IBM Cloud Object Storage System
Version 3.15.1 October Maintenance Release

Release Notes

IBM

Contents

Support information

Technical support contacts.

For more information on the product or help with troubleshooting, contact IBM Support at ibm.com/mysupport or visit the Directory of worldwide contacts.

Chapter 1. New Features and Improvements in ClevOS 3.15.1

Static Website Hosting (1341)

The Static Website Hosting feature allows you to provide a low-cost, highly reliable solution to deliver the content in the COS bucket on a web page. Static Website Hosting allows a COS bucket to be configured to store static websites which deliver HTML, JavaScript, images, video, and other files to users of the website. Static Website Hosting does not support any server-side application code, such as PHP or ASP.NET. Static Website Hosting allows the data in the COS bucket to be served using a simple HTTP server. Static websites are typically used in cases where the website requires minimal to no server administration, websites which have few authors and require infrequent updates, and websites which need to automatically scale for an intermittent increase in traffic.

The Static Website Hosting feature allows you to configure a Website Configuration Policy for a COS bucket. Website configuration policy for a COS bucket can only be configured by the bucket owner. A website configuration policy for a COS bucket can be configured with index and error objects. The static web server appends the index object name when a request ends in / and returns the error object when there are errors. Optionally the website configuration can be used globally to redirect all requests to the website endpoint. A Website Configuration Policy is used to provide granular control over redirects by providing the routing rules as part of the policy.

The Static Website Hosting feature is supported in both Vault and Container mode systems. Operators may enable the Static Website Hosting feature through the IBM® COS Manager for specific vaults. Operators may use the IBM COS Manager interface or IBM COS REST API commands to enable the feature for specific vaults. Enabling of the feature on vaults is NOT supported via the IBM COS Manager provisioning API. After the Static Website Hosting feature is enabled on specific vaults, you may add website policies for those vaults (or containers on those vaults) to use the feature and to define the website configuration policy.

To access a bucket as a Static Website, the client addresses the bucket via virtual host addressing, using a virtual host suffix specifically setup for the Static Website Hosting feature, known as the Static Website Virtual Host Suffix. Operators should configure the Static Website Virtual Host Suffix using the IBM COS Manager interface or by using IBM COS REST API commands for the access pools which will handle the Static Website requests. If the Static Website Virtual Host Suffix is `static-website.example.com`, then to access a COS bucket named `bucketname`, the client would use `http://bucketname.static-website.example.com/`. The `bucketname` must be DNS-compliant for the website to work. Operators should configure their DNS servers to perform proper routing of static website virtual host style addresses to the appropriate IBM Accesser® node or Load Balancer IP address. In the above example, the DNS servers should be configured so that all traffic towards `*.static-website.example.com` will have to be routed towards the IBM Accesser or the Load Balancer.

Allow Concentrated Dispersal mode container vaults (1645)

Container vaults are now supported in Concentrated Dispersal mode.

Container Mode Support of Manager and Accesser Appliance Docker Containers (1644)

Container mode is now supported on IBM COS docker containers. Refer to the Appliance Docker Container Guide documentation for more details.

Chapter 2. New Features and Improvements in ClevOS 3.15.0

Upgrade Performance and Scalability Enhancements (1012)

This feature for Upgrade Performance and Scalability Enhancements provides upgrade page load time and usability improvements for systems with > 3K devices. The upgrade page is now separated into two pages.

- The top-level UI upgrade page (`upgrade.adm`) displays storage and access pools, with the ability to display devices on a new page instead of everything being displayed on one page. With this change, the upgrade state is presented at different degrees of granularity: system, storage pool, or set.
- The new page displays individual device information for a storage pool set, an access pool or devices not belonging to any pool. This second page appears similar to previous versions of the Manager.

Zone Slice Storage (213D)

Zone Slice Storage (ZSS) is a new method for Slicestor® devices to store slices on disk. Traditionally, with Packed Storage, the Slicestor device manages a fixed number of files and stores data for many slices in each file. The concepts around a file and file system have been removed and replaced with a new solution that manages all data placement on the storage medium.

