



Release Notes for COS 3.5.2

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These release notes describe the features and caveats for all releases in the Cisco Cloud Object Storage (COS) Release 3.x train.

These release notes are updated with each release in the train. This update adds information for Cisco COS Release 3.5.2. For a list of the caveats that apply to this release, see [Caveats, page 10](#).

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Introduction

COS provides distributed, resilient, high-performance storage and retrieval of binary large object (blob) data. Object storage is distributed across clusters of hardware systems, or nodes. Each storage cluster is resilient against hard drive failure within a node and against node failure within the cluster. Nodes can be added to or removed from a cluster as needed to provide for changes in cluster capacity.

The primary interface for managing COS content is the OpenStack Swift API, with enhancements to improve quality of service when accessing large media objects. COS includes the COS Service Manager (SM) web GUI, which uses REST APIs to simplify COS setup and management. COS also includes a command-line interface (CLI) for management of remote or programmatic content. In addition, COS provides an authentication and authorization service using the OpenStack Swauth API.

Through its various management interfaces, COS provides access to large media objects, maintains high quality of service, supports cluster management, and coordinates the replication of data across sites to improve resiliency and optimize the physical location of stored data.

New Features

COS Release 3.5.2 includes the following new features and enhancements:

- Official support for installation on Cisco UCS C3260 Dual Node Server hardware
- Pre-installation scripts included for configuring UCS C3160 and C3260 *
- Supports remote COS client installation via Intel Preboot Execution Environment (PXE)
- Cluster configuration wizard and template added to COS Service Manager GUI
- Includes optimizations for improved TCP transmit performance
- Incorporates other minor enhancements and bug fixes

* C3260 single node service is logically supported; however, COS 3.5.2 is fully qualified only for dual node service.

Related Software Products

COS 3.5.2 can be implemented as a managed service of the Cisco Media Origination System (MOS) Platform. In this configuration, COS content is managed through the MOS Service Manager (SM) web GUI.

COS 3.5.2 can also work together with Cisco Videoscape Distribution Suite Video Recording (VDS-VR) through Release 4.1.5 to serve as the storage archive for recorded video programming.

Feature Overview

Table 1 provides an overview of the COS features. For full descriptions of these features, see the *Cisco Cloud Object Store Release 3.5.2 User Guide*.

Table 1 Overview of COS Features

Feature Set	Features
Cisco UCS and CDE Server Support	<ul style="list-style-type: none"> Supports installation on the following hardware: <ul style="list-style-type: none"> Cisco UCSC C3260-4U3 Dual Node Rack Server with 56 x 6 TB hard drives (336 TB total storage), giving 28 drives (168 TB) to each server node Cisco UCSC C3160-4U2 Rack Server with 54 x 6 TB hard drives (324 TB total storage) Cisco UCSC C3160-4U1 Rack Server with 54 x 4 TB hard drives (216 TB total storage) Cisco Content Delivery Engine CDE465-4R4 with 36 x 6 TB hard drives (216 TB total storage) COS 3.5.2 provides a pre-installation script to configure the C3260 server for single or dual node service.
Intel Preboot Execution Environment (PXE) Support	<ul style="list-style-type: none"> PXE can be used to download a network bootstrap program (NBP) to remotely install a COS client over a network.
Improved TCP Transmission	<ul style="list-style-type: none"> COS 3.5.2 includes optimizations to improve TCP transmit performance.
Automated Node Configuration	<ul style="list-style-type: none"> One configuration file for all COS nodes can be stored on the PAM or an HTTP server and then downloaded by the COS initialization routine (cosinit). Single downloadable configuration file eliminates the need to configure nodes individually via the COS Service Manager GUI.
COS Service Manager GUI	<ul style="list-style-type: none"> Lets you quickly and easily access many COS deployment, monitoring, and alarm functions. Displays storage, network bandwidth, session count, and alarms for individual COS disks, nodes, services, and interfaces. Includes a graphical display of deployment statistics and trends related to disk, service, and interface status. Supports configuration of COS node service interface from the GUI. Supports setting of resiliency policies on a per-node basis from the GUI. Includes the COS Configuration Wizard, which provides guided steps for configuring a COS cluster.

