天翼云
eSurfing Cloud

Storage Resource Reutilization System

User Manual - Management API

China Telecom Cloud Technology Co., Ltd.

Revision History

Version	Release Date	Description
4.0	March 24, 2026	1. Support for the free edition. 2. Support for configuring server memory usage parameters for the HBlock service. 3. Support for suspending cloud LUNs. 4. Support for setting extended attributes of local LUNs via API. 5. Support for configuring authentication methods.
3.10	September 25, 2025	1. Support target access permissions to implement permission management for clients and targets. 2. Support backup, generate data backup files independent of source LUNs based on snapshots. 3. Support for QoS policy to regulate traffic in terms of bandwidth and IOPS.
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1 Product Overview

1.1 Product Definition

HBlock is a Storage Resource Reutilization System (SRRS) independently developed by eSurfing Cloud. It is a lightweight storage cluster controller and a fully user-mode software-defined storage controller that converts commodity servers and managed storage resources into HA virtual storage disks. It provides distributed block storage services through the standard Internet Small Computer System Interface (iSCSI) protocol and the disks can be mounted to a local server (or other remote servers) for intensive use of resources. Meanwhile, HBlock is compatible with heterogeneous devices and applies to various scenarios. HBlock helps users tackle the challenges of IT architecture upgrade, reduce costs, and increase efficiency, and assists enterprise users in achieving green transformation.

In non-networked mode, HBlock can be seen as a substitute for local disk arrays for local data storage. In networking mode, HBlock can also serve as a bridge between local and cloud storage, automatically synchronizing all data to S3-compatible object storage, retaining only hot data locally to save local storage space, or retaining all data to ensure local I/O performance, achieving hybrid cloud storage.

HBlock can be installed on Linux operating systems as a common application without root permissions. You can deploy HBlock with other applications in a server in a hybrid manner to form high-performance and HA virtual hard disks for business. This way, HBlock directly re-uses storage resources without affecting user business or purchasing additional equipment!

The traditional hardware storage array provides low latency and high availability for each logical volume, but has poor horizontal scalability, high cost, and may form many "isolated data islands". That leads to high cost and low utilization of storage resource. Traditional distributed storage, while attractive, often suffers from issues such as complex deployment, poor performance, and low stability.

HBlock delivers storage arrays in a quite different approach:

- **Easy Installation**: The HBlock installation package is a zip file that can be installed on mainstream Linux operating systems running on commonly used 64-bit x86 servers, ARM servers or Loongson servers. It also supports physical servers, bare metal servers, and virtual machines. HBlock is completely decoupled with hardware drivers, so users can freely use the latest hardware on the market, with less vendor lock-in.
- **Green**: HBlock runs as a group of user-mode processes, without relying on any specific version of Linux kernel or distributions. It does not rely on or modify the operating system environment, neither does it monopolize the entire hard drive or interfere with the execution of any other processes. Therefore, HBlock can run in the same Linux operating system instance concurrently with other applications. On the one hand, it can help users improve the utilization of existing hardware resource, on the other hand, it also lowers the barriers for potential users to try HBlock - even a virtual machine is not needed.

- **High Utilization**: HBlock supports heterogeneous hardware. HBlock allows each Linux operating system instance in the cluster to have different hardware configurations, such as different numbers of CPUs, different sizes of memory, and different capacities of local hard drives. Therefore, it can improve the utilization of existing hardware resources.
- **High Performance**: HBlock adopts a distributed multi-controller architecture to provide the low latency and high availability just like traditional hardware storage arrays, as well as high scalability and high throughput just like traditional distributed storage. It can scale up from three servers to thousands of servers or shrink from thousands of servers to three servers one by one without service unavailability.
- **High Quality**: HBlock is designed to guarantee the data durability as long as the number of simultaneous disk faults in the cluster is not greater than the allowed faulty number of logical volumes in redundancy mode (for three-copy mode, the allowed number is two; for Erasure Code N+M mode, the allowed number is M). HBlock can ensure the service availability when any single server, link, or disk in the cluster experiences faults. HBlock is specifically designed for Chaos environment and can be applied to various complicated environments such as unstable networks, unstable computing power, and unstable disks. It has been sufficiently tested in complex and large-scale environments before release. HBlock supports snapshot and clone functions. Users can create time-point snapshots for logical volumes to quickly back up and restore data. The clone function enables quick generation of new volume copies based on snapshots, greatly improving the efficiency of data replication and test environment setup.

Meanwhile, as a bridge between local and cloud storage, HBlock also has the following features:

- **Data Cloud Migration:** HBlock can be integrated with S3-compatible object storage to create local LUNs (local mode) and cloud LUNs (cache mode and storage mode):
  - Local mode LUNs: All data is stored locally, which not only has the low latency and high availability of traditional hardware storage arrays, but also combines the high scalability and throughput of traditional distributed storage. The green feature greatly reduces the cost of user deployment, while the heterogeneous hardware feature improves the utilization of existing hardware resources.
  - Storage mode LUNs: All data is not only stored locally, but also asynchronously replicated to object storage, achieving high local performance and remote data disaster recovery.
  - Cache mode LUNs: Recently read and written data will be cached locally to maximize performance, while the full amount of data will be saved on object storage to reduce costs, allowing a small local capacity to store massive amounts of data. This is particularly suitable for businesses that do not require high real-time performance, such as data backup and archiving, as well as businesses that require more writing and less access, such as document files, medical imaging, video surveillance, etc. HBlock can seamlessly connect local applications with cloud storage, enabling on-demand use of storage space and elastic expansion.

- **Consistency:** HBlock utilizes the atomic operations of object storage, which can truly ensure the consistency of data on the cloud (i.e., data on the cloud is always a snapshot of local data), and there will be no situation where the entire business cannot be restored due to inconsistency of data on the cloud, thus ensuring data security.