- ZSS is enabled at the storage pool level and can only be enabled on a new storage pool when completed before the creation of vaults for that pool.
- Any existing storage pool can be expanded with a new ZSS set.
- ZSS outperforms older designs in most user observable cases and demonstrates much better resiliency to power outages and other system conditions.
- ZSS enables the use of Host Managed Shingled Magnetic Recording (SMR) hard drives. SMR enables higher capacity than conventional Perpendicular Magnetic Recording (PMR) hard drives.

See the Zone Slice Storage feature description for more information.

⚠️ **Attention:** Embedded accesser device users only, see the section on Performance Considerations in the Embedded Accesser Appliance Service Guide.

Advanced Configuration Parameters for Storage Sets (1654)

The IBM COS system currently allows a user to apply advanced configuration parameters at the **global**, **storage pool**, or **device** levels. This feature adds functionality in the Manager User Interface and associated REST API to update advanced configuration parameters at the set level on a **storage pool**.

Chapter 3. Interface Modifications

API updates for the 3.15.1 release have been referenced in the following documentation:

- Container Mode Service API Guide
- CSO API 2.5 Developer Guide
  - COS-71196, hard quota support for buckets was originally added as part of F1342 (update to service API). In the course of development for F1616, the following fix was added. First, it was found that the response when the hard quota is exceeded was using vault mode terminology. As part of the fix, the **<Code>** and **<Message>** fields were updated to the output below.

```
 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Error>
    <Code>BucketQuotaExceeded</Code>
    <Message>The specified bucket hard quota has been exceeded.</Message>
    <Resource>/container/test</Resource>
    <RequestId>00000000-0000-0000-0000-000000000000</RequestId>
    <httpStatusCode>507</httpStatusCode>
</Error>
```

API updates for the 3.15.0 release have been referenced in the following documentation:

- REST API Developer Guide

Chapter 4. Resolved Issues

Resolved issues in 3.15.1 October Maintenance

Table 1. Resolved issues	
Issue	**Description**
COS-75266	In prior releases of the Concentrated Dispersal (CD) feature (3.12 and later), the re-calculation of weights for CD sets was not being performed properly. The Manager will now re-calculate weights for CD sets if the storage pool is expanded or a set is removed/replaced. Furthermore, the Manager will notify the operator a CD set can be resized if usable capacity has changed. This behavior was previously suppressed for CD sets and was only available to standard storage pool sets.
COS-75788	Resolved an issue that prevented manual tuning of request scheduling on Slicestor appliances.

Resolved issues in 3.15.1 September Maintenance

Table 2. Resolved issues	
Issue	**Description**
COS-75370	Resolved an intermittent issue where a Slicestor device would occasionally experience hung I/O operations under heavy load, which would result in the storage service being shutdown.

Resolved issues in 3.15.1

Table 3. Resolved issues	
Issue	**Description**
COS-71105	In previous releases, hard quota was not being enforced for POST object requests. Starting from 3.15.1, check against the hard quota has now been added and will be enforced for POST object requests going forward.

Resolved issues in 3.15.0

Table 4. Resolved issues	
Issue	**Description**
COS-70873	Resolved an issue to prevent network saturation under certain conditions.
COS-63621	Resolved an issue where a DLM crash could have caused corruption of configuration database

Chapter 5. Product Alert Notifications

IBM clients with an IBM ID may sign up to receive product alert notifications that contain important information that may impact the use of the IBM Cloud Object Storage System™. In order to receive these notifications, clients need to subscribe to the "IBM Cloud Object Storage System™" product in MyNotifications. The table below represents the alert notifications that are applicable while running this latest version of ClevOS at the time of this release note publication. For any questions regarding the content of these product notifications, contact IBM Support.

Table 5. Product Alert Notifications for the IBM Cloud® Object Storage System			
Alert Notification Title	**Impacted ClevOS Releases**	**Fixed ClevOS Releases**	**Alert Notification Published Date**
Issue with CD mode Storage Pool Expansion, Set Replacement and Set Removal	3.15.1.48 and prior	3.15.1.52	Oct 12, 2020
Sequential named writes may see a performance degradation	3.15.0.73, 3.15.0.75, 3.15.1.43, 3.15.1.48, 3.15.1.52	3.15.0.77, 3.15.1.55	Oct 8, 2020
Issue with adding multiple drives in a IBM COS Slicestor® appliance	All ClevOS releases	Not Available	Jul 20, 2020
A firmware issue can cause IBM COS Gen2 HW nodes to fail to boot up	ClevOS independent	Not Applicable	Jun 18, 2020
Java™ version incompatibility preventing IPMI access	ClevOS independent	Not Applicable	Mar 12, 2018
IPMI Configured via nut Command Does Not Persist on Device Restart	ClevOS independent	Not Applicable	Jun 27, 2017
Drive-managed Shingled Magnetic Recording (SMR) drives are not approved and should not be used with named-object protocol workloads	ClevOS independent	Not Applicable	Mar 16, 2017
IBM COS Slicestor® 2584 Fails to Attach Drives	ClevOS independent	Not Applicable	Feb 2, 2017

