (Total number of HBA initiator ports includes all physical and virtual ports that are visible to the SAN.)</li></ul>
Volume	<ul style="list-style-type: none"><li>● 500 TB maximum volume size (or the maximum addressable storage space, whichever is less)</li><li>● 1000 volumes</li><li>● 500 volume folders</li></ul>
Data Instant Replay (Snapshots)	<ul style="list-style-type: none"><li>● 2000 snapshots</li><li>● 1000 snapshot profiles</li><li>● 100 snapshot history profiles</li><li>● 100 snapshots per volume</li><li>● 100 consistency groups</li><li>● 25 volumes per consistency group</li></ul>
 <b>NOTE:</b> Data Instant Replay is a licensed feature.	
Replications	<ul style="list-style-type: none"><li>● 124 source replications</li><li>● 1000 target replications</li></ul>
QoS Profiles	<ul style="list-style-type: none"><li>● 100 Volume QoS Profiles</li><li>● 100 Group QoS Profiles</li><li>● 100 Volumes per Group QoS Profile</li></ul>
Thin Import	10 volumes (maximum simultaneous imports)

## Installation and upgrade considerations

The Storage Center operating system is preinstalled on a storage system at the factory. The Storage Center operating system is not customer installable.

For instructions on updating the Storage Center operating system on a storage system, see the *Storage Center Version 7 Software Update Guide* on <https://www.dell.com/support>.


## Where to get help

Dell Technologies maintains support pages for all products at [www.dell.com/support](http://www.dell.com/support).

The product support pages provide important information about the products. This information includes product and user documentation, knowledge base articles, drivers and other software installation packages downloads, advisories, knowledge base articles, and more.

A valid support contract and registration may be required to access all the information available on the product support sites.

## Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.