IBM Storage Insights

Security Guide

Note:

Before using this information and the product it supports, read the information in “Legal notices” on page 23.

This edition applies to the current version of IBM Storage Insights (product number 5725-U02) and to all subsequent versions until otherwise indicated in new editions.

Contents

About this guide

In IBM Storage Insights Pro and IBM Storage Insights, detecting and resolving issues in a storage environment has never been easier. It combines cognitive storage management capabilities with a simplified yet robust IBM support experience to help you spend less time troubleshooting storage problems and more time planning for your future storage needs.

Who should read this guide

This publication is intended for administrators or IT professionals who deploy IBM Storage Insights Pro or IBM Storage Insights and want to learn more about security and data collection.

Administrators should be familiar with the following topics:

- General procedures for installing software on Microsoft Windows, AIX®, and Linux®.
- Storage area network (SAN) concepts.
- Storage resources and management concepts.

Chapter 1. Security overview

Learn about the security measures related to deploying a data collector on-premises, processing and storing metadata off-premises, and session timeouts or call home with cloud services.

IBM Storage Insights Pro and IBM Storage Insights are cloud service offerings uses one of the following data collection method :

Call home with cloud services to collect detailed configuration, capacity and performance metadata.

A light-weight application that is called the data collector to securely and efficiently send configuration, capacity, performance, and status metadata for analysis to an IBM Cloud data center and for presentation in the GUI. Call home with cloud services to collect detailed configuration, capacity and performance metadata.

Important:

- The security policies for collecting, sending, accessing, protecting, and storing metadata for IBM Storage Insights Pro and IBM Storage Insights are identical.
- After you log in to the service, the security of your web browser session is important. To protect your session, you're automatically logged out after 2 hours 30 minutes of inactivity. For more security during extended use, the duration of an active login session is limited to approximately 8 hours. When you are logged out, you can log in again and pick up right where you left off.

  The timeout durations for a session are set by default and can't be changed.

The key differences between both cloud service offerings lie in the exclusive features that IBM Storage Insights Pro provides to its subscribers, such as capacity planning analysis, reclamation analysis, and tiering analysis, and in the access to the metadata that is presented in the GUI for the cloud service offerings. In IBM Storage Insights Pro, subscribers have access to all of the metadata in the GUI, whereas in IBM Storage Insights, non-subscribers have access to specific capacity and performance metadata only. IBM Support also has read-only access to the set of metadata that they need to troubleshoot and close support tickets.

Tip: In the security documentation, the name IBM Storage Insights is used to refer to both IBM Storage Insights and IBM Storage Insights Pro unless a notable difference exists between the offerings.

To address the security concerns that you might have, the following questions are answered:

- What security measures are built-in?
- What is the data collector?
- What are data collection methods
- What is call home ?
- How is the metadata protected?
- What types of metadata are collected?
- How long is the metadata kept?
- Who can access the metadata that is collected?

Lists of the asset, capacity, and configuration metadata and the performance metadata that is collected and stored about your storage systems are also provided.

Chapter 2. What security measures are built in to IBM Storage Insights

Key security measures are built in to IBM Storage Insights to help ensure that it's a secure part of your organization.

Security and Privacy by Design (SPbD) at IBM is an agile set of focused security and privacy practices, including threat models, privacy assessments, security testing, and vulnerability management. SPbD@IBM is aligned with the United States National Institute of Standards and Technology (NIST's) Secure Software Development Framework (SSDF), which drive processes that are required across all business units.

Because IBM Storage Insights is a cloud-based service, the security of the connection between it and your storage environment is paramount. The IBM Storage Insights team used SPbD to build in security measures at the start and continues to carry it up through every aspect of the service.