Chapter 6. Known issues

Table 6. Known issues		
Issue	**Failing Condition**	**Disposition**
COS-66590	An issue with the BMC firmware on IBM Cloud Object Storage Gen2 Hardware (A10/M10/C10) may result in the node failing to successfully boot up following a reboot.	This issue will be fixed in a future release.
COS-58128	DLM cannot process more than 16 hot-swap events at once.	This issue will be fixed in a future release.
COS-67728	When searching for an Organization via the Manager User Interface, an autocomplete list of items is displayed for all Organization names that match. However, when an item is selected from the list, the user is redirected to the wrong page.	Instead of selecting an item from the autocomplete list directly, hit enter (return) after the item being searched. This will display the Search Results page, where links to all matched items are displayed. From this page, click on the link of interest.
COS-56141	In some circumstances, audit messages that are displayed in the Event Console may not show the correct value for a configuration change, particularly SNMP polling versions and alert forwarding SNMP configuration changes.	A follow-on release will address this issue.
COS-50579	There is a known issue where slice data being reallocated from one Slicestor device to another would not be appropriately removed from the source Slicestor device if the reallocation process was erroneously marked as complete."	This issue still exists in 3.14.3 because the change was reverted in the latest fix.
COS-11201	In the Event Console of the Manager User Interface, the event details section for failing disk migration events contains a parameter that is called Migration Progress. However, it is not clear what this value represents.	This value corresponds to the percentage of failing disk migration that is complete.
COS-11355	Replacing a failed drive with another failed drive results in an inconsistent view on the Manager User Interface. On the Monitor Device page, in the "Summary of device health" section, both the replaced failed drive and the new failed drive are shown. The "Drive Information and Actions" view of the drive layout shows the replaced failed drive. On the Maintenance page, the FRU report contains the replaced failed drive.	Perform another replacement of the failed drive with a good drive.

Table 6. Known issues (continued)		
Issue	**Failing Condition**	**Disposition**
COS-13575	The "stop migration" operation for failing disk migration on the Manager User Interface (UI) can take ~20 seconds to complete after being initiated by the user. The button continues to be enabled during this time. This issue exists for dispose and reset disk operations as well.	Do not hit the button again until the operation completes. If the drive stays in the same state for more than 20 seconds, perform a refresh of the page. If the drive continues to stay in this state, follow the recommended action that is provided in the Manager Administration Guide under disk lifecycle management.
COS-10031	When resuming a drive in the DIAGNOSTIC state from the Manager User Interface, it can take ~20 seconds to complete. The resume button is not disabled during this time.	Do not hit the resume button until the operation completes. If the drive stays in the DIAGNOSTIC state for more than 20 seconds, perform a refresh of the page. If the drive continues to stay in this state, follow the recommended action that is provided in the Manager Administration Guide under disk lifecycle management.
COS-10445	When using the storage command from the localadmin shell on a Slicestor device, it is possible to resume all drives that are currently in the DIAGNOSTIC state. However, in some cases , this process can take too long, which will cause the command to return an error code -15 due to a timeout.	Despite the error, the resume process is continuing in the background. The storage list command can be used to monitor the progress of resume process.
COS-7488	When performing a storage pool set removal, it is possible that once the reallocation has finished for a source Slicestor device, it can show some small amount of data still present.	No action is required. Once the set removal has completed, all slices have been reallocated to the new storage pool. Any discrepancy in a Slicestor device's used space is generally a result of small inaccuracies that can occur during normal usage of the system.
COS-13504	When failing a quarantined drive, it is possible that after data has been migrated off the failing drive, the Manager event console will report that no data migration was attempted.	No action is required. Despite the event description, data migration will always be attempted unless the user specifically chooses to skip migration via the localadmin shell storage command.
COS-22921	When someone attempts to delete a bucket they first need to determine the assesser that can be used to issue the command. The S3 GET Bucket Location is one means to determine this. However,this command cannot work at every access pool.	Enhancing the S3 GET Bucket Location as a corner case command that can work at any access pool will be addressed in a future release.