Table 1 Overview of COS Features

Feature Set	Features
High Availability (HA)	<ul style="list-style-type: none"> • COS supports HA as implemented in MOS, providing redundancy for the PAM VMs. The PAM uses both Cisco and third-party components to support HA.
Swauth API	<ul style="list-style-type: none"> • Simple Auth Service API for authentication of Swift operations. • Based on Swauth Open-Source Middleware API. • Used to manage accounts, users and account service endpoints. • For details, see the <i>Cisco Cloud Object Storage Release 3.5.1 API Guide</i>.
Swift Object Store API	<ul style="list-style-type: none"> • An implementation of a subset of the continually evolving OpenStack Swift API. • Command executions are authenticated using auth tokens provided by Swauth service. • Used to create and manage containers and objects for persistent storage in a COS cluster. • Supports archiving of content from Cisco or ARRIS recorders using DataDirect Networks (DDN) Web Object Scaler (WOS) archive objects. • For details, see the <i>Cisco Cloud Object Storage Release 3.5.1 API Guide</i>.
Object Store Metadata Resiliency	<ul style="list-style-type: none"> • Metadata resiliency is provided by a distributed and replicated Cassandra document database. • Each COS node participates in the persistence of a subset of the Cassandra database. • Manual administrative intervention is required on node failure.

Table 1 Overview of COS Features

Feature Set	Features
Object Store Data Resiliency	<ul style="list-style-type: none"> • Data is resilient to both hard drive and COS node failures. • Local Erasure Coding (LEC), or local COS node data resiliency, is provided by local software RAID. <p> Note By default, LEC is enabled and is configured for two drive failures. We recommend using this default configuration for resiliency.</p> <hr/> <ul style="list-style-type: none"> • Distributed erasure coding (DEC) provides data resiliency across nodes, protecting stored content from loss due to node failure. • COS cluster data resiliency is provided by object replication (mirroring). The PAM section of the COS SM GUI allows for configuration of both local and remote mirror copies. <p> Note When configuring local mirroring for resiliency, we recommend using no more than one local mirror copy.</p> <hr/> <ul style="list-style-type: none"> • Supports configuration of mixed resiliency policies (local erasure with remote mirroring) via the SM GUI. • Alarms are available for loss of storage.
Management Interface Bonding	<ul style="list-style-type: none"> • Supports defining two node management interface ports as a primary-backup pair. For details, see the Configuring Resiliency appendix in the <i>Cisco Cloud Object Store Release 3.5.2 User Guide</i>.
Service Load Balancing	<ul style="list-style-type: none"> • COS cluster load balancing is provided by DNS round-robin of a FQDN to multiple physical IPv4 addresses hosted by COS nodes. • Optimal load balancing is provided by extensions to the Swift API through the implementation of HTTP redirect. • Remote smoothing facilitates load balancing by moving content to a new node when it is added to a cluster.

Table 1 Overview of COS Features

Feature Set	Features
Endpoint and Cluster Support	<ul style="list-style-type: none"> Each COS service instance can have its own endpoint, cluster, and asset redundancy policy. Each COS endpoint and deployment can be enabled and disabled individually and dynamically, and each has its own AppStatus message for reporting SLA status. If an endpoint is enabled or disabled, only the network interfaces of the COS nodes attached to the endpoint or cluster are added to or removed from the DNS.
COS AIC Client Management	<ul style="list-style-type: none"> The COS application instance controller (AIC) Client process is monitored by the monit process that runs on each COS node, and if not running, is restarted. The COS AIC Client process creates a PID file that is added to the monit script so it can be monitored and restarted. Command-line scripts support stopping and restarting the AIC Client process manually, bypassing the normal automatic restart process.
Node Decommissioning Paused for Maintenance Mode	<ul style="list-style-type: none"> If a node is in the process of being decommissioned and any node in its cluster is placed in Maintenance mode, the decommissioning process is paused.

Notes on Cisco UCS C3260 Support

This release adds support for the UCS C3260 platform, which supports up to two compute nodes and up to 56 storage disks per chassis.



Note

COS 3.5.2 is fully qualified for the UCS C3260 dual node configuration. Qualification and production support for C3260 single node 28- and 56-disk configurations is planned for a future COS release. The single node options described below, while logically valid, are not currently supported.

- COS 3.5.2 provides a pre-installation script to enable setup of one or two COS nodes on a UCS C3260 before proceeding with installation of COS software on each COS node configured.
 - If a single node is configured, we recommend using the node with either 28 or 56 disks installed.
 - If two nodes are configured, we recommend installing all 56 disks. The pre-installation script will assign 28 disks to each node.
- Following installation, you must select one of two available storage bundles for each node during cosinit:
 - UCS C3260-4U3 (28 disks per node): Select this bundle if you configured a single COS node with 28 disks installed, or a dual node setup with 28 disks each.
 - UCS C3260-4U4 (56 disks per node): Select this bundle if you configured a single COS node with 56 disks.