In summary, security wasn't something that was tacked on after the service was developed, but was and is baked into the design and DNA of IBM Storage Insights:

- ISO/IEC 27001/27017/27018/27701 ISM certified
- Communication is one way, encrypted and compressed
- Metadata at rest is AES 256-bit encrypted
- Metadata streamed to IBM Cloud® is 128-bit encrypted
- Only metadata about your storage is collected
- Personal, identity, and application data are never accessed
- HIPAA / Blue Diamond ready
- Dedicated vulnerability tracking and threat response team (IBM PSIRT) *****
- EU-US Privacy Shield and Swiss-US Privacy Shield Framework
- Meets the requirements of GDPR

*** About the IBM Product Security Incident Response Team (PSIRT):** This global team manages the receipt, investigation, and internal coordination of security vulnerability information related to IBM Storage Insights. IBM PSIRT is the centralized process through which IBM customers, security researchers, industry groups, government organizations, or vendors report potential IBM security vulnerabilities. IBM is committed to responding to new threats and risks. IBM's Secure Engineering practices were designed so that IBM can act in a timely fashion to a reported security vulnerability affecting IBM Storage Insights.

Trusting in the security of IBM Storage Insights is an important factor when organizations consider deploying the service within their environments. Understanding more about the security measures that IBM builds in can help address your concerns and gain the trust that you need to use it with peace of mind.

Chapter 3. Data Collection Methods

In IBM Storage Insights, you can use both Call Home with cloud services and data collectors as part of your overall monitoring strategy.

But keep in mind the following considerations:

- You can use one method to collect metadata for each storage system. If you use a data collector to collect metadata for a storage system, you cannot use Call Home with cloud services for that storage system.
- If you have more than one IBM Storage Insights, each service can monitor the same storage system by using different collection methods. You can use Call Home with cloud services to collect metadata on one of those services. If you have three services monitor a storage system, and one service uses Call Home with cloud services, you must use data collectors in the other two services.

Chapter 4. What is Call Home

IBM Cloud Call Home utilizes RESTful API to provide the most reliable call home method available today. These are industry standards for transmitting data through web services.The cloud call home adoption of this standard provides a better delivery mechanism of messages to the IBM call home servers. This way is not affected by spam filters or other technologies preventing IBM from receiving the call home messages.

Call Home with email notifications is a communication link between IBM storage systems, IBM Support, and IBM Storage Insights that monitors the health and status of your storage.

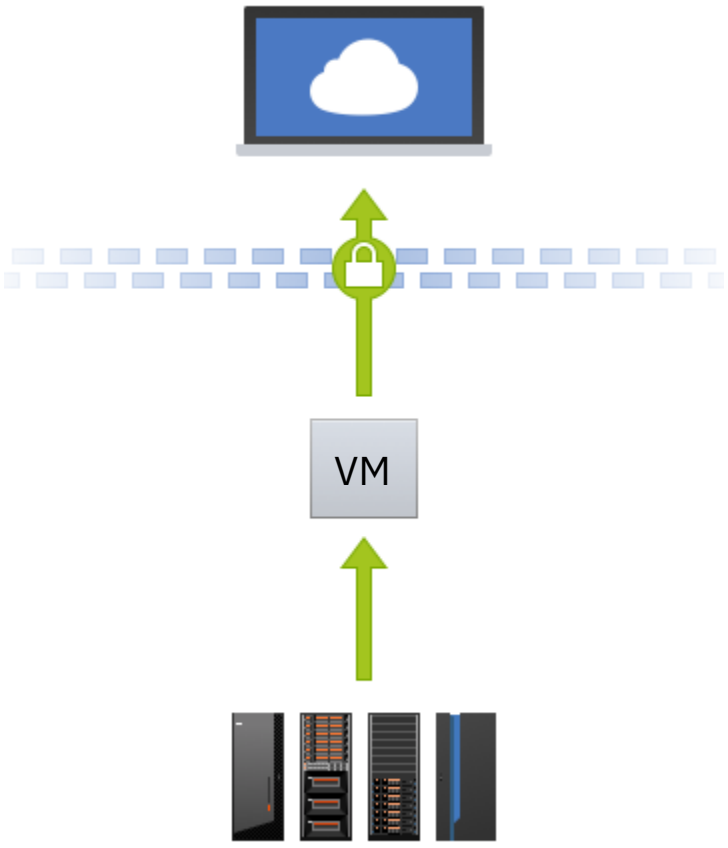
Call Home with cloud services integrates IBM Storage Virtualize storage systems with IBM Storage Insights to collect detailed configuration, capacity, and performance metadata.