Issue	Failing Condition	Disposition
Table 6. Known issues (continued)		
Issue	**Failing Condition**	**Disposition**
COS-22990	The S3 remote proxy implementation of vault proxy has a few limitations that are related to communicating with an Amazon S3 endpoint. The version of the AWS SDK used to communicate to Amazon defaults to using V2 instead of V4 authentication, causing authentication issues when communicating with certain AWS endpoints.	For further assistance in configuring a remote proxy for use with Amazon S3, contact IBM customer support.
COS-23025	SL 4U Slicestor devices, LEDs are incorrectly set.	Recovery Action: The user can use MegaCLI/storcli commands to issue LED actions before performing disk replacements. This will be fixed in a future release.
COS-23962	Vault quotas are static and do not update when storage pool capacities change. If a system expansion, set replacement, or set removal is performed on the storage pool, vault quotas for any vaults on that pool will not update to consider the new capacity.	The user-defined vault quotas work as expected. However, they cannot be consistent with the current storage pool capacity. For example, a vault quota can be higher than total storage pool capacity after a set removal.
COS-22924	When you upgrade the Manager to ClevOS 3.10.1 or newer for the first time, you might not be able to log in immediately. The Manager application might need an extra 20 - 30 minutes to become available due to database schema changes introduced in ClevOS 3.10.1. On systems with large databases, particularly systems with considerable historical event content, the time can be longer.	Contact Customer Support if it takes longer than 30 minutes to successfully log in to the Manager. Do not attempt to restart the Manager while it is upgrading.
COS-26214	Lack of documentation highlighting dependencies of Hadoop-connector package with GA releases.	For legacy customers who are still using Hadoop connector for ClevOS software, please contact IBM customer support to install a new package compatible with latest build.
COS-29681	When using the Microsoft IE9 web browser, certain Manager user interface elements like the left navigation panel and the vault capacity bar charts on the Monitor Vault page cannot appear.	Microsoft has ended support of IE9 and IE10. Users should upgrade to Microsoft IE11 or higher, or use an alternative browser, such as Firefox, Safari, or Chrome.
COS-40881	The Manager REST API Edit Authentication Mechanism does not correctly update the value of the Hiding Secret Access Key flag and returns a status code 200. The flag is visible on the Security tab of the Manager UI.	This issue is resolved in a subsequent release.
COS-64358	If an Accesser device restarts during a cycle , a small number of object deletions may be delayed up to 72 hours.	This issue will be fixed in a future release.

Table 6. Known issues (continued)		
Issue	**Failing Condition**	**Disposition**
COS-65701	The first time you modify a device, you may see an audit message that indicates the management vault was unassigned. This is benign. Note that modifying a storage pool could also trigger this audit message for all devices in that pool or a subset of them. The Configure Device page on the Manager UI will show the correct management vault.	This issue will resolve itself as configuration changes are made to the devices in the system.

Upgrading and Installation

Table 7. Upgrading and Installation		
Issue	**Failing Condition**	**Disposition**
COS-7126	When extracting of upgrade file fails when a device is upgrading the failure message "The Selected File cannot be extracted while upgrades are in progress" continue to show if upload is restarted.	Only one upgrade file can be uploaded to the manager at a time. If another file is uploaded during an upgrade, an error message appears until the page is reloaded.
COS-15372	When upgrading from ClevOS 3.8.x, 3.9.x, or 3.10.0 to 3.10.1 or later, all drives not used for Slicestor data (for example, OS drives) will be reported as newly discovered in the Manager event console.	No action is required.