**Note**

Knowing which storage bundle is configured allows the system to more accurately report disk issues, such as bad or missing disks, after the node is up and running.

- In a dual node setup, the web GUI displays the status of only those disks assigned to a particular node:
 - Node1 will list Cisco Disk 01-28.
 - Node2 will list Cisco Disk 29-56.
- On each COS node, eth0 and eth1 are bonded to a bond0 management interface. This differs from the UCS-C3160, where eth0 and eth3 are bonded to a bond0 management interface.

For full details, see **Deploying COS** in the *Cloud Object Storage Release 3.5.2 User Guide*.

**Note**

COS 3.5.2 does not support automatic failover of Cassandra working sets in the event of COS node failure. Manual administrative action is required to recover a lost COS node in the event that a COS node cannot be returned to service in a timely manner.

Hardware Support

[Table 2](#) lists the hardware models that fully support installation of COS 3.5.2.

**Note**

COS 3.5.2 is fully qualified for the UCS C3260 dual node configuration. Qualification and production support for C3260 single node 28- and 56-disk configurations is scheduled for a future COS release.

Table 2 *COS 3.5.2 Supported Hardware*

Product Name	Storage Bundle	Configuration Supported	Max HDD Capacity	Max Total Storage	SSDs Used by OS and COS	Other SSDs *
Cisco UCS C3260	4U3	Dual Node	56 x 6 TB	336 TB	4 x 480 GB	—
Cisco UCS C3160	4U2	Single Node	54 x 6 TB	324 TB	2 x 400 GB	1 x 120 GB
Cisco UCS C3160	4U1	Single Node	54 x 4 TB	216 TB	2 x 400 GB	1 x 120 GB
Cisco CDE465	4R4	Single Node	36 x 6 TB	216 TB	2 x 480 GB	—

* Used by previous COS releases to store a crash partition. Not used by COS 3.5.2. See [Crash Partition Location, page 8](#) for details.

**Note**

You can convert a C3160 to a C3260 in the field. For details, see **Migrating a Cisco UCS C3160 Server to a Cisco UCS C3260 Server** in the *Cisco UCS C3260 Rack Server Installation and Service Guide*.

For hardware installation instructions and related details, see the following:

- *Cisco UCS C3260 Rack Server Installation and Service Guide*
- *Cisco UCS C3160 Rack Server Installation and Service Guide*

- *Cisco Content Delivery Engine 465 Hardware Installation Guide*

System Requirements

COS 3.5.2 can operate as a managed service of Cisco MOS, in which case it uses certain MOS HTTP interface components as well as the MOS Document Store for system management. See the *Cisco Media Origination System User Guide* for your MOS release.

**Note**

COS 3.5.2 has been tested for compatibility with MOS 2.5.0-cisco-mos-mendocino.2.4.1.cos_380 branch, build 19813 (equivalent to MOS Release 2.5.1). Later releases of COS are expected to be compatible with later versions of MOS. Contact Cisco for the latest information.

Supported Environments

COS 3.5.2 supports a Swift and Swauth API environment, and also supports an HTTP-based API for cluster management.

Installation

COS 3.5.2 does not come pre-installed on compatible UCS or CDE hardware. Instead, COS software is provided as a downloadable ISO image that includes the base (CentOS) distribution of Linux along with all of the additional rpm packages needed by a COS node. For installation instructions, see the *Cisco Cloud Object Store Release 3.5.2 User Guide*.

**Note**

COS Release 3.5.2 is intended for fresh installations only. It does not support upgrade to or downgrade from an earlier COS release.

Crash Partition Location

When installed on a C3160, the previous (3.5.1) COS release created a crash partition on one of the SSDs at the rear of the chassis. With COS Release 3.5.2, the location of the crash partition depends on the node hardware, as follows:

- When installed on a C3260, COS 3.5.2 creates a crash partition along with other system partitions on the software RAID SSDs at the rear of the chassis.
- When installed on a C3160, COS 3.5.2 creates a crash partition along with other system partitions on the RAID system drives, which are the SSDs in chassis slots 55 and 56.

These locations assume a fresh installation and not an upgrade (not supported in COS 3.5.2 in any case).

Starting CServer

When starting CServer for the first time, enter the command **service cserver start** at the CLI prompt as shown in the following example:

**Caution**

```
[cos-node@ root]# service cserver start
```

Starting CServer using the command **service cserver start -C** (or **-c**) results in removal of all content previously stored on the drives in the node. Do not add the **-C** (or **-c**) option unless you intend to wipe all existing content from the drives.