Key security characteristics:

- ISO/IEC 27001/27017/27018/27701 ISM certified.
- Communication is initiated one way, encrypted and compressed.
- Metadata at rest is AES 256-bit encrypted.
- Metadata streamed to IBM Cloud is 128-bit encrypted.
- Personal, identity, and application data are never accessed.
- Works with IBM Enhanced Secure Support (Blue Diamond) framework for HIPAA compliance.
- Dedicated vulnerability tracking and threat response team (IBM PSIRT).
- IBM has EU–US Privacy Shield and Swiss-US Privacy Shield Framework certification.
- Integrated Security and Privacy by Design (SPbD).
- Meets the requirements of GDPR.

Chapter 5. What is the data collector

The data collector is the application that collects and delivers the metadata that is analyzed and presented in the GUI.



The data collector is a light-weight application that is installed on a server in your data center. It sends the metadata that is collected about your storage systems, such as asset, configuration, capacity, and performance metadata, from your data center to your instance of IBM Storage Insights Pro or IBM Storage Insights, which is in an IBM Cloud data center.

Important: Outbound metadata is sent by data collectors to the well-defined and secure network endpoint https://insights.ibm.com:443. Update your firewall rules to allow outbound communication to https://insights.ibm.com and to the HTTPS port 443 using the Transmission Control Protocol (TCP).

In a matter of minutes, you can install the data collector and when you add the storage systems that you want to monitor, you get the capacity and performance insights that you need to monitor your data center. Because the metadata that IBM Support needs to investigate and close tickets is also collected, you can also upload logs when you create or update tickets and IBM Support can access and investigate the metadata to resolve any issues that you might have.

Credentials for connecting to storage systems: To add and collect metadata from the storage systems that you want to monitor, you must provide the storage system's credentials. Depending on the type of storage system that you add for monitoring, you can provide the name and password of a user with privileges to collect the metadata, or an SSH user and SSH key. The credentials that are provided are encrypted before they are stored in the database for the instance, and the database is also encrypted. In addition, most storage systems support the creation of users with read-only roles, who can't make any changes to the configuration of the storage system.

Supported operating systems: Data collectors can be installed on servers or virtual machine that run AIX, Linux, or Windows (64-bit systems only). On the server or virtual machine, you must provide at least 1 GB of RAM and 3 GB of disk space. For more information about the requirements for data collectors, see the following topics:

- https://www.ibm.com/docs/en/storage-insights?topic=collectors-installing-data-windows
- https://www.ibm.com/docs/en/storage-insights?topic=collectors-installing-data-aix-linux

Security certification: IBM Storage Insights, based on regular audits, has ISO/IEC 27001 Information Security Management certification. Annually, the following audits are conducted: two KPI audits, one external Veritas ISO27001, 27017, and 27018 audit, and one IBM internal audit for each ISO2700x.

Note: Security scanners can display an alert message 'Daemon is not managed by RPM' for IBM Storage Insights data collector. For more information, see Troubleshooting data collectors.

Key security characteristics

To ensure that metadata is collected securely, the data collector has the following characteristics:

Built-in security

Communication with other entities, such as storage systems in the local data center and the IBM Storage Insights service in the IBM Cloud data center are initiated solely by the data collector. The data collector does not provide any remote APIs that might be used to interact with the data collector.

Data collectors use prepackaged commands and code from IBM Storage Insights to run pre-defined operations only. Remote code loading is not possible.

One-way communication

The data collector sends metadata out of your network to your instance of IBM Storage Insights Pro or IBM Storage Insights. Communication is outbound only; the data collector can't receive data from the internet or any other entity in your network. Here's how the one-way communication works:

1. The data collector sends out a request for work.
2. IBM Storage Insights responds with a data collection request.
3. The data collector communicates with the storage resource or starts a log collection.

