

IBM Cloud Object Storage System™  
3.16.6

*FIPS Reference Guide*



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

© **Copyright International Business Machines Corporation 2016, 2022.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

- Chapter 1. Overview..... 1**
  - Purpose..... 1
  - Terminology and components..... 1
  - Hardware..... 1
  
- Chapter 2. FIPS mode operation..... 2**
  - Login banner image..... 2
  - Login Page..... 2
  - Device summary section..... 2
  - Device Summary page..... 2
  - Events..... 2
  - FIPS errors..... 2
  - IBM Cloud Object Storage System™ Manager API..... 2
  - FIPS installation and upgrade..... 3
  
- Notices.....4**
  - Trademarks..... 5
  - Homologation statement..... 6



---

# 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 the Intel Xeon processor with AES-NI and the 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.

FIPS is certified on the Intel Xeon Gold processor for A10 and the Intel Xeon Silver processor for C10 and M10. The following appliances are currently certified:

- Accesser® 3110 (IBM 4958/4957-A10)
- Manager 3110 (IBM 4958/4957-M10)
- Slicestor® 12 (IBM 4958/4957-C10/J10)
- Slicestor® 53 (IBM 4958/4957-C10/J11)
- Slicestor® 92 (IBM 4958/4957-C10/J15)
- Slicestor® 106 (IBM 4958/4957-C10/J12)

**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.

## Notices

---

This information was developed for products and services offered in the US. This material might be available from IBM® in other languages. However, you may be required to own a copy of the product or product version in that language in order to access it.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing  
IBM Corporation  
North Castle Drive  
Armonk, NY 10504-1785  
U.S.A.*

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

*Intellectual Property Licensing  
Legal and Intellectual Property Law  
IBM Japan, Ltd.  
19-21, Nihonbashi-Hakozakicho, Chuo-ku  
Tokyo 103-8510, Japan*

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

*IBM Director of Licensing  
IBM Corporation  
North Castle Drive, MD-NC119  
Armonk, NY 10504-1785*



US

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

The performance data discussed herein is presented as derived under specific operating conditions. Actual results may vary.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

#### COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

## Trademarks

---

IBM, the IBM logo, and [ibm.com](http://ibm.com)<sup>®</sup> are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at Copyright and trademark information at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

Accesser<sup>®</sup>, Cleversafe<sup>®</sup>, ClevOS<sup>™</sup>, Dispersed Storage<sup>®</sup>, dsNet<sup>®</sup>, IBM Cloud Object Storage Accesser<sup>®</sup>, IBM Cloud Object Storage Dedicated<sup>™</sup>, IBM Cloud Object Storage Insight<sup>™</sup>, IBM Cloud Object Storage Manager<sup>™</sup>, IBM Cloud Object Storage Slicestor<sup>®</sup>, IBM Cloud Object Storage Standard<sup>™</sup>, IBM Cloud Object Storage System<sup>™</sup>, IBM Cloud Object Storage Vault<sup>™</sup>, SecureSlice<sup>™</sup>, and Slicestor<sup>®</sup> are trademarks or registered trademarks of Cleversafe, an IBM Company and/or International Business Machines Corp.

Other product and service names might be trademarks of IBM or other companies.

## Homologation statement

---

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.





Printed in USA