Cassandra Anti-Entropy Node Repair

Cassandra clusters require that an anti-entropy node repair be run periodically on every node to maintain the integrity of the database. A cron job should be created on each node and run every 24 hours or before the garbage collection timeout expires. Garbage collection grace seconds (`gc_grace seconds`) is set to 172800 (2 days).

Guidance on Cassandra anti-entropy node repair is available from multiple technical sites, including <https://www.pythian.com/blog/effective-anti-entropy-repair-cassandra>. Cisco support can provide a sample script. The sample script uses resources in the cluster to check the database records and sync any changes. The times that the node repair starts and completes are logged in `/var/log/messages`.

Upgrading to a Newer COS Build

The following procedure applies to existing COS servers in single node cluster (non-Distributed Erasure Coding) deployments running COS 3.5.2-b197 or any early build of COS Release 3.5.2.

Perform the following steps on the node to be updated, and enter all commands at the Linux prompt:

-
- Step 1** Obtain the full ISO image **cos_full-3.5.2-0b197-x86_64.iso** from the COS software download page on the Cisco website.
 - Step 2** Mount the full ISO image and locate the `cos_repo` ISO, **cos_repo-3.5.2-0b197-x86_64.iso**, within it.
 - Step 3** Place a copy of the `cos_repo` ISO to the root, `/`, of the COS server to be updated.
 - Step 4** If the `cserver` service is running on the node, shut it down.

```
service cserver stop
```
 - Step 5** Remove all `cos*local.repo` files located at `/etc/yum.repos.d`.

```
rm -f /etc/yum.repos.d/cos*local.repo
```
 - Step 6** Mount the `cos_repo` ISO at `/mnt/cdrom`.

```
mount -o loop /cos_repo-3.5.2-0b197-x86_64.iso /mnt/cdrom
```
 - Step 7** Set up the local COS yum repository using the provided script.

```
/mnt/cdrom/local_repo_setup
```
 - Step 8** Clean the yum database.

```
yum clean all
```
 - Step 9** Update the COS installation.

```
yum -y update
```
 - Step 10** Reboot the node.

shutdown -r

Caveats

Caveats describe unexpected behavior in COS software releases. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats, and only selected severity 3 caveats are included in the caveats document.

Caveat numbers and brief descriptions for Cisco COS Release 3.5.2 releases are listed in this section.

Open Caveats

Open Caveats for Cisco COS Release 3.5.2

[Table 3](#) lists the open issues in the COS 3.5.2 release.

Bug details are displayed in the [Bug Search](#).

Table 3 *Open Caveats in COS 3.5.2 Release*

Bug ID	Description
CSCUv96300	All nodes need to be up and running before a new node can be added.
CSCUw58480	Service Manager: support for pre-config LEC DEC for 6-node cluster setup.
CSCUw92405	Directory write causing CPU pressure and 503 HTTP errors.
CSCUx62750	COS nodes may hit kdb for rated swift read requests.
CSCUx88147	Writing will take very long time to respond while heavy read load.
CSCUy24017	Interface gets reset by itself during or after performance test.
CSCUy25515	HTTP 500 and 413 Data processing error NOTPRESENT.
CSCUy44127	Cosd may need to be restarted after COS is brought up by PAM.
CSCUy52323	Unable to find boot device after adding PXE to boot order.
CSCUy60484	CALYPSO ASSERT: "rqas->m_fileLength == m_fileLength" failed.
CSCUy99823	CALYPSO ASSERT in file "lom/DirectoryWrite.cpp" line 1490.
CSCuz26107	Management interfaces are counted in COSNode Interface Down alarm.
CSCuz45352	Performance degrades overtime if continuously filled with small objects.
CSCuz49718	CALYPSO ASSERT reported for line 512 in RomStatistics.inl.
CSCuz58789	CServer won't shutdown: LOM shutdown - waiting for writes to finish.
CSCva29035	Repair read and write observed while doing SWIFT writes of 5.9MB objects.
CSCva30996	AIC Client: ntpd needs to be stopped before run ntpdate.
CSCva49219	Cassandra repair needs to be run daily via a cron job.

Resolved Caveats

Resolved Caveats for Cisco COS Release 3.5.2

Table 4 lists the fixed issues in the COS 3.5.2 release.

Bug details are displayed in the [Bug Search](#).