Secure transmission

All communication between the data collector and IBM Storage Insights Pro or IBM Storage Insights in the IBM Cloud data center uses encryption based on HTTPS.

The communication that the data collector initiates with the server where it is installed, and the communication between the server and IBM Storage Insights Pro GUI or IBM Storage Insights GUI. HTTPS connections use certificates issued by Cloudflare, Inc. (issuer common name "Cloudflare Inc ECC CA-3") and use TLS 1.2 and TLS 1.3 with 256-byte keys.

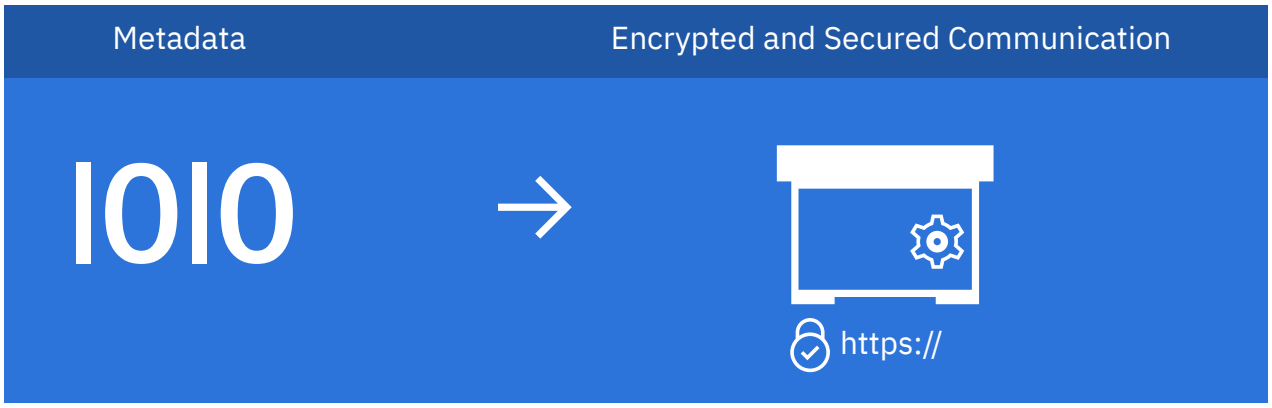
Tip: Because HTTPS connections are used, the data collector can run on any computer that can access the internet over an outbound TCP connection to port 443. Port 443 is the standard port for HTTPS connections.

Chapter 6. How is the metadata protected

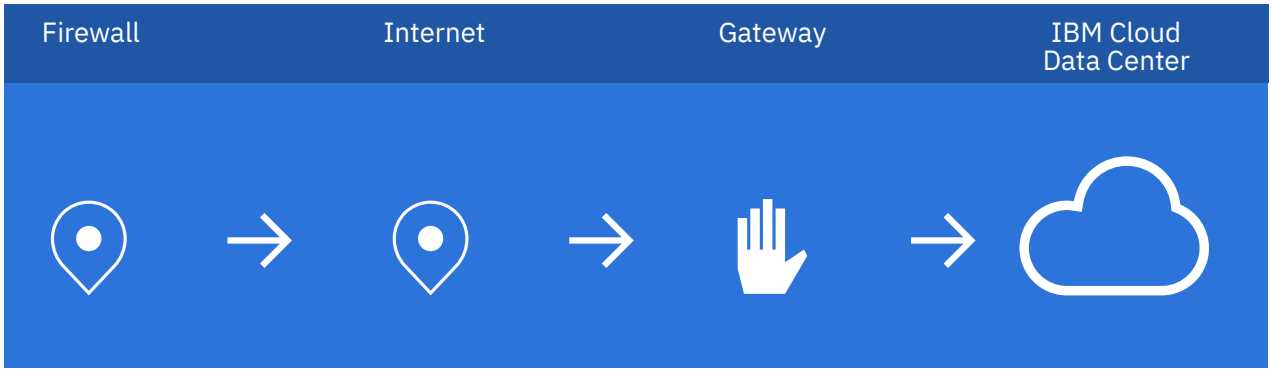
End-to end protection is provided for the metadata that is collected, delivered, and stored for your IBM Storage Insights service in the IBM Cloud data center. This protection includes meeting the requirements of the General Data Protection Regulation (GDPR).