1.2 Application Scenarios

- **Utilization of Existing Resources**
  HBlock features broad compatibility and uniformly manages and integrates idle storage space in various servers into storage pools, and provides high-performance and HA virtual disks to other hosts through the iSCSI protocol. To meet the increasing demand for storage capacity raised by rapid service growth and solve the waste of resources due to idle server resources, HBlock provides rapid deployment and expansion solutions that improve the usage of storage resources without extra cost, and support rolling service updates. This way, HBlock meets the ever-changing requirements for capacity and performance of future business operations.

- **HA Storage for Application Systems**
  HBlock manages the physical disks of application nodes and mounts the HA virtual disks to the application nodes. It makes it easier for applications to achieve HA and re-utilize the storage resources of application nodes. Furthermore, no additional procurement for the storage hardware is required, which reduces the total cost of ownership (TCO) for users.

- **Independent Management and Control of New Resources**
  When using HBlock to manage the storage resource pools that you have created, you will be able to have actual control over storage servers. This means you can use HBlock to manage storage resources and deploy other applications on your hardware to give full play to the hardware. Traditional integrated software and hardware storage products or distributed storage solutions require exclusive access to devices, and users can only perform limited operations on the management console. The storage cluster managed by HBlock enables users to comprehensively manage and control resource pools and enhances operating flexibility. You can select servers with any specifications for resource pool upgrading or expansion without limitations of vendor lock-in. You can also flexibly choose suitable hardware based on your business needs and budgets, improving the cost-effectiveness of investment.

- **Hybrid Cloud Storage**
  HBlock can manage both local storage resources and OOS storage resources simultaneously, achieving unified management of storage space and meeting customers' needs for hybrid cloud storage. For customers who need to store massive amounts of data, HBlock can seamlessly connect local applications with cloud storage, synchronize data to the cloud, and achieve on-demand use of storage space for elastic expansion. For scenarios where high data security is required and sensitive data is not suitable for cloud storage, HBlock can also help users achieve local data storage and improve data access speed. In addition, HBlock simplifies data management in hybrid cloud storage environments. Providing virtual targets and logical volumes for upper layer applications

through the standard SCSI protocol, it can be deployed not only locally but also on private or public clouds.

- **Rapid Construction of a Production-like Environment**
  Based on its distributed block storage-derived multi-LUNs consistent snapshot capability, HBlock can instantly capture the data states of multiple applications in the upper-layer business system. When data is accidentally deleted or logical errors occur, snapshots enable second-level recovery, significantly reducing the risk of data loss. This makes it an ideal choice for data backup, recovery, and version management. Additionally, leveraging the capability to create clone LUNs in seconds, HBlock can rapidly replicate multiple independent test environments that are consistent with the production environment. This greatly improves the efficiency of data replication and environment setup, facilitating the verification of rapid application recovery and disaster recovery capabilities. Meanwhile, it enables efficient business testing, upgrade validation, and data analysis without disrupting the production environment.
- **Geo-Diverse Multi-Active High-Reliability Storage**
  HBlock optimizes the storage protocol stack and innovates in distributed algorithms to ensure cross-AZ strong data consistency (RPO=0) and achieve second-level fault recovery (RTO in seconds). The system can automatically detect faults, triggering cross-AZ data reconstruction. It uses intelligent data redundancy and redundancy overlap to ensure data security while reducing storage costs. In case of an AZ failure, services remain available with seamless business failover, requiring no manual intervention. This guarantees data security and business continuity.
- **Permanent Independent Backup of Critical Data**
  HBlock supports full and incremental backups via snapshot technology, guaranteeing long-term retention and complete isolation from production systems. Backup files can be flexibly exported to various storage media (e.g., object storage, NAS), so data is fully decoupled from the platform. Even if the primary system is totally destroyed or hit by ransomware, these standalone backups remain a trusted source for precise LUN-level recovery, ensuring zero loss of business-critical data. The solution is ideal for finance, healthcare, and other industries with strict long-term archival and compliance-audit requirements, providing rock-solid data protection.
- **Zero-Trust Storage Security Framework**
  HBlock builds an end-to-end zero-trust storage access fabric through a triple lock: iSCSI target allowlist, CHAP authentication, and QoS flow control.
  - At LUN granularity, only clients whose IQN is on the allowlist can discover or connect—unauthorized hosts remain completely invisible.
  - CHAP handshakes block spoofed identities and man-in-the-middle attempts before a single I/O is issued.
  - Coupled with QoS policies that dynamically throttle or block abnormal traffic in real time across both IOPS and bandwidth dimensions.

This delivers a triple guarantee: zero impact on storage performance, airtight isolation of data and traffic, and uninterrupted operation of mission-critical workloads.

- **Cloud Data Differential Restoration**: HBlock leverages the suspend/resume mechanism of cloud-bound LUNs to achieve cross-cluster disaster recovery switching and data flow management. It supports efficient cross-cluster data synchronization and rapid recovery, building a secure and efficient cloud-edge data collaboration system.
  Based on the exclusive state control mechanism of cloud-bound LUNs, the suspend capability pauses interaction between the LUN and the cloud. Subsequently, the cloud data restoration function supports recovering cloud data on other clusters and continuing data read/write operations until the next suspend. When restoring a suspended LUN, intelligent incremental difference comparison and targeted differential data backhaul technologies are employed—only synchronizing incremental cloud data is required to complete LUN restoration.
  This ensures that the same business LUN belongs to only a single cluster and remains readable/writable at any given time, fundamentally avoiding data conflict risks caused by multi-site writes. HBlock delivers core value in business continuity assurance, cross-cluster data security, and automated disaster recovery switching processes, providing secure, reliable, elastic, flexible, and visually controllable storage-layer disaster recovery capabilities for hybrid cloud and multi-active architectures.

1.3 Basic Concepts

1.3.1 iSCSI

iSCSI (Internet Small Computer System Interface) is a storage technology based on TCP/IP and SCSI-3 protocols, used to establish and manage IP storage devices, interconnections between hosts and clients, create a storage area network (SAN), etc.

