IBM Cloud Object Storage System
Version 3.14.1

Release Notes

This edition applies to IBM Cloud Object Storage System™ and is valid until replaced by new editions.

Contents

Support information

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

Chapter 1. New Features and Improvements in ClevOS 3.14.1

Immutable Object Storage (1269)

Object Retention is supported for both Vault and Container Modes. In Vault Mode, you can create retention vaults or protected mirrors with immutable object storage policies and objects that are stored in these retention vaults or protected mirrors have an immutable object storage policy.

For Container Mode, you can create container vaults to allow object retention. When Retention is enabled for a container vault, you can create containers with an immutable object storage policy. Objects that are stored in these protected containers also have an immutable object storage policy.

Objects that are contained within retention vaults or protected containers cannot be deleted or modified until the immutable object storage policy allows for the deletion or overwrite. There are various ways to protect vaults or containers using the IBM Cloud Object Storage System to meet the needs of customers that have strict retention requirements from regulatory entities (such as the Security and Exchange Commission), or customers that might have organizational retention requirements, including finite retention, indefinite retention, permanent retention, and legal holds.

Before you upgrade to the 3.14.1 release, and to find more information on this feature, refer to the documentation listed in the reference table.

New Functionality

- Support for Immutable Object Storage in Container Mode
- Support for Permanent Retention
- System Level Configuration of Retention settings:
  - System Minimum Duration
  - System Maximum Duration
  - System Default Retention duration
  - Allow Permanent Retention
- Allows either Content MD-5 ***or*** V4 content signing for Write Operations
  - Previous releases required Content MD-5 even if V4 content signature was included
- S3 API updates to support permanent retention
  - Added flag for protection operations at bucket level to denote state of permanent retention
  - Updates to error codes and error messages
  - New error codes and error messages
  - Support of -2 for Object Retention-Period
    - -2 denotes permanent retention of object
- Access Log Updates
  - Additional failure messages included
  - New parameter added for bucket protection information to denote state of permanent retention
- Container Vault
  - Flag added to Container Vault Configuration to enable protection support
    - A protection policy can be added to a container only if the associated container vault is enabled for protection.
    - Enabling Protection for a container vault does not mean that all containers within that container vault must have protection that is enabled.

- Listing of buckets in a container that uses the service API shows that the protection is enabled/disabled

References to documentation that supports this feature:

Name	Location
Feature Description Document (discusses all features that are related to immutable object storage)	https://www.ibm.com/support/knowledgecenter/STXNRM
Manager Administration Guide	https://www.ibm.com/support/knowledgecenter/STXNRM
REST API Guide	https://www.ibm.com/support/knowledgecenter/STXNRM
COS API	https://www.ibm.com/support/knowledgecenter/STXNRM

Query number of parts with an MPU object (1176)

This feature provides support for the "part-number" query string for HEAD and GET requests for objects, which were uploaded using Multipart Upload (MPU). It supports querying the number of parts that are associated with an object that have been uploaded using MPU. This enables clients to parallelize large object reads by fetching the component parts in parallel. Additionally, this allows objects written using MPU to be copied while preserving the part boundaries of the original object thus preserving the duplicating etag for this object.

1. The part number query parameter can be provided for GET or HEAD requests.
   a. For a non-MPU object, a request to read part number 1 should be interpreted as a ranged read request for the entire object.
   b. For an MPU object, a request to read a part number should be interpreted as a ranged read request for the byte range that is associated with the requested part.
2. Part numbers must be between 1 and 10,000 (inclusive). Any request outside of this range will result in an HTTP 400 error. If a request is made for a part number that is beyond the range of the object, the response will be an HTTP 416 - Requested Range not satisfiable.
3. All ranged read responses must include the Content-Range header consistent with a ranged read response.

Chapter 2. New Features and Improvements in ClevOS 3.14.0

Indefinite Retention and Event-based Retention capability support (1247)

This feature update is now supporting the following items:

1. The ability to extend retention of an object from the current time using a new header (extend-retention-from-current-time). Refer to COS API documentation.
2. Interpretation of bucket max:

   Previous Releases: The total retention period (initial retention period + all subsequent retention extensions) applied to an object cannot exceed the bucket maximum.