Metadata collection, delivery, and storage in the cloud

To transform the metadata into insights and present them in IBM Storage Insights, the data collector / call home forwards metadata packages for analysis and storage to the IBM Cloud data center (located in Dallas).



To keep the metadata package safe on its journey to the cloud, the data collector / call home uses Hypertext Transfer Protocol Secure (HTTPS), which encrypts the metadata and sends the metadata package through a secure channel to the IBM Cloud data center.



At the gateway, or reverse proxy gateway, the metadata package gets instructions to deliver the package to your IBM Storage Insights service. Only data collectors that are associated with your service can collect and deliver metadata about your storage environment.

When the metadata package is delivered, the metadata is decrypted, analyzed, and stored.

From your data center to the internet

HTTPS connections are used to compress and encrypt the metadata that is collected about your storage systems and sent to the IBM Cloud data center.

After you sign up, you're provided with a host name and port number for your IBM Storage Insights service. To secure the outbound communication between the data collector and IBM Storage Insights at the well-defined and secure network endpoint https://insights.ibm.com:443, a Secure Sockets Layer (SSL) certificate is used. HTTPS connections use certificates issued by Cloudflare, Inc. (issuer common name "Cloudflare Inc ECC CA-3") and use TLS 1.2 and TLS 1.3 with 256-byte keys.

To send the metadata, complete the following tasks for your firewall:

- Update your firewall rules to allow outbound communication on the default HTTPS port 443 using the Transmission Control Protocol (TCP). The User Datagram Protocol (UDP) is not supported.
- Update your firewall rules to allow outbound communication to the following network endpoint: https://insights.ibm.com. If you use a proxy server with a separate firewall, ensure that you also update its rules.

Tip: The security of your web browser session is also important. To protect your session, you're automatically logged out after 2 hours 30 minutes of inactivity. For more security during extended use, the duration of an active login session is limited to approximately 8 hours. When you are logged out, you can log in again and pick up right where you left off.

At the IBM Cloud data center

IBM Storage Insights are hosted in IBM Cloud data centers, which comply with high physical, technical, and organizational security standards.

Key security

Each instance of IBM Storage Insights uses a local keystore that is dedicated to that instance and is password protected. The password for the keystore is generated randomly when the instance is created. The certificate in the keystore is unique to each instance and the keystore password is encrypted. (The encryption doesn't include hardware encryption.) The master password is kept encrypted in the service payload configuration in a secure location in IBM Cloud.

There is only one external customer key, which is the public key that is certified by DigiCert. As part of the TLS Handshake and certificate exchange, the client (Web Browser) uses the signed certificate to verify that it is communicating with the IBM Storage Insights gateway in IBM Cloud and that communications are not tampered with. For internal traffic, each customer's instance of IBM Storage Insights has a unique key, which is protected with a unique, encrypted password, and which is self-signed by IBM to validate that the communication is between the customer and the customer's instance.

Key rotation: A new master key is created and added to the keystore when the instance is created and when the instance is upgraded. Instances are upgraded at least once every three months, which results in an implicit key rotation of not less than 90 days. The public key that is certified by DigiCert is updated every 2 years.

This results in end-to-end privacy and encryption for each instance of IBM Storage Insights.

Physical protection

The data centers are rigorously controlled and onsite security is provided round the clock. Access to server-rooms is limited to certified employees and security controls are vetted by third-party auditors.

See https://www.ibm.com/cloud-computing/bluemix/data-centers and https://www.ibm.com/cloud/security.