1.3.2 LUN

LUN is the abbreviation of the term "Logical Unit Number," In the field of storage, LUN is a global identifier that uniquely identifies a storage volume or partition within a storage device (such as a hard disk or array). Through LUN, the operating system can recognize a specific storage volume and perform data read and write operations. You can create local LUNs (local mode) and cloud LUNs (cache mode and storage mode) according to your needs:

- Local mode: Stores all data locally.
- Cache mode: Stores part of hot data locally and stores all data in cloud asynchronously.
- Storage mode: Stores all data locally and stores them in cloud asynchronously.

Minimum replica number: For a LUN in replica mode, assuming that the number of LUN replicas is X and the minimum replica number is Y (Y <=X), each time the data is written to LUN, at least Y replicas of data must be written successfully before this write request is considered successful. For a LUN in EC N + M mode, assuming that the minimum replica number of the LUN is set to Y (N<=Y<=N + M), the data blocks and parity blocks that sum to at least Y blocks must be written successfully before this write request is considered successful.

1.3.3 Snapshot

A snapshot records an HBlock LUN's state and contents at a specific time point. Like a photo, it captures and saves the complete data status of the LUN at that moment. When needed, users can roll back via snapshots or create clone LUNs based on them to quickly restore to that state, effectively protecting data.

A consistency snapshot involves creating snapshots for all selected LUNs simultaneously at a specific moment, ensuring the snapshots reflect the data status of the same point in time.

1.3.4 Clone LUN

A clone LUN, based on a snapshot, mirrors the data and state at the snapshot's creation. It can be modified independently of the source LUN, tracking only new or changed data post - cloning, while relying on the source for original data. Once remove the reference to the parent snapshot from the clone LUN, it will copy the data stored in the snapshot to the clone. After the operation

completes, the clone LUN will become an independent LUN.
Cloning depth refers to the number of layers in a chain of clone LUNs from a single snapshot. It indicates how many layers of clone LUNs can be created consecutively starting from the initial source LUN. For example:

- Create snapshot snap1 from source LUN lun1, then clone lun1-C1 from snap1. Cloning depth is 1.
- Create snapshot snap2 from lun1-C1, then clone lun1-C2 from snap2. Cloning depth becomes 2.

1.3.5 Backup

Captures the data state at a specific point-in-time and produces self-contained backup files that can be stored independently and imported on demand. Supports both full and incremental exports, and allows importing intact backups as well as those interrupted mid-process.

1.3.6 iSCSI Target

iSCSI target is a storage resource located on an iSCSI server. It is a protocol that connects data storage devices through an IP network infrastructure, enabling the mapping of remote storage devices to local hosts. This provides a network-based storage solution.
Applicable scenarios:

- Critical-data protection: Full data copies are kept on independent media, supporting both incremental and full-backup policies to retain historical versions for the long term.
- Cross-cluster migration or disaster recovery: Restore backup files into LUNs located in different storage pools or remote clusters.
- Image distribution & deployment: Import pre-configured system images into multiple LUNs for rapid deployment; systems can be rolled out even in air-gapped environments by importing the image files.

1.3.7 iSCSI Target Portal

The iSCSI target portal refers to the target portal of the HBlock server, used for communication with initiators that are not on the same LAN of HBlock.

If an Initiator outside the same LAN of HBlock wants to connect with HBlock server, network configuration (such as NAT) is required to ensure the Initiator can access the HBlock server through the IP address. Then, configure this address as the target portal of the HBlock server. Afterward, the Initiator can connect with the HBlock server through the configured target portal.

1.3.8 Storage Pool

Storage pool: A collection of storage resources provided by hardware. Physically, it refers to a collection of hard disks of the same medium across multiple servers. You can also form a storage pool as needed based on disk paths on servers in different server rooms and cabinets.

Base storage pool: The default storage pool created during initialization is the base storage pool. Physical resources upgraded from versions earlier than 3.7 belong to the base storage pool.

1.3.9 QoS Policy

Quality of Service (QoS) policies precisely regulate IOPS and throughput through a token-bucket algorithm, shaping traffic before congestion occurs and thereby preventing network bottlenecks at the source.
The policy can be applied to the following scenarios as required:

- Critical-business protection: By throttling the I/O of adjacent workloads, it indirectly safeguards the service quality of critical applications.
- Storage-tier optimization: Intelligently distributes I/O resources across performance tiers (e.g., SSD and HDD) to optimize performance in hybrid-storage environments.
- Burst-traffic handling: It allows short-term exceedance of baseline limits, smoothing sudden I/O bursts instead of rejecting requests outright.

1.3.10 Cluster Topology

Cluster topology: Displays the deployment of physical resources in a cluster logically and visually.

1.3.11 Fault Domain

You can set a fault domain for a storage pool. A fault domain is a collection of components that may fail simultaneously due to infrastructure sharing, such as rooms, racks, servers and disk paths. A fault of a component in the same fault domain affects only the data in the local fault domain.
HBlock allocates and stores data replicas in replica mode or data blocks in EC mode by fault domains to guarantee data security. Replicas of the same data and EC blocks of the same data are written into different fault domains.

1.3.12 Data Service

One disk path corresponds to one data service, and HBlock manages the user's file data blocks in the disk path through the data service.

1.3.13 Monitoring

Monitoring refers to monitoring and recording the performance indicators of the HBlock system, servers, disk paths, and LUNs. Users can view real-time or historical performance data and pay attention to the performance of storage services. Please see the appendix **Monitoring Metrics**.

1.3.14 Event

Events refer to the user operations on HBlock or HBlock system behaviors recorded by the system, which reflect the comprehensive storage status and facilitate troubleshooting, auditing, and tracking.

Events are divided into user events and system events:

- User events: User operations on HBlock. See the appendix **User Event List** for a detailed list of user events.
- System events: HBlock system behaviors. See the appendix **System Event List** for a detailed list of system events.

1.3.15 Log Collection

Log collection means that users actively collect HBlock log data, generate log files, and download them locally, send to HBlock engineers to view the log details for troubleshooting. You can narrow the scope of log collection and speed up the collection progress by specifying the time period, log type, and server.

1.3.16 Alarm

Alarms refer to information generated when the system detects HBlock business or system abnormality.