Container

Table 8. Container		
Issue	**Failing Condition**	**Disposition**
COS-1852	When attempting to write an object to a container that does not exist, the Accesser appliance returns an HTTP 404 response with an error message of NoSuchKey instead of the appropriate NoSuchBucket. This includes cases where the container name includes a "/".	Ensure that your vault or container is successfully created before attempting to write objects to it. If you receive an error message of NoSuchKey for an upload request, verify that the container you are addressing does exist.
COS-15401	If a user attempts to create a management vault by using "manual configuration" (accessed through the Configure Management Vault page) based on an existing vault template, management vault creation fails with the following message: "Cannot create a management vault from this template. It is deployed to access pools with standard vaults"	Use the "automatic configuration" available on the Configure Management Vault page.
COS-15218	Container creation or deletion can sometimes result in 500 error responses when the requests are sent concurrently with other configuration requests to the same storage account.	Retrying the request that received a 500 is a suggested recovery action. It's best to retry the request when not doing other operations on the same storage account.

Alerting and Reporting

Table 9. Alerting and reporting		
Issue	**Failing Condition**	**Disposition**
	Nothing to report.	

System Behavior

Table 10. System behavior		
Issue	**Failing Condition**	**Disposition**
COS-2498	The usage of a disk is counted while the disk is offline. However, its capacity is not counted.	No action. Awareness of limitation. If necessary, a restart of core would fix the usage values. Limit DLM events.
COS-2128	In a GDG configuration with high request latency to the remote stores and low latency to local stores, an Accesser Appliance opens multiple connections to the remote stores and a single connection to local stores. Large bursts of IO can overwhelm the single local connection, resulting in elevated response times and operation latencies.	Using the System Advanced Configuration framework, the Accesser Appliance can be configured to open multiple connections to local stores, allowing it to better handle burst of IO activity. The parameter to configure appropriately is network.connection-profile. Please refer to section 3 of the Advanced System Configuration guide for more details.
COS-1920	Support for "encoding-type" header when performing xml-based listing requests is not currently provided.	This feature is not currently supported.

Storage Pools

Table 11. Storage pools		
Issue	**Failing Condition**	**Disposition**
COS-2642	On the *Monitor Storage Pool Page, the **Reallocation Progress** graph, which displays historical data, is inaccurate when a device is down or statistics are not collected for a window of time.	The **Data Reallocation** progress bar, available at the top of the *Monitor Storage Pool Page, is always accurate. This view reflects the status and should be used to monitor progress of the data reallocation activity.

Data Evacuation

Table 12. Data evacuation		
Issue	**Failing Condition**	**Disposition**
	Nothing to report.	

System Configuration

Table 13. System configuration		
Issue	**Failing Condition**	**Disposition**
	Nothing to report.	

Deleting objects

Table 14. Deleting objects		
Issue	**Failing Condition**	**Disposition**
9444	If a system is 100% full, customers might encounter an HTTP 500 error if they attempt to delete objects larger than the embedded content threshold (<1MB S3, >4MB SOH for default segments size). This issue has existed since release 3.0. It occurs because deleting large objects causes an intermediate write that appears larger to a Slicestor® Node, causing that node to fail the request due to an insufficient space error.	Contact IBM Support. They must use a development-provided procedure to free up disk space.

Manager Web Interface

Table 15. Manager Web Interface		
Issue	**Failing Condition**	**Disposition**
COS-13189	For drives that do not have a SCSI name, some Disk Lifecycle Management (DLM) actions, such as resume and fail, performed through the Manager User Interface (UI) will fail.	Use drive serial number to perform the action from the command line. Obtain drive serial number information by executing (see SERIAL column): # storage list Perform the operation based on the drive serial number (Z29010L5), for example: # storage fail Z29010L5
COS-10031	When resuming a drive in the DIAGNOSTIC state from the Manager User Interface, it may take ~20 seconds to complete. The resume button is not disabled during this time.	Do not hit the resume button until the operation completes. If the drive stays in the DIAGNOSTIC state for more than 20 seconds, perform a refresh of the page. If the drive continues to stay in this state, follow the recommended action that is provided in the Manager Administration Guide under disk lifecycle management.
COS-23764	Upon network failure while going through the one time setup process in the manager, a network error page appears. When the network comes back, reload the page, at which point an internal server error page appears in some scenarios.	Log out of the internal server error page and log back into the manager, which will take you through one time setup again.