   Current Release: The retention period being applied to an object in any single request cannot result in the expiration date of that object exceeding the bucket maximum + current time (i.e. cannot extend object beyond bucket maximum from current time)
3. This feature also provides users with the ability to write an object into a bucket with a retention period of -1. This value is used as a placeholder for a user to provide a finite retention period at a later time, through a POST ?extendRetention request. While the retention period of the object is set to -1, the object cannot be deleted or modified. Retention Period of -1 can only be set on the object metadata and can only be configured via an object write operation.
4. The ability for an application to store an object in the IBM Cloud Object Storage System with an indefinite retention period and then allow the object retention to be changed to a finite value. Third party applications can implement Event-based Retention through the use of the indefinite retention API.

Note: See supporting documentation in the Retention Vaults and Protected Mirrors FDD and COS API Guide.

Notification Service for IBM Cloud Object Storage (1074)

This feature supports the COS Notification Service which integrates the system with the Apache Kafka distribute streaming-platform as a producer. COS publishes a record each time an object is written, overwritten, or deleted. Notable benefits include:

- Supports Apache Kafka clusters for versions 0.10.2.1 and up
- A highly reliable implementation that survives system and network outages
- Supports multiple and different Kafka clusters
- Notification service is configurable on a vault-by-vault basis
- Distributed retry mechanism works around localized network issues
- Manager incident support to track Kafka cluster issues
- Notification content is easily parsed JSON structured text

Notifications can not be used on the following:

- Container vaults
- Mirrors
- Vaults with proxy
- Vaults with data migration

Chapter 3. Interface Modifications

API updates for the 3.14.1 release have been referenced in the following documentation:

- CSO API Developer Guide
  - Error Codes
  - Add protection to a bucket

    MinimumRetention, DefaultRetention, MaximumRetention, EnablePermanentRetention
  - List the protection configuration for a bucket

    EnablePermanentRetention
  - Upload a protected object

    Retention-Period, Retention-Expiration-Date
  - Upload a protected object using HTML webforms

    Retention-Period, Retention-Expiration-Date
  - Get the headers of a protected object

    Retention-Expiration-Date
  - Download a protected object

    Retention-Period, Retention-Expiration-Date
  - Copy a protected object or copy an object to a protected bucket

    Retention-Period
  - Extend the retention period of a protected object

    Additional-Retention-Period, New-Retention-Period, New-Retention-Expiration-Date, Extend-Retention-From-Current-Time
  - List legal holds on a protected object

    RetentionExpirationDate
  - Upload a part for a protected object
  - Complete a multipart upload for protected objects

    Retention-Period, Retention-Expiration-Date (edited)
- REST API Developer Guide
  - Updated section on Mirror Management>Create a Mirror

    New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

    Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod
  - Updated section on Mirror Management>Create a Mirror Template

    New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

    Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod
  - Updated section on Mirror Management>Edit a Mirror

    New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

    Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod
  - Updated section on Mirror Management>Edit a Mirror Template

New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod

- Updated section on Vault Management>Create a Vault

  New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

  Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod

- Updated section on Vault Management>Create a Vault Template

  New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

  Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod

- Updated section on Vault Management>Edit a Vault

  New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

  Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod

- Updated section on Vault Management>Edit a Vault Template

  New Request parameters: permanentRetentionEnabled and defaultPermanentRetentionDurationEnabled

  Revised Request parameters: minimumRetentionPeriod, maximumRetentionPeriod and defaultRetentionPeriod

- NEW section added for Configure Vault Protection

  New Request parameters: vaultProtectionEnabled, systemMinRetentionPeriod, systemMaxRetentionPeriod, systemDefaultRetentionPeriod and systemPermRetentionEnabled

API updates for the 3.14.0 release have been referenced in the following documentation:

- CSO API Developer Guide
  - Updated section on API reference>Operations on objects