Technical security

IBM Storage Insights is built with a multi-tenant SaaS architecture. Multiple SaaS instances, or tenants, are hosted from a single multi-tenant application that spans the resources of many shared servers and services. Even though any two tenants might share common resources, each tenant does not see the data of other tenants; let alone even knows others exist.

In this multi-tenant SaaS architecture, IBM Storage Insights uses a virtualization technology called "containers". If you are familiar with Docker, containers is the technology behind it. The resulting container consists of just the application and a very small overhead for dependencies. The application within the container is comprised of multiple, independent micro-services based on a functional area. For example, there is one micro-service for the web server and another to process performance data. A collection of all the containers for the various micro-service applications make up the entire multi-tenant IBM Storage Insights server.

To keep track of all the IBM Storage Insights containers, Kubernetes is used as the container management tool. Kubernetes organizes containers into pods that are deployed on nodes in the cluster. Each IBM Storage Insights tenant is containerized within a Kubernetes cluster, which enables scalability, high-availability, and disaster tolerance. The Kubernetes cluster uses enterprise class IBM Cloud security, providing optimal communication and lower front-end latency to IBM Storage Insights containers and services. Additionally, back-end storage and SAN resources utilize the same enterprise class IBM Cloud security.

On a day-to-day basis, the following security software and services are used:

- Crowdstrike EDR and Crowdstrike Prevent to protect against malware
- IBM SOS® to comply with security and regulatory requirements
- IBM Security QRadar® SIEM to store and monitor system and application logs

For more information about IBM Cloud's compliance and certifications, see https://cloud.ibm.com/docs/overview?topic=overview-security.

Database security

IBM Storage Insights uses IBM Cloud databases built on Apache Cassandra. It’s designed to power real-time applications with high availability and massive scalability. With its NoSQL workloads, a smooth and secured experience is natively integrated into the IBM Cloud. Cassandra database protects against unauthorized access, provides data resiliency, is SOC/ISO certified, and GDPR/HIPAA/PCI DSS compliant.

For more information about Cassandra's compliance and certifications, see https://cloud.ibm.com/docs/databases-for-cassandra?topic=databases-for-cassandra-security-compliance.

Organizational security

Access to the infrastructure and instances for IBM Storage Insights, is controlled:

- By restricting access to the members of the DevOps team and cloud service infrastructure teams who qualify as privileged users.
- By conducting regular system health and vulnerability scans at the source code level and on the running instances.
- By conducting regular penetration tests. External companies conduct the penetration tests.

GDPR: IBM Storage Insights meets the requirements of the EU General Data Protection Regulation (GDPR). Additional information related to IBM's privacy policy can be found at https://www.ibm.com/privacy/us/en/.

Chapter 7. What types of metadata are collected

Metadata is the information that IBM Storage Insights collects about your storage devices and environment.

Metadata about your storage devices can include, but is not limited to the following information:

- Inventory and configuration metadata such as name, model, firmware, type, and more
- Inventory and configuration metadata for internal componentssuch as volumes, pools, disks, ports, and more
- Capacity metrics such as capacity, usable capacity, used capacity, compression ratios, and more
- Performance metrics such as read and write data rates, I/O rates, response times, and more
- Diagnostic data, system failure logs, maintenance levels, and more support-related information

IBM Storage Insights analyzes this metadata to help you identify problems with your storage before they impact your business. Performance bottlenecks, capacity usage and shortages, loss of connectivity or access to devices, and configuration issues are just a few of the things that metadata can spotlight. To get metadata, the information that is used to connect to devices is also collected and stored. The information is stored in the database that was created for your IBM Storage Insights service. Passwords are encrypted before they are stored in the database.

Important:

- Use of IBM Storage Insights and the collection and use of metadata is governed by the IBM Cloud Service agreement and the IBM Storage Insights Service Description.
- The data that is stored on your storage devices is never viewed or accessed by IBM Storage Insights.