Alarms are divided into three levels:

- Warning: Refers to a general situation where the system detects a potential or imminent fault that affects the business. There are currently no alarms that affect the business. Maintenance personnel needs to find the cause of the alarm in time and eliminate potential faults.
- Major: Refers to an alarm within a local scope that affects system performance. Prompt action is required; otherwise, it will impact the operation of critical functions.
- Critical: Refers to a global alarm that has already caused business interruption or paralysis. It needs to be handled immediately, otherwise the system is in danger of collapsing.

For more information, see **Alarm List**.

1.4 Usage Restrictions

Item	Description
iSCSI target	HBlock supports a maximum of 32766 target IQNs. A target can be associated with up to 256 LUNs, but each LUN can only be associated with one target.
Storage Pool	A maximum of 32768 storage pools can be created in an HBlock cluster.
Snapshot	● Maximum snapshots per LUN: 512. ● Maximum snapshots per system: 100,000. ● Maximum clone LUNs per snapshot: 512. ● Maximum snapshot depth per system: 512.
Consistency Snapshot	Maximum number of LUNs for a consistency snapshot: 512.
Clone	● Maximum number of clone LUNs supported by the system: 100,000. ● Maximum number of clone LUNs per snapshot: 512. ● Maximum clone depth supported by the system: 16.
Server	Each HBlock server can only add up to 100 disk paths.

1.5 Commercial Edition and Free Edition Features Available After Software License Expiration (Trial or Subscription Mode)

During initialization, you may select either the Commercial Edition or the Free Edition based on your requirements. The features supported by each edition are as follows:

Features		Commercial Edition	Free Edition
Software License	import software license, list software licenses	Supported	Supported
LUN	create a LUN, expand a LUN, edit a LUN, set LUN primary-secondary priority or automatic failover, trigger Active/Standby switchover of the target corresponding to the LUN, set LUN extended attributes, delete specified extended attributes of LUN, delete all extended attributes of LUN, query LUN extended attributes, delete a LUN, query LUN information	Supported	Supported
	create a clone LUN, flatten the clone LUN, recover a LUN, wipe a LUN, resume LUN recovery	Supported	Not supported
Snapshot	create a snapshot, modify a snapshot, roll back a snapshot, delete a snapshot, query snapshot information	Supported	Not supported
Consistency Snapshot	create a consistency snapshot, modify a consistency snapshot, roll back a consistency snapshot, delete a consistency snapshot, query consistency snapshot information	Supported	Not supported
Backup	export backup file, import backup file	Supported	Not supported
iSCSI target	create an iSCSI target, delete an iSCSI target, set CHAP authentication of the iSCSI target, delete CHAP, migrate an iSCSI target, edit maximum sessions number per IQN under iSCSI target, modify the remain	Supported	Supported

	policy of the iSCSI target, set iSCSI target allowlist, delete an iSCSI target allowlist, query iSCSI target information, query iSCSI target connection, delete iSCSI target connection		
Storage Pool	create a storage pool, add nodes to the storage pool, modify a storage pool, remove nodes from a storage pool, delete a non-base storage pool, query the storage pool information, query the QoS policy associated with the storage pool	Supported	Supported
QoS Policy	create a QoS policy, modify a QoS policy, associate the QoS policy with LUNs, disassociate the QoS policy from LUNs, associate the QoS policy with storage pools, disassociate the QoS policy from storage pools, set the default QoS policy for LUNs in the storage pool, disassociate the default QoS policy for LUNs in the storage pool, delete a QoS policy, query QoS policy information, query information on objects associated or associable with the QoS policy	Supported	Not supported
Cluster Topology	create a topology node, modify topology node information, delete a topology node, query topology information	Supported	Supported
Server	add a server, set server properties (including: modify server port range, set server target portal IP, set the memory available for HBlock on the server, and set server default disk path), delete server properties (server target portal IPs), remove a server, query server information, add disk paths, modify capacity quota of a disk path, remove a disk path	Supported	Supported
	migrate the base services on the	Supported	Not supported

	server		
Monitoring	query real-time performance data, export performance data (command line), obtain historical performance data (WEB/API)	Supported	Supported
Alarm	query HBlock alarm information, export HBlock alarms, manually resolve HBlock alarm, mute HBlock alarm, unmute HBlock alarm	Supported	Supported
Event	query HBlock events, export HBlock events	Supported	Supported
Log	initiate HBlock log collection, query collected logs, download the collected log file, delete collected logs	Supported	Supported
Administrator Password	change the administrator password	Supported	Supported
Email Settings	set the email, send a test email, delete email configuration, query email configuration	Supported	Supported
Remote Assistance Configuration	set remote assistance configuration, delete remote assistance configuration, query remote assistance configuration	Supported	Supported
Pushgateway Monitoring Configuration	add pushgateway monitoring configuration, modify pushgateway monitoring configuration, delete pushgateway monitoring configuration, query pushgateway monitoring configuration information	Supported	Supported
Authentication Mode	set the authentication mode, query the authentication mode	Supported	Supported
Pro Trial	enable the Pro Trial for the free edition	Not supported	Supported
Performance Parameters of HBlock	tune the performance parameters of HBlock, view the performance tuning configuration	Supported	Supported
Service Management	stop HBlock on the server, start HBlock on the server, restart HBlock on the server	Supported	Supported

Uninstall HBlock	uninstall HBlock	Supported	Supported
System Query	query HBlock information, query HBlock service status, query HBlock version	Supported	Supported
Upgrade	query the upgrade status of HBlock	Supported	Supported
	upgrade HBlock	Supported	Supported for 2 years

1.6 Features Available After Software License Expiration (Trial or Subscription Mode)

Module	Feature
Help Command	help command (command line only)
Software License	import software license, list software licenses
LUN	delete a LUN
Server	query server information
Service Management	stop HBlock on the server, start HBlock on the server, restart HBlock on the server
Alarm	query HBlock alarm information
Event	query HBlock events, export HBlock events
Log	initiate HBlock log collection, query collected logs, delete collected logs
Administrator Password	change administrator password
Remote Assistance Configuration	set remote assistance configuration, delete remote assistance configuration, query remote assistance configuration
System Query	query HBlock information, query HBlock service status, query HBlock version
Uninstall HBlock	uninstall HBlock
Other	WEB support overview page (license, data path, fault domain, LUN)