    New valid value of -1 for the Retention-Period header, which indicates indefinite retention:

    - Requests
    - Upload a protected object
    - Upload a protected object using webforms
    - Get an object's protection configuration
    - Copy a protected object
    - Complete a multipart upload for protected objects
    - Responses
    - Download a protect object

    New header Extend-Retention-From-Current-Time:

    - Requests
    - Extend retention period of a protected object
- REST API Developer Guide
  - Added new section on Administration>Add notification service configuration
  - Added new section on Administration>Edit notification service configuration
  - Added new section on Administration>Delete notification service configuration

- Added new section on Administration>Edit notification service configuration assignment
- Updated section on Vault Management>Create a vault
  New Request parameters: notificationServiceTopicOverride and notificationServiceConfigurationId
- Updated section on Vault Management>Create a vault template
  New Request parameters: notificationServiceTopicOverride and notificationServiceConfigurationId
- Updated section on Vault Management>Edit a vault
  New Request parameters: notificationServiceTopicOverride and notificationServiceConfigurationId
- Updated section on Vault Management>Edit a vault template
  New Request parameters: notificationServiceTopicOverride and notificationServiceConfigurationId

API updates for the 3.13 release have been referenced in the following documentation:

Feature Limitations:

COS-31712: If a user uses **createVault** and specifies retention periods, but does not specify the **protectionState** or the **protectionState** is specified as disabled' the user should expect a reject where as in previous releases of the software, the retention periods would have simply been ignored.

COS-34240: Changed **retention-legal-hold-count** header to lower-case for consistency with other retention header responses.

- CSO API Developer Guide
  - Mirror-Destination header for GET /bucket, GET /bucket?acl, GET /bucket?cors, GET /bucket?uploads, GET /object, HEAD /object, GET /object?legalhold
  - Maximum number of days for retention periods settings is 36159 days
  - Value for the "Status" parameter is now "Retention" (it was "Compliance" before)
  - New methods:
    POST /object (Specify retention periods and add a single legal hold to a protect object with webforms)
    POST /object?extendRetention (Extend the retention period of a protected object)
- Device API Guide
  - Updated section on Device API Reference>State
    New raid section added
    State -> raid
    Updated JSON and Response Parameters Table to include:
    - New Response parameter: raidStatus
    - New Response parameter: arrayHealth
  - Updated section on Device API Reference>Statistic
    Updated JSON and Response Parameters Table to include:
    - New Response parameter: applianceLayout
    - New Response parameter: applianceType
    New Response section: capabilities -> {monitoring, visualization and other capabilities available on the device - see Device API guide for details}
    New Response section chassis -> [discrete enclosure units that describes hardware entity information - see Device API guide for details]
    New Response section driveThresholds -> { total, warning and error thresholds by drive usage type - see Device API guide for details}
    New Response section raid -> arrayHealth parameter
- REST API Developer Guide

- Updated section on Mirror Management>Create a Mirror

  New Request parameters: protectionState, minimumRetentionPeriod, maximumRetentionPeriod, defaultRetentionPeriod, and restrictiveAccessControlEnabled
- Updated section on Mirror Management>Create a Mirror Template

  New Request parameters: protectionState, minimumRetentionPeriod, maximumRetentionPeriod, defaultRetentionPeriod, and restrictiveAccessControlEnabled
- Updated section on Mirror Management>Edit a Mirror

  New Request parameters: protectionState, minimumRetentionPeriod, maximumRetentionPeriod, and defaultRetentionPeriod
- Updated section on Mirror Management>Edit a Mirror Template

  New Request parameters: protectionState, minimumRetentionPeriod, maximumRetentionPeriod, defaultRetentionPeriod, and restrictiveAccessControlEnabled
- Updated section on Vault Management>Create a Vault

  New Request parameter: restrictiveAccessControlEnabled
- Updated section on Vault Management>Create a Vault Template

  New Request parameter: restrictiveAccessControlEnabled
- Updated section on Vault Management>Edit a Vault Template