IBM Support ticket and diagnostic log packages

When you create tickets in IBM Storage Insights, you provide a name, an email address, and a phone number so that IBM Support can contact you. IBM Storage Insights also collects and uploads the diagnostic data for IBM block storage systems to IBM Enhanced Customer Data Repository (ECuRep) or Blue Diamond Enhanced Secure Support, depending on your configuration.

What is ECuRep

ECuRep is an IBM strategic worldwide Post Sales Technical Support solution for diagnostic data transmission, storing, and analysis.

When the diagnostic log package is collected from a device, IBM Storage Insights transfers it to IBM Support and ECuRep. To secure the transmission of that data, multiple methods are used, such as HTTPS protocol. For more information, see https://www.ibm.com/support/pages/enhanced-customer-data-repository-ecurep-send-data-https.

About encryption: When diagnostic data is transmitted, that data is encrypted. For information about the data encryption that is used for ECuRep, see the following links:

- https://www.ibm.com/support/pages/ecurep-encryption-information-0
- https://www.ibm.com/support/pages/node/6259449

What is Blue Diamond Enhanced Secure Support

Blue Diamond Enhanced Secure Support is an enhancement to standard IBM remote software and hardware support. It adds extra layers of security and allows you to use a secure, dedicated portal to upload diagnostic data to IBM® Support.

If an IBM block storage system is configured to use Blue Diamond Enhanced Secure Support, IBM Storage Insights collects and uploads the diagnostic data that is collected for the storage system to the Blue Diamond environment.

About encryption: In Blue Diamond environments, data at rest is stored on encrypted storage.

Chapter 8. How long is the metadata kept

Information is provided about the retention periods for the metadata that is collected to provide storage services and to improve storage services.

As metadata about monitored devices is collected, the aggregation level of that metadata changes. For configuration, status, and capacity metadata, over a 24-month period, the aggregation levels of the metadata change from daily, to weekly, to monthly based on the age of the metadata. For performance metadata, over a 52-week period, the aggregation levels change from sample, to hourly, to daily based on the age of the performance metadata. In effect, a more granular view of new metadata is provided and a less granular view of aged metadata is provided.

The following table lists the aggregation levels for asset, configuration, and capacity metadata based on the age of the data that is collected:

Table 1. Asset, configuration, and capacity metadata

Aggregation level	**Metadata age**
Daily	12 weeks
Weekly	24 weeks
Monthly	24 months

The following table lists the aggregation levels for performance metadata based on the age of the data that is collected:

Table 2. Performance metadata

Aggregation level	**Metadata age**
Sample	2 weeks
Hourly	4 weeks
Daily	52 weeks

Based on the collection date, metadata is retained for up to two years.

Note: If you subscribe to IBM Storage Insights Pro and cancel your subscription, you'll still be able to use IBM Storage Insights. The metadata from IBM Storage Insights Pro is retained.

How long are diagnostic data packages kept

Typically, diagnostic data is automatically deleted from IBM Enhanced Customer Data Repository (ECuRep) 30 days after the ticket is closed. For information about the retention of data in ECuRep, see the IBM terms of use for Exchanging diagnostic data with IBM.

Blue Diamond Enhanced Secure Support uses a secure, dedicated portal for diagnostic data packages. For more information about diagnostic data and Blue Diamond, contact the Blue Diamond team at the Blue Diamond registration page.

Related tasks

Requesting the deletion of personal information

To delete the minimal personal information that was stored to provide you with monitoring and support services for your storage systems, you can submit a request to IBM Support.

Chapter 9. Who can access the metadata

Information is provided about access to the metadata that is collected and stored.

Access to metadata is carefully controlled and governed by the IBM Cloud Service Agreement and the IBM Storage Insights Service Description.

Key teams can access metadata. IBM Support, Development, DevOps, and cloud infrastructure teams have a level of access that's needed to help ensure that your day-to-day storage operations run smoothly. The wider IBM Storage Insights team has limited access to improve your product experience and help resolve any issues that you might encounter.