1.7 Terms and Abbreviations

Term/Abbreviation	Description
ALUA	Asymmetric Logical Unit Access
CHAP	Challenge Handshake Authentication Protocol
CIDR	Classless Inter-Domain Routing, a method of classifying IP addresses for assigning IP addresses to users and efficiently routing IP packets on the Internet.
DSM	Device Specific Module
EC	Erasure Coding
IQN	iSCSI Qualified Name
iSCSI	Internet Small Computer System Interface
I/O	Input/Output
LUN	Logical Unit Number
MPIO	Multipath I/O
NFS	Network File System
NTP	Network Time Protocol
OOS	Object-Oriented Storage (OOS) is a cloud storage service, it provides a massive, flexible, cheap, and highly available storage.
RAID	Redundant Arrays of Independent Disks
SAN	Storage Area Network
SPC	Small Computer System Interface (SCSI) Primary Commands
SSD	Solid State Disk
SSL	Secure Sockets Layer
target	Storage target.
UUID	Universally Unique Identifier
WWID	World Wide Identifier, the unique identifier of the LUN. If there are multiple LUNs on the HBlock side when the client connects to a LUN, the WWID can be used to identify the LUN to be connected.
Disk Path	Path used to store HBlock data.

2 Server Deployment Requirements

2.1 Environmental Requirements

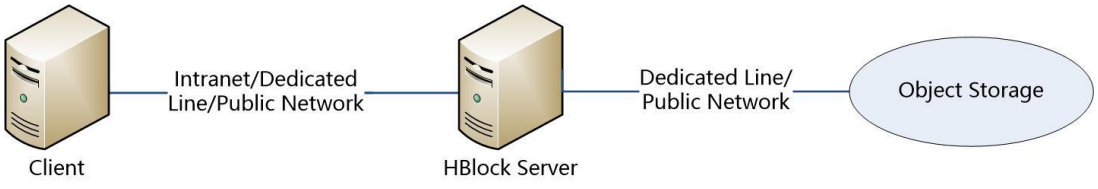
Item	Description
Supporting Linux OS	CentOS 7/8/9 64-bit, CTyunOS 2/4 64-bit.
Hardware	x86 server, ARM server. Minimum configuration: Single-core CPU, 2 GB memory. Configurations can be added based on actual business needs.
Bandwidth	● Bandwidth from client to HBlock: Read and write bandwidth capabilities are greater than business read and write bandwidth. ● The write bandwidth capacity of the disk partition corresponding to the disk path is greater than the bandwidth used by users to write data. ● Cloud bandwidth is greater than business write bandwidth.
Disk of installation directory	Above 10GB, RAID 1 or RAID 10 is recommended.
Disk path	● Minimum configuration: 5GB, configuration can be increased according to actual business needs. ● Configure the capacity of the partition corresponding to the disk path based on the storage capacity and replica mode of LUN. For the directories used by HBlock, it is recommended to set up automatic mounting at boot time or use a directory or subdirectory that has been set up for automatic mounting.
Network settings	Can connect to object storage network (not required for deploying local mode LUNs). The overall network architecture is as follows: ● The nodes within HBlock are interconnected through the intranet. ● HBlock is interconnected with upper-layer applications through an intranet, dedicated line, or public network. ● HBlock is interconnected with object storage through dedicated line or public network, local LUNs are not required. 

Figure 1. Standalone mode network topology diagram

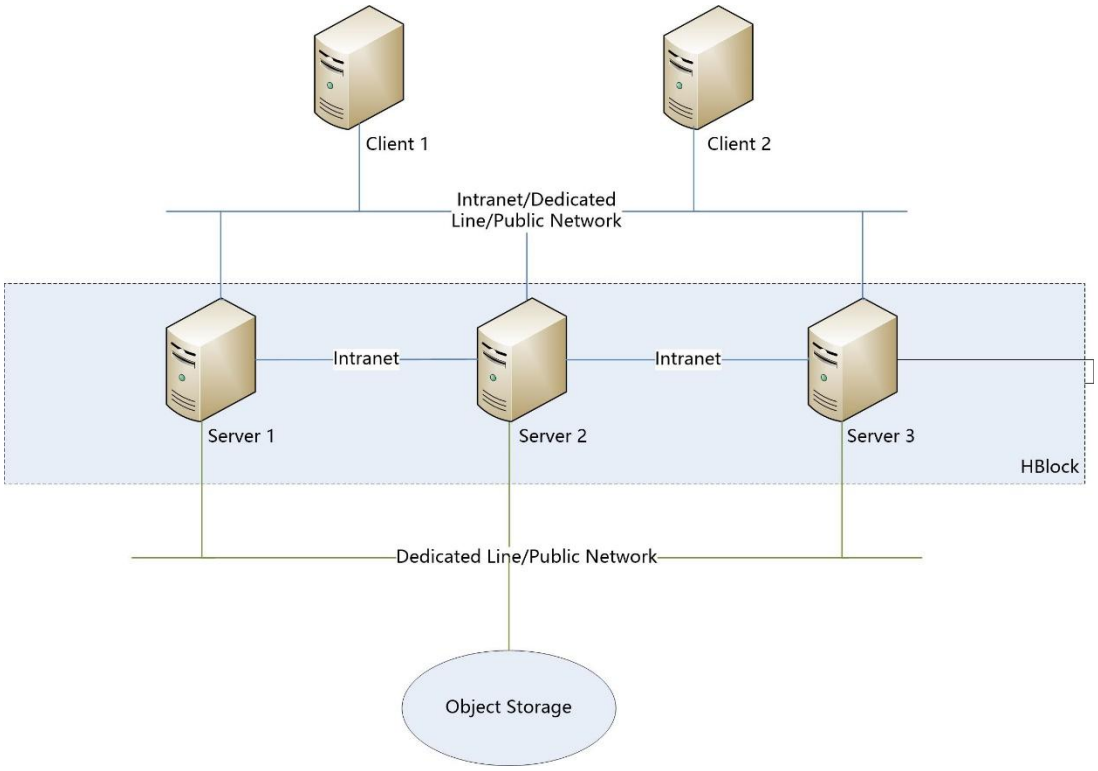


Figure 2. HBlock cluster mode network topology diagram

Note: Confirm whether you are using the standalone mode or cluster mode before deploying HBlock. The mode cannot be changed once deployed.