  New Request parameter: restrictiveAccessControlEnabled
- Updated section on Reports>Disk drive and device report>Response

  Updated JSON

  New Response parameter: chassisId

  New Response parameter: enclosureId

  New Response parameter: slotId
- Updated section on Reports>Failed field replaceable unit report>Response

  Updated JSON

  New Response parameter: chassisId

  New Response parameter: enclosureId

  New Response parameter: slotId
- Updated section on Reports>Firmware report>Response

  Updated JSON

  New Response parameter: chassisId

  New Response parameter: enclosureId

  New Response parameter: slotId
- Updated section on Reports>Storage pool capacity and disk report>Response

  Updated JSON

  New Response parameter: chassisId

  New Response parameter: enclosureId

  New Response parameter: slotId
- Updated section on Administration>View system configuration>Response

  Updated JSON

  New Response parameter: driveTotalCount
- Updated section on Device management>Device drive bay nut enclosure action

  Updated description

  Updated HTTP

  Updated Curl

  Response>New Response parameter: chassisId

Response>New Response parameter: enclosureId

Response>New Response parameter: slotId

API Changes 3.14.1

COS-42959: The AWS V4 content-sha256 is not always verified when present, and change an error message.

On-prem Vault mode WORM change in behavior:

- For a PUT protection request, either the content-md5 of the request body xml must be provided, or if using a V4 signature, the provided x-amz-content-sha256 must contain the actual hash instead of "UNSIGNED_PAYLOAD".

(The current on-prem vault mode protection does not require content verification (content-md5 or sha256) on the put protection request)

Change in behavior for regular requests with regard to content-sha256 verification:

- If using a V4 signature with a multipart upload PUT part, and the provided x-amz-content-sha256 contains the actual hash instead of "UNSIGNED_PAYLOAD", then that hash will be validated against the payload.
- If using content-md5 with a multipart upload PUT part or a write extent PATCH request, and the content-md5 is valid, but does not match the calculated payload hash, then the error code will be "BadDigest" now instead of "InvalidDigest".

API Changes 3.14.0

COS-42241: Release Note for CSAFE-9996

The 'settings' object in the viewSystem.adm method has been modified. The attributes accessPoolProtocolType, accessServicePorts, certificateExpirationNotificationDays have been removed.

Note: Removed content for the above attributes from the code in View System Configuration>Response>JSON Response Example .

API Changes 3.13.5

COS-42414: DOC UPDATES related to CSAFE-37117

In 3.13.5, code updates to support URL encoding for List Responses is available.

The below feature flag is used currently to disable the feature.

s3.listing-encoding-enabled = false

Once enabled the results for certain response elements will be URL encoded and users need to make corresponding updates if they are using the encoding-type in the requests.

For all the below operations, we now support a method to encode certain response elements using URL encoding in the response being sent. This is in compliance with AWS S3 API Version 2006-03-01. 1.

1. GET BUCKET (List Objects) Version 1

   When the Get Bucket list v1 request includes encoding-type element and when the method is set to URL, the response will URL encode the elements - Delimiter, Marker, Prefix, NextMarker and Key.
2. GET BUCKET (List Objects) Version 2

When the Get Bucket list v2 request includes encoding-type element and when the method is set to URL, the response will URL encode the elements - Delimiter, Prefix, ContinuationToken, Key and StartAfter.

3. GET BUCKET Object Versions

   When the GET Bucket Object versions request includes encoding-type element and when the method is set to URL, the response will URL encode the elements - Delimiter, Prefix, Key, KeyMarker and NextKeyMarker.

4. LIST MULTIPART Uploads

   When the LIST Multipart Uploads request includes encoding-type element and when the method is set to URL, the response will URL encode the elements - Delimiter, Prefix, Key, KeyMarker and NextKeyMarker.

5. LIST PARTS

   When the LIST Parts request includes encoding-type element and when the method is set to URL, the response will URL encode the elements - Key Please refer to AWS S3 API reference for detailed notes for the above requests

Note: Please refer to AWS S3 API reference for detailed notes for the above requests.

