IBM Cloud Object Storage System™
Version 3.13.3

FIPS Reference Guide

IBM

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Chapter 1. Overview

The FIPS version of the IBM Cloud Object Storage System™ is a FIPS-compliant version of the IBM Cloud Object Storage System™. The system uses the IBM Cloud Object Storage System™ FIPS Cryptographic Module v1.1 certificate #2599 as the encryption module for the platform. All cryptographic operations performed on the **new** data stored in the FIPS version of the object store are executed in a FIPS-compliant manner. This version of the system only operates in FIPS mode which cannot be disabled on the system.

Purpose

The FIPS version is designed to ensure that, when encryption is enabled, any new data that is stored on the system is encrypted using FIPS-compliant algorithms.

Terminology and components

FIPS

Federal Information Processing Standard, a U.S. government computer security standard.

Hardware

FIPS is certified on Intel Xeon processor with AES-NI and Intel Xeon processor without AES-NI (single-user mode). The following appliances are currently certified:
- Accesser® 4105 (IBM 3401/3403-A01)
- Accesser® 3100 (IBM 3409-A98)
- Accesser® 3105 (IBM 3401/3403-A00)
- Manager 3105 (IBM 3401/3403-M01)
- Slicestor® 2448 (IBM 3401/3403-S01)
- Slicestor® 3448 (IBM 3401/3403-S02)
- Slicestor® 2212A (IBM 3401/3043-S10)
- Slicestor® 2440 (IBM 3409-S94/3409-S99)

Note: For more information, refer to our security policy on the NIST website.

Chapter 2. FIPS mode operation

After you install the ClevOS FIPS system, consult the *IBM Cloud Object Storage System*™ *Manager Administration Guide* for detailed information on setup and configuration by using either the Manager Web Interface or REST API.

The FIPS certification has a minimal impact on the configuration, monitoring, and usability of the IBM Cloud Object Storage System™. The following sections explain specific differences that can be observed when you use the FIPS version.

Login banner image

The banner image on the login page identifies that the IBM Cloud Object Storage Manager™ is FIPS-enabled.

Login Page

When the software is FIPS-enabled, the login page contains three distinctions:
* Login banner image: The image indicates the software is FIPS-enabled.
* Header: The header also indicates that the Manager FIPS-enabled. The header is visible on every page.
* FIPS Certification: There is a link to view the security policy and FIPS certification on the NIST website.

Device summary section

On the Monitor Device page for each device, the Manager Web Interface displays the status of FIPS operation on the device. The UI indicates success and error summaries.

Device Summary page

There is a new filter on the Device Summary page to filter devices by their FIPS status.

Events

An incident was added to the system. If a FIPS error occurs on a device, an event opens the incident. When the FIPS issue is resolved, the incident is closed by a subsequent event.

FIPS errors

The IBM Cloud Object Storage System™ does periodic FIPS self-tests. If a self-test fails, the software shuts itself down, preventing I/O and Manager Web Interface or REST API access. If a device is not in FIPS mode, it responds to a request with a 503 status. If the self-test fails, quiesce the system and contact IBM Customer Support.

IBM Cloud Object Storage System™ Manager API

In the **View System** API method, each device object contains a new object, `fips`. This object contains two fields:

* `enabled`: A boolean that is always `true`.
* `functioning`: A boolean that represents if there is a problem with the FIPS operational mode on the device. A value of `false` indicates that there is an open incident and an error on the device's summary section. A value of `true` indicates that the FIPS operation mode is functioning properly.

For more detailed information on the API, see the *IBM Cloud Object Storage System™ Manager REST API Guide*.

FIPS installation and upgrade

The following items are limitations for the installation of or migration to a FIPS version of the IBM Cloud Object Storage System™:

* You cannot migrate a FIPS system to a non-FIPS version.
* Using non-FIPS-certified devices renders a system non-FIPS-compliant.

You can install an IBM Cloud Object Storage System™ FIPS version in two ways: either by installing a fresh installation on the supported appliances or by upgrading from an existing release to a FIPS version. The upgrade can include hardware upgrades, software upgrades, certificate renewals, and data migration. The IBM Cloud Object Storage System™ must be running ClevOS 3.10.x or newer to migrate to a FIPS version.

Important: To make an upgraded system FIPS-compliant, you must contact IBM Customer Support to complete the necessary data migration and system procedures.

Note: The IBM Cloud Object Storage System™ FIPS version supports the data migration of standard vaults. It does not support the data migration of management vaults, service vaults, and container vaults.

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