2.2 HBlock Configuration Environment – Standalone Mode

According to **Environmental Requirements**, prepare one server.

Note: Make sure that the **ping** command and **ps** command are available. For Debian/Ubuntu, you can use the following commands to install the **ping** command and **ps** command.

```
apt-get update     # Get the latest installation package
apt-get install iputils-ping      # Install ping
apt-get install procps     # Install ps
```

The server should be configured according to the following steps. The operations are illustrated using CentOS 7.x as an example:

Note: If the operating system is already installed, please ignore step I. If the disk is already mounted, please ignore step II. You can use the mounting path as a disk path for HBlock, or use the command `mkdir` *`DIRECTORY`* to create a directory under the mounting path and use it as an HBlock disk path.

(I) Install the CentOS 7.x operating system (Optional).

(II) Format the hard disk and mount it (Optional).
Please refer to the following examples to format the hard disk on your server for subsequent deployment.

```
lsblk      # View hard disk
mkfs.ext4 /dev/vdX     #  Format the hard disk to ext4
mkdir DIRECTORY       # Create a mounting path, and DIRECTORY is the directory name.
mount /dev/vdX DIRECTORY     # Mount the hard disk
```

Note: The **mount** command is a temporary mounting command. After the server is restarted, it needs to be mounted again. For the directories used by HBlock, it is recommended to set up automatic mounting at boot time or use a directory or subdirectory that has been set up for automatic mounting.

Note: If the user installing HBlock is a non-root user, the read and write permissions on the directory used by HBlock are required. You can use the following command.

```
chown user:user-group DIRECTORY
#  user is HBlock user, user-group is the user group to which HBlock users belong
```

(III) Close selinux and swap partitions (Recommended).

(IV) Configure the firewall.
If your server's firewall is not enabled, you can skip this step. If your server's firewall is enabled, please open the iSCSI port to allow clients to connect to the server's target.
If the firewall software in use is firewalld, the example is as follows:

(a) Open the iSCSI port, for example, if the iSCSI port is 3260.

```
firewall-cmd --permanent --add-port=3260/tcp
```

(b) Reload the firewall to apply the configuration.

```
firewall-cmd --reload
```

If the firewall is iptables, the example is as follows:

(a) Open the iSCSI port, for example, if the iSCSI port is 3260.

```
iptables -I INPUT -p tcp --dport 3260  -j ACCEPT
```

(b) Save configuration.

```
iptables-save
```

(V) Set resource limits.

Edit file **/etc/security/limits.conf** to add the following contents, which set the maximum number of open files and processes in *domain*.

Note: Only non-root users need to manually modify /etc/security/limits.conf.

```
domain soft nofile 65536   # Set a value for the parameter domain as required
domain hard nofile 65536   # Set a value for the parameter domain as required
domain soft nproc 65535    # Set a value for the parameter domain as required
domain hard nproc 65535    # Set a value for the parameter domain as required
```

domain can be a *username*, *groupname*, *uid* or *wildcard*, and you can set it according to actual needs.

Note: If *domain* is set to username, *domain* must include the user who starts the HBlock service.

Example 1: If the value of the parameter *domain* is *, it means all users can open up to 65,536 files and run up to 65,535 concurrent processes.

```
* soft nofile 65536    # * is the value of the parameter domain
* hard nofile 65536    # * is the value of the parameter domain
* soft nproc 65535     # * is the value of the parameter domain
* hard nproc 65535     # * is the value of the parameter domain
```

Example 2: If the value of the parameter *domain* is root, it means the root user can open up to 65,536 files and run up to 65,535 concurrent processes.

```
root soft nofile 65536    # root is the value of the parameter domain
root hard nofile 65536    # root is the value of the parameter domain
root soft nproc 65535     # root is the value of the parameter domain
root hard nproc 65535     # root is the value of the parameter domain
```

2.3 HBlock Configuration Environment – Cluster Mode

According to **Environmental Requirements**, prepare three or more servers.

Note: Make sure that the **ping** command and **ps** command are available. For Debian/Ubuntu, you can use the following commands to install the **ping** command and ps command.

```
apt-get update  #Get the latest installation package
apt-get install iputils-ping   # Install ping
apt-get install procps # Install ps
```

Each server should be configured according to following the steps. The following operations take CentOS 7.x version as an example:

Note: If the operating system is already installed, please ignore step I. If the disk is already mounted, please ignore step II. You can use the mounting path as the disk path for HBlock, or use the command `mkdir` *DIRECTORY* to create a directory under the mounting path and use it as the HBlock disk path.

(I) Install the CentOS 7.x operating system (Optional).

(II) Format the hard disk and mount it (Optional).

Please refer to the following examples to format the hard disk on the server to facilitate subsequent deployment.

```
lsblk # View hard disk
mkfs.ext4 /dev/vdX  #Format the hard disk to ext4
mkdir DIRECTORY #Create a mounting path, and DIRECTORY is the directory name.
mount /dev/vdX DIRECTORY
#Mount the hard disk, and after mounting, you can use this path as the HBlock disk path
```

Note: The **mount** command is a temporary mounting command. After the server is restarted, it needs to be mounted again. For the directories used by HBlock, it is recommended to set up automatic mounting at boot time or use a directory or subdirectory that has been set up for automatic mounting.