API Changes 3.13.4

COS-33549: Device API

State API

When a device is upgraded, any existing disabled drive bay power control states in the openExternalEvents object are removed from the State API.

Statistic API

- Several hardware components such as chassis, enclosure, voltage sensors, fan sensors, power supply sensors, and drive configurations are reported in a new format.
- The voltage, fan, and power supply statistics are reported as properties of a **chassis**object instead of the root of the JSON output. However, statistics in the old format are available for backwards compatibility through the advanced configuration settings of the Manager application. For more information on this advanced configuration setting, contact IBM Customer Support.
- For voltage statistics, **maximum_voltage** and **minimum_voltage** readings are removed. Instead, a **status** property is added. The status can be OK, DISABLED, CRITICAL, UNKNOWN, or NOT_PRESENT.
- For fan statistics, **maximum_speed** and **minimum_speed** readings are removed. Instead, a **status** property is added. The status can be OK, DISABLED, CRITICAL, UNKNOWN, or NOT_PRESENT.
- For CPU temperature statistics, **maximum_temperature** has been removed. Instead, a **status** property is reported. The status can be OK, DISABLED, CRITICAL, UNKNOWN, or NOT_PRESENT.
- Drives now report specific usage types. Valid drive usage types are data, os, osSpare, database, and unknown.
- Drives have a new format for reporting bay identifier. It uses the three new identifiers (**chassis_id**, **enclosure_id** and **slot_id**) and concatenates them together to create the drive bay identifier.
- The enclosure object for listing drive bays with power control capability is no longer available in the root of the JSON by default. The drive bay power control statistics can now be found in **chassis[].enclosure[].slots[].phy**.The legacy enclosure object is available for backwards compatibility through the advanced configuration settings of the Manager application. For more information on this advanced configuration setting, contact IBM Customer Support.
- PCI addresses have been removed from network interface sections in device statistic API.

API Changes 3.13.3

Information on the Get Bucket V2 APIs can be found the COS API guide.

Chapter 4. Resolved Issues

Resolved issues in 3.14.1

Table 1. Resolved issues

Issue	Description
COS-41430	If a device doesn't respond to a manager's "Force Kill" request during an upgrade, the manager will no longer initiate upgrades on devices that are waiting in the upgrade queue. The manager will also be unable to remove devices from the upgrade queue. This issue is resolved in this release.
COS-45556	BMC Status Missing from Statistic API. This issue is resolved in this release.
COS-43901	Resolved an issue where Put-Copy request between two different compliance enabled Mirror causes 500 Error.
COS-45018	Resolved an issue where Presigned URL for PUT object and POST(form) returns 403 SignatureDoesNotMatch

Resolved issues in 3.14.0

Table 2. Resolved issues

Issue	Description
COS-41430	If a device doesn't respond to a manager's "Force Kill" request during an upgrade, the manager no longer initiate upgrades on devices that are waiting in the upgrade queue. The manager is unable to remove devices from the upgrade queue. This issue has now been resolved.
COS-12691	Instability has been observed when running two 40 Gbit links in LACP mode.
COS-12983	Virtual devices running ClevOS within VMware may experience a kernel panic when migrating the virtual machine to a new server using VMware (R) vMotion (tm).
COS-16114	On systems with RAM roughly equal to or greater than the size of the OS drive, a kernel panic may result in the system being in an unusable state.
COS-41035	In 3.13.4 with a mixed release system containing devices on a lower release compared to the Manager, when a drive is failed from the UI, the Monitor Device page displays an incomplete message "diskFailSuccess."
COS-1749	After recovering from an unresponsive IPMI controller, the open incident in the Manager event console sometimes fails to clear. The open incident is misleading, but has no impact on the system operation.

Chapter 5. Known issues

Table 3. Known issues

Issue	Failing Condition	Disposition
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.
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.