Vaults

Table 16. Vaults		
Issue	**Failing Condition**	**Disposition**
	Nothing to report	

Vault Mirrors

Table 17. Vault mirrors		
Issue	**Failing Condition**	**Disposition**
COS-7019	When performing IO against a vault mirror with synchronous writes disable, HEAD requests performed against a successfully written object may return an HTTP 404 response.	If an HTTP 404 is returned for a HEAD request for a recently written object, please retry your request.
COS-13370	Through the Manager User Interface (UI), after creating a mirror from a mirror template that has Authorized IP Addresses populated, the mirror does not contain the specified IPs.	Perform the following workaround. After the mirror is created, add the IPs using the Edit Mirror Access Control page.

Vault migration

Table 18. Vault migration		
Issue	**Failing Condition**	**Disposition**
COS-12442	When a vault migration finishes the work that is contained in its TODO queue, it kicks off a process to calculate the exact count of the number of objects that are migrated as part of the migration. This process of calculating the exact size is performed by each device in the target pool, and can take a long time to complete for large migrations.	

Chapter 7. Supported Hardware Platforms

IBM Cloud Object Storage Appliances

Table 19. Minimum Version of ClevOS Compatible with Cleversafe Hardware Platforms		
Appliance	**Product**	**Minimum ClevOS**
System Manager Appliance	M2100	≤2.7.0
System Manager Appliance	M2105	3.2.2
System Manager Appliance	M3100	2.7.0
IBM COS Accesser® Device	A2100	≤2.7.0
IBM COS Accesser® Device	A3100	≤2.7.0
IBM COS Slicestor® Device	S1440	≤2.7.0
IBM COS Slicestor® Device	S2104	3.2.1
IBM COS Slicestor® Device	S2212	3.2.1
IBM COS Slicestor® Device	S2440	3.0.1
IBM COS Slicestor® Device	S4100	3.1.0

Table 20. Minimum Version of ClevOS Compatible with IBM Hardware Platforms			
Product Name	**Machine Type (1Yr/3Yr Warranty)**	**Model**	**Minimum ClevOS**
IBM COS Accesser® 3105	3401/3403	A00	3.8.1
IBM COS Accesser® 4105	3401/3403	A01	3.8.1
IBM COS Accesser® 3110	4958/4957	A10	3.14.4
IBM COS Manager™ 2105	3401/3403	M00	3.8.1
IBM COS Manager™ 3105	3401/3403	M01	3.8.1
IBM COS Manager™ 3110	4958/4957	M10	3.14.4
IBM COS Slicestor® 2212	3401/3403	S00	3.8.1
IBM COS Slicestor® 2448	3401/3403	S01	3.8.1
IBM COS Slicestor®3448	3401/3403	S02	3.8.3
IBM COS Slicestor®2584 (AP-TL-1)	3401/3403	S03	3.8.1
IBM COS Slicestor®2584 (AP-LS-1)	3401/3403	S03	3.13.1
IBM COS Slicestor®2212A	3401/3403	S10	3.10.0
IBM COS Slicestor®12	4958/4957	C10/J10	3.14.4
IBM COS Slicestor®53	4958/4957	C10/J11	3.14.4
IBM COS Slicestor®106	4958/4957	C10/J12	3.14.4

Note: Requires RPQ

Hewlett Packard Enterprise

Table 21. Minimum Version of ClevOS Compatible with Hewlett Packard Enterprise Hardware		
Appliance	**Model**	**Minimum ClevOS**
Manager Appliance	DL360P Gen8	3.2.1
Manager Appliance	DL360 Gen9	3.5.0
Manager Appliance	DL380 Gen9	3.5.0
Accesser® Device	DL360P Gen8	3.2.1
Accesser® Device	DL360 Gen9	3.5.0
Accesser® Device	DL380 Gen9	3.5.0
Slicestor® Device	SL4540 Gen8	2.9.0
Slicestor® Device	DL380 Gen9	3.5.0
Slicestor® Device	Apollo 4200 Gen9	3.6.0
Slicestor® Device	Apollo 4510 Gen9	3.6.0
Slicestor® Device	Apollo 4510 Gen10	3.14.0
Slicestor® Device	Apollo 4530 Gen9	3.6.0