Note: If the user installing HBlock is a non-root user, the read and write permissions on the directory used by HBlock are required. You can use the following command.

```
chown user:user-group DIRECTORY
#  user is HBlock user, user-group is the user group to which HBlock users belong
```

(III) Close selinux and swap partitions (Recommended).

(IV) Configure the firewall.

Make sure that the cluster servers can access each other, and are mutually trustlisted. Also, open the iSCSI port to allow clients to connect to server's target. If it is installed on a cloud host, a trustlist also needs to be added to the security group.

If your server's firewall is not enabled, you can skip this step.

If the firewall software in use is firewalld, the example is as follows:

(a) Open the iSCSI port, for example, if the iSCSI port is 3260.

```
firewall-cmd --permanent --add-port=3260/tcp
```

(b) Add the IP of each server in the cluster to the trustlist:

Add IPv4 address.

```
firewall-cmd --permanent --add-rich-rule="rule family=ipv4 source address=your_IP accept"
# your_IP is IP address allowed to access
```

Add IPv6 address.

```
firewall-cmd --permanent --add-rich-rule="rule family=ipv6 source address=your_IP accept"
#your_IP is IP address allowed to access
```

(c) Reload the firewall to apply the configuration.

```
firewall-cmd --reload
```

If the firewall is iptables, the example is as follows:

(a) Open the iSCSI port, for example, if the iSCSI port is 3260.

```
iptables -I INPUT -p tcp --dport 3260  -j ACCEPT
```

(b) Configure mutual access between servers in the cluster:

Allow the loopback address.

```
iptables -I INPUT -i lo -j ACCEPT
```

Allow access from the internal network segment.

```
iptables -I INPUT -s your_IP -j ACCEPT
```

(c) Save configuration.

```
iptables-save
```

(V) Set resource limits.

Edit file **/etc/security/limits.conf** to add the following contents, which set the maximum number of open files and processes in domain.

Note: Only non-root users need to manually modify /etc/security/limits.conf.

```
domain soft nofile 65536
domain hard nofile 65536
domain soft nproc 65535
domain hard nproc 65535
```

domain can a *username*, *groupname*, *uid* or *wildcard*, and you can set it according to actual needs.

Note: The *domain* must include the user who starts the HBlock service.

Example 1: If the value of the parameter domain is *, it means all users can open up to 65,536 files and run up to 65,535 concurrent processes.

```
* soft nofile 65536
* hard nofile 65536
* soft nproc 65535
* hard nproc 65535
```

Example 2: If the value of the parameter domain is root, it means the root user can open up to 65,536 files and run up to 65,535 concurrent processes.

```
root soft nofile 65536
root hard nofile 65536
root soft nproc 65535
root hard nproc 65535
```

3 Installation and Access

3.1 Install

1. Please complete the following preparations first: Prepare one or more directories as HBlock disk paths to store HBlock data. For example: **/mnt/storage01**. For the Cluster Mode, the directories as HBlock disk paths for each server can be different. It is recommended that the disk path as HBlock disk path does not share a disk or file system with the operating system.

2. Place the installation package in the directory where HBlock will be installed on the server, then unzip it and enter the unzipped folder.
   Note: It is recommended that the installation directory not share a disk or file system with the HBlock disk path.

```
unzip CTYUN_HBlock_Plus_version_x64.zip
cd folder_of_unzipped_package
```

Example: Execute the unzipped package on the server and enter the unzipped folder

```
[root@hblockserver opt]# unzip CTYUN_HBlock_Plus_3.8.0_x64.zip
……
[root@hblockserver opt]# cd CTYUN_HBlock_Plus_3.8.0_x64/
```

3. Install HBlock

- Install HBlock on each server.

```
./stor install [ { -a | --api-port } API_PORT ] [ { -w | --web-port } WEB_PORT ]
```

- *API_PORT:* Specifies the API port number, the default port number is 1443.
- *WEB_PORT:* Specifies the WEB port number, the default port number is 2443.
- You can set the API port number and WEB port number according to your business needs.
- **Note**: Please ensure that the Linux user has permission for the required ports. By default, Linux systems do not open ports less than 1024 to ordinary users without root privileges.

Example: Install HBlock on the server.

```
[root@hblocksever1 CTYUN_HBlock_Plus_3.8.0_x64]# ./stor install
Do you agree with HBlock User Agreement? [Yes/No]
Used in Chinese mainland, follow https://www.ctyun.cn/portal/protocol/10073150
Otherwise, follow https://www.esurfingcloud.com/portal/protocol/20692906
y
```

```
Installing HBlock...
Installed successfully.
When all servers are installed, please initialize HBlock in any of the following ways:
1. Use web portal to initialize HBlock. The https port is 2443.
2. Use management API (POST /rest/v1/system/setup) to initialize HBlock. The https port
is 1443.
3. Use command line (stor setup) to initialize HBlock. Type 'stor --help setup' for more
information.
```

4. Installation completed: Once installed, HBlock can be initialized and managed via the web, the command line, or the API. This section will subsequently describe the initialization and management operations of HBlock using the API.

3.2 API Access Address

After the management API service is started, it can be accessed through `https://`*`SERVER_IP`*`:`*`PORT`*. Only HTTPS protocol is supported. *`SERVER_IP`* can be the IP address (IPv4 or IPv6) of any server where HBlock has been installed.

Parameter	Description
SERVER_IP	IP of the server where HBlock is installed. Make sure that the server can be accessed by you. Only the API client and the accessed server are in the same local area network (LAN), the server's intranet IP can be used as *SERVER_IP*.
PORT	The API port is specified during installation, if not specified, the default port is 1443.