Table 4 Resolved Caveats in COS 3.5.2 Release

Bug ID	Description
CSCuw18660	One of the interfaces on c3160m3 may not come up after several reboots.
CSCuw71134	Hardware validation for CDE465-4R4 failed.
CSCuw87724	Data interfaces not added to DNS after disable/enable cos service.
CSCux25271	RECEIVE_TIMEOUT errors observed in write test with heavy load.
CSCux28301	Temporarily lose all disks, then get them back.
CSCuy53229	[b105][C3160] refresh_dev_inf processes in D state in charter case 3.2.
CSCuz12363	Write performance becomes very poor after server and disk failover test.
CSCuz55334	cos-aic-client lost connection to PAM when PAM is back from power outage.
CSCuz76757	I/O operations getting stuck leading to performance degradation.
CSCuz97068	COS-AIC-Client: cassandra config files not update after change mgmt ip.
CSCva09970	Need code to try to repair the ChainInfoSector list during mount if need.
CSCva19125	Disable HR_TIMER and let the APIC timer provide Cserver with interrupts.
CSCva20825	Running devtest causes a kernel crash.
CSCvb12616	Evaluator fails to repair damaged objects.

Accessing Bug Search Tool

This section explains how to use the Bug Search tool to search for a specific bug or to search for all bugs in a release.

- Step 1** Go to <https://tools.cisco.com/bugsearch/>.
- Step 2** At the Log In screen, enter your registered Cisco.com username and password; then, click **Log In**. The Bug Search page opens.



Note If you do not have a Cisco.com username and password, you can register for them at <http://tools.cisco.com/RPF/register/register.do>.

- Step 3** To search for a specific bug, enter the bug ID in the Search For field, and press **Enter**.
- Step 4** To search for bugs in the current release, specify the following criteria:
- Select the **Model/SW Family** Product Category drop-down list box, then enter **Cisco Videoscape Distribution Suite for Television** or select the name from the **Select from list** option.
 - Select **Cisco Videoscape Distribution Suite for Television** from the list that displays.

- The **Cloud Object Store** type displays in the Software Type drop-down list box.
- Releases: 3.5.2.
- Advanced Filter Options—Define custom criteria for an advanced search by selecting an appropriate value from the drop-down lists by choosing either one Filter or multiple filters from the available categories. After each selection, the results page will automatically load below the filters pane. If you select multiple filters, it behaves like an AND condition.
 - Modified Date—Select one of these options to filter bugs: **Last Week, Last 30 days, Last 6 months, Last year, or All.**
 - Status—Select **Fixed, Open, Other, or Terminated.**

Select **Fixed** to view fixed bugs. To filter fixed bugs, uncheck the Fixed check box and select the appropriate suboption (Resolved or Verified) that appears below the Fixed check box.

Select **Open** to view all open bugs. To filter the open bugs, uncheck the Open check box and select the appropriate suboptions that appear below the Open check box.

Select **Other** to view any bugs that are duplicates of another bug.

Select **Terminated** to view terminated bugs. To filter terminated bugs, uncheck the Terminated check box and select the appropriate suboption (Closed, Junked, or Unreproducible) that appears below the Terminated check box. Select multiple options as required.
 - Severity—Select the severity level:
 - 1: Catastrophic.
 - 2: Severe
 - 3: Moderate
 - 4: Minor
 - 5: Cosmetic
 - 6: Enhancement
 - Rating—Select the bug’s quality rating: **5 Stars** (excellent), **4 or more Stars** (good), **3 or more Stars** (medium), **2 or more Stars** (moderate), **1 or more Stars** (poor), or **No Stars**.
 - Support Cases—Select whether the bug **Has Support Cases** or **No Support Cases**.
 - Bug Type—Select whether the bug is **Employee Visible & Customer Visible** or **Customer Visible Only**.

Step 5 The Bug Toolkit displays the list of bugs based on the specified search criteria.

Step 6 You can save or email the current search by clicking their respective option.

If you have any problems using the Bug Search tool, log into the Technical Support website at <http://www.cisco.com/cisco/web/support/index.html> or contact the Cisco Technical Assistance Center (TAC).

Related Documentation

Refer to the following documents for additional information about COS 3.5.2:

- *Cisco Cloud Object Storage Release 3.5.2 User Guide*
- *Cisco Cloud Object Storage Release 3.5.1 API Guide*
- *Cisco Cloud Object Storage Release 3.5.1 Troubleshooting Guide*
- *Open Source Used in Cisco COS 3.5.2*

The entire COS software documentation suite is available on Cisco.com at:

<http://www.cisco.com/c/en/us/support/video/cloud-object-storage/tsd-products-support-series-home.html>

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*.

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the [What's New in Cisco Product Documentation RSS feed](#). The RSS feeds are a free service.

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