Seagate

Table 22. Minimum Version of ClevOS Compatible with Seagate Hardware		
Appliance	**Model**	**Minimum ClevOS**
Seagate OneStor®	AP-2584 1 AP-TL-1	3.4.2
Seagate Exos®	AP 5U84-Laguna Seca	3.15.0

Cisco

Table 23. Minimum Version of ClevOS Compatible with Cisco Hardware		
Appliance	**Model**	**Minimum ClevOS**
Cisco Slicestor® Device	UCS C3260	3.7.4
Cisco Slicestor® Device	UCS S3260 (Single Node)	3.12.0
Cisco Slicestor® Device	UCS S3260 (Dual Node)	3.12.0
Cisco Slicestor® Device	UCS S3260 M5 (56 drive configuration)	3.13.1
Cisco Slicestor® Device	UCS S3260 M5 (60 drive configuration)	3.14.3
Cisco Manager Appliance	UCS C220 M4	3.12.0
Cisco Accesser® Device	UCS C220 M4	3.12.0
Cisco Manager Appliance	UCS C220 M5	3.13.6
Cisco Accesser® Device	UCS C220 M5	3.13.6

Table 23. Minimum Version of ClevOS Compatible with Cisco Hardware (continued)		
Appliance	**Model**	**Minimum ClevOS**
Cisco Slicestor® Device	UCS C240	3.13.6

Dell

Table 24. Minimum Version of ClevOS Compatible with Dell Hardware		
Appliance	**Model**	**Minimum ClevOS**
Dell Slicestor® Device	DSS 7000	3.10.1
Dell Slicestor® Device	R740xd w/ HDD Support	3.14.1
Dell Slicestor® Device	R740xd w/ NVMe Support	3.14.2

Lenovo

Table 25. Minimum Version of ClevOS Compatible with Lenovo Hardware		
Appliance	**Model**	**Minimum ClevOS**
Lenovo Manager Appliance	X3550 M5	3.10.1
Lenovo Accesser® Device	X3550 M5	3.10.1
Lenovo Manager Appliance	X3650 M5	3.10.1
Lenovo Manager Appliance	SR630	3.13.6
Lenovo Accesser® Device	SR630	3.13.6
Lenovo Slicestor® Device	SR650	3.13.6

Quanta Cloud Technology (QCT)

Table 26. Minimum Version of ClevOS Compatible with QCT Hardware		
Appliance	**Model**	**Minimum ClevOS**
QCT Manager Appliance	QuantaGrid D51PH-1ULH	3.13.4
QCT Accesser® Device	QuantaGrid D51PH-1ULH	3.13.4
QCT Slicestor® Device	QuantaGrid D51PH-1ULH	3.13.4

Chapter 8. Incompatible Hardware and Firmware with ClevOS

The hardware components running firmware revisions listed below are incompatible with ClevOS due to the possibility of unexpected behavior.

Note: If you have any hardware on this list running the firmware revisions listed, please contact L3 support immediately to create an upgrade plan. You can determine your firmware revisions using the Firmware Report that is found under the Maintenance menu.

Broadcom

Table 27. Broadcom Hardware and Firmware Incompatibility with ClevOS

Type	Model	Firmware affected
RAID Controller	Broadcom MegaRAID 9361-8i	4.650.00-6121

Hewlett Packard

Table 28. HP Hardware and Firmware Incompatibility with ClevOS

Type	Model	Firmware affected
RAID Controller	HP-SL4540 Smart Array	6.64
iLO	HPE SL4540 Gen 8	2.30

IBM Cloud Object Storage Appliances

Table 29. IBM COS Hardware and Firmware Incompatibility with ClevOS

Type	Model	Firmware affected
USM	IBM COS Slicestor®2584 (AP-TL-1) 3401/3403 S03	4.1.7
BMC	A3105, A4105, M3105, S2212A, S2448	1.0.125362, 1.0.135362
BMC	A10,C10,M10	< .97
CPLD	A10,C10,M10	< 1818

Seagate

Table 30. Seagate Hardware and Firmware Incompatibility with ClevOS

Type	Model	Firmware affected
HDD	Seagate ST1000NM0033-9ZM173	SN04

Supermicro

Table 31. Supermicro Hardware and Firmware Incompatibility with ClevOS		
Type	**Model**	**Firmware affected**
BMC	Supermicro SSG-6048R-E1CR60N	3.60

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