Table 3. Known issues (continued)

Issue	Failing Condition	Disposition
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 can not 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.
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 can not 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-27469	When performing a PUT-COPY operation, a request header is used to specify the source of the copy operation. If this header is specified, but with an empty value, the request is expected to fail with an HTTP 400® - Bad Request. Instead, the object is being successfully created but with empty content.	This will be fixed in a future release.
COS-29681	When using the Microsoft IE9 web browser, certain Manager user interface elements like the left navigation tree and the vault capacity bar charts on the Monitor Vault page can not 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-39184	After triggering a storage pool expansion, set replacement or set removal, the audit indicating "The storage was modified. The size was changed from size1 to size2" can show incorrect size values.	The audit message is corrected in a subsequent release.
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.

Upgrading and Installation

Table 4. 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 5. 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 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 6. Alerting and reporting

Issue	Failing Condition	Disposition
	Nothing to report.	

System Behavior

Table 7. 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

Table 7. System behavior (continued)

Issue	Failing Condition	Disposition
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 8. 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 9. Data evacuation

Issue	Failing Condition	Disposition
	Nothing to report.	

System Configuration

Table 10. System configuration

Issue	Failing Condition	Disposition
	Nothing to report.	

Deleting objects

Table 11. 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 12. 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 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 will appear. When the network comes back, re-load the page, at which point an internal server error page will appear in some scenarios.	Log out from the internal server error page and log back into the manager, which will take you through one time setup again.
COS-41545	As part of System NTP Configuration in the Manager UI, entering a comma separated list of NTP servers in the External NTP Servers field saves the comma as part of the NTP Server. The NTP server plus comma is rejected as an NTP server, resulting in it not being listed in ntpq -pn output and not taking effect.	Enter a space separated list of NTP servers in the External NTP Servers field.

Vaults

Table 13. Vaults

Issue	Failing Condition	Disposition
	Nothing to report	

Vault Mirrors

Table 14. 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 15. Vault migration

Issue	Failing Condition	Disposition
COS-12442	When a vault migration finishes the work contained in its TODO queue, it kicks off a process to calculate the exact count of the number of objects 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 6. Supported Hardware Platforms

IBM Cloud Object Storage Appliances

Table 16. 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 17. 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® F5100	3401/3403	A02	3.8.3
IBM COS Accesser® T5100	3401/3403	A02	3.10.1⌂
IBM COS Manager™ 2105	3401/3403	M00	3.8.1
IBM COS Manager™ 3105	3401/3403	M01	3.8.1
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

Note: ⌂ Requires RPQ

Hewlett Packard Enterprise

Table 18. 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

Table 18. Minimum Version of ClevOS Compatible with Hewlett Packard Enterprise Hardware (continued)

Appliance	Model	Minimum ClevOS
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 19. Minimum Version of ClevOS Compatible with Seagate Hardware

Appliance	Model	Minimum ClevOS
Seagate OneStor®	AP-2584 1 AP-TL-1	3.4.2

Cisco

Table 20. 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 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
Cisco Slicestor® Device	UCS C240	3.13.6

Dell

Table 21. Minimum Version of ClevOS Compatible with Dell Hardware

Appliance	Model	Minimum ClevOS
Dell Slicestor® Device	DSS 7000	3.10.1
Dell Slicestor® Device	R740xd	3.13.4

Lenovo

Table 22. 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 23. 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 7. 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 24. Broadcom Hardware and Firmware Incompatibility with ClevOS

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

Hewlett Packard

Table 25. HP Hardware and Firmware Incompatibility with ClevOS

Type	Model	Firmware affected
RAID Controller	HP-SL4540 Smart Array	6.64

IBM Cloud Object Storage Appliances

Table 26. 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

Seagate

Table 27. Seagate Hardware and Firmware Incompatibility with ClevOS

Type	Model	Firmware affected
HDD	Seagate ST1000NM0033-9ZM173	SN04

Supermicro

Table 28. Supermicro Hardware and Firmware Incompatibility with ClevOS

Type	Model	Firmware affected
BMC	Supermicro SSG-6048R-E1CR60N	3.60

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