To access the metadata in the IBM Cloud network and ensure that the connection is secure, DevOps and cloud service infrastructure teams use a secure virtual private network (VPN) connection. Access to instances is only permitted from privileged user workstations, which must meet the strict security controls of IBM Security policies for production servers.

Metadata access controls and authorization

Access controls and authorization checks are enforced for SaaS infrastructure components and services.

An approval process is used to authorize access to the following infrastructural elements and services:

- The network
- The operating system
- The middleware components
- The application
- Administrative services

When managing the changes to a production environment, the following change management processes are adhered to:

- Changes to the production environment must be recorded and must be approved by the change advisory board
- All support activities must be tracked in the IBM Support Portal for cloud services
- All operational and maintenance activities must be tracked by the internal ticketing system

Metadata access for resolving issues

To investigate and resolve issues, access is required to metadata and the related IBM Storage Insights service.

To find the causes of issues, investigations are undertaken that might require access to the metadata that is collected and stored, or access to infrastructural elements, or both. For example, the DevOps team or IBM Support, might need to monitor instances of the application to determine the cause of interruptions in service, or to investigate interruptions in the collection of metadata. To resolve such issues, it might be necessary:

- To analyze the configuration of the instance
- To analyze log files
- To analyze the metadata that was collected

To thoroughly investigate some issues, it might also be necessary to package the metadata and transfer it to a secure IBM system so that the development team can complete the investigation.

IBM Support access for troubleshooting your tickets

To investigate hardware and software tickets, IBM Support has read-only access to the asset, configuration, capacity, and performance metadata that is collected for IBM storage systems and their internal storage resources.

The metadata might not provide enough information to close the ticket, so IBM Support might need to collect a log package from your storage systems. In this case, IBM Support can attach the log package to an open ticket and submit the log package to IBM Enhanced Customer Data Repository (ECuRep). Depending on the data governance requirements of a client, the diagnostic data package might be uploaded to the Blue Diamond Enhanced Secure Support environment instead of ECuRep.

Permit IBM Support to collect log packages: To save time when IBM® Support troubleshoots your ticket, you can permit IBM® Support to collect and upload log packages remotely without contacting you. To set this permission, click **Configuration** > **Settings**, and then click **Edit** in the **IBM Support Log Permissions** section. You can set this permission for each storage system.

This is the procedure for uploading the log packages to tickets:

1. The data collector submits a request to the storage system to create a log package or collect the existing log packages.
2. The data collector uses Hypertext Transfer Protocol Secure (HTTPS), which encrypts the metadata, and sends the log package through a secure channel to IBM Storage Insights.
3. IBM Storage Insights sends the log package to ECuREP or to Blue Diamond Enhanced Secure Support environment.

Metadata access for quality improvements

Anonymized metadata is used to improve the quality of service and to enhance the product offering.

A subset of the metadata from all of the instances is aggregated and condensed for further analysis. The data that is used is anonymized:

- It does not include instance-specific metadata
- It does not include customer-specific metadata such as IP addresses

For example, the aggregated metadata contains such information as the number of different types of storage systems or the number of different firmware levels for the storage systems that are monitored. The aggregated metadata might contain GUI and usage metrics, but it doesn't contain the names, the serial numbers, or the IP addresses of the storage systems.

Data backup and restore

To restore instances, regular backups of the data are made automatically.

Backups are made daily, which means that recovery point objective (RPO) is one day, and the recovery time objective (RTO) is between 1.5 and 2 days.

Backups are stored both locally, in the same data center, and remotely. The latest backup of the instance is stored in a remote data center, whereas the five previous backups are stored in the local data center.

Requesting the deletion of personal information

To delete the minimal personal information that was stored to provide you with monitoring and support services for your storage systems, you can submit a request to IBM Support.

If you cancel your subscription for IBM Storage Insights Pro or decide that you no longer want to monitor your storage environment with IBM Storage Insights, you can request that the minimal personal information is deleted.

1. Go to IBM Support.

2. Sign in.
3. Click **Go to my cases**.
4. Create a new case and request the deletion of your personal information.

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