3.3 API Introduction

3.3.1 URL Rules

HBlock uses HTTP Restful API, and the URL rules are:

```
https://${ip}:${port}/rest/${version}/${prefix}/${resourceName}[/${name}][?(${parameterName}=${value})+]
```

Parameter	Description	Required
ip	Server IP.	Yes
port	Manage ports for the API.	Yes
version	Version number. Value: ● v1. ● v2: Currently, only the following APIs support v2 while maintaining backward compatibility with v1: query LUNs in batches, query a specific LUN, and query HBlock service status. For these APIs, v2 is recommended.	Yes
prefix	Prefix. Value: ● system: System related interfaces. ● block: Block operation related interfaces.	Yes
resourceName	Resource name.	Yes
name	The name or ID of the specific instance.	No
parameter	Specific Parameters.	No

3.3.1.1 filter

When querying in batches, you can use filter criteria to refine your search.
The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship.
For example:

```
filter=lunName::lunb or lunName:lun01 and status:Normal
```

This query retrieves all LUNs where: the LUN name equals "lunb" (exact match), **OR** the LUN name contains "lun01" (fuzzy match), **AND** the status is "Normal".

3.3.2 Common Request Headers

Request Header	Description	Required
Host	The requested IP and port number.	Yes
Connection	Whether a persistent connection is required, value: ● keep-alive: Persistent connection. ● close: Close the connection. The default value is `keep-alive`.	No
User-Agent	Client information for the request.	No
Date	The time the request was sent. The format is *`EEE, dd MMM yyyy HH:mm:ss`* `'GMT'`.	Yes
Content-Type	MIME type of request body, the value is `application/json; charset=utf-8`.	No
Content-Length	Request body length.	Yes
Content-MD5	Generates a 128-bit MD5 value of the message using base64 encoding according to RFC 1864. This header can be used as a message integrity check to verify that the data is the same data that was originally sent.	No
Authorization	Signature authentication information, the format is `HBlock+" "+`*`userName`*`+":"+`*`signature`*`.`	Yes

3.3.3 Signing Method

The method for calculating the signature in the Authorization request header is:

Authorization: `HBlock+" "+`*`userName`*`+":"+`*`signature`*, where:

- `HBlock`: fixed string.
- *`userName`*: Administrator username of HBlock.
  Note: When initializing using the API, you need to use the default username `storuser` for signing. You can modify the username during initialization.
- *`signature`* `= HMAC-SHA256(SHA256(`*`password`*`),`
  `Date``+"\n"+SHA256(`*`password`*`))`
  `Password` is the user's password. *`Date`* is the value of the Date in the request header, in GMT format.
  Note: When using API initialization, you need to use the initial password for signing. The initial password is `123456`. The password must be reset during initialization. When calling other APIs, use the newly set password for signing.

3.3.4 Common Response Header

Response Header	Description
Server	Service name.
Connection	Indicates whether a persistent connection is required: ● keep-alive: Keep persistent connection. ● close: Close the connection.
Date	Response time.
Content-Type	The MIME type of the response body.
Content-Length	The length of the response body.
x-hblock-request-id	A 32-bit string that uniquely identifies the request and is used to troubleshoot positioning issues.
Retry-After	When the server experieneces a backoff, this response header is returned with a value of 90. It is recommended that the client retry after 90 seconds. backoff: When the system service is busy and temporarily unavailable, the client 503 response status code and Retry-After response header are returned.

3.3.5 Common Error Code

HTTP Status	Error Code	Error Message
400	BadDigest	The Content-MD5 you specified does not match what HBlock received.
400	ClusterModeNotAllowed	'*operation*' is not supported by cluster mode of HBlock.
400	IncompleteBody	You did not provide the number of bytes specified by the Content-Length HTTP header.
400	InsufficientServerSpace	This method is not allowed because the free space of *directory* must be greater than or equal to *value* for server *serverId[, serverId...].*
400	InvalidArgument	Value empty at '*argument*' failed to satisfy constraint: Argument must not be empty.
400	InvalidBoolean	Value *value* at '*argument*' failed to satisfy constraint: Argument must be boolean.
400	InvalidFilter	Value *value* at 'filter' failed to satisfy constraint: Argument must use a single colon (':' means fuzzy match) or two colons ('::' means exact match) to separate the attribute key and value. If you query multiple attributes, you can use 'and' or 'or' keywords to separate them, and there must be spaces before and after 'and' or 'or'.
400	InvalidHeader	Invalid HTTP header, *headerName*.
400	InvalidInteger	Value *value* at '*argument*' failed to satisfy constraint: Argument must be integer.
400	InvalidArgumentLength	Value *value* at '*argument*' failed to satisfy constraint: Argument must not exceed *value* characters.
400	InvalidPackage	Invalid package. Please get the correct package.
400	InvalidRequest	Unable to parse request *url.*
400	InvalidRequestBody	Invalid request body.
400	InvalidStatus	Value *value* at '*argument*' failed to satisfy constraint: Argument must satisfy enum value set: [Enabled, Disabled].
400	InvalidString	Value '' at '*argument*' failed to satisfy constraint: Argument must not be an empty string.

400	LoadConfigFailed	Failed to load configuration files.
400	MissingArgument	Value null at '*argument*' failed to satisfy constraint: Argument must not be null.
400	MissingHeader	Missing HTTP header *headerName*.
400	NotInitialized	HBlock is not initialized.
400	NotInstalled	HBlock is not installed.
400	RequestTimeout	No response received. Please check if there are any network issues and if the operation was successfully executed.
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
403	LicenseExpired	The software license has expired.
403	PermissionDenied	Failed to *action* because user has no permission.
403	SignatureDoesNotMatch	Signature does not match. Please check your user name, password and signing method for server(s) [, *serverIP* ...].
400	SystemDataDegraded	There is low redundancy or error data in the system, operation is not allowed. Please repair fault domains and disk paths.
403	TrialExpired	The software trial version has expired.
405	InvalidMethod	The specified method does not exist.
409	InvalidLUNStatus	The status of LUN '*lunname*' is '*status*', the request is invalid.
409	InvalidServerStatus	The server *serverId* status is '*status*', the request is invalid.
409	InvalidStorStatus	The HBlock status is '*status*', the request is invalid.
409	InvalidtargetStatus	The target status is '*status*', the request is

		invalid.
500	InsufficientResource	Operation failed due to insufficient resources.
500	InternalError	HBlock encountered an internal error. Please try again or contact the software vendor.
503	SlowDown	Please reduce your request rate.

4 Management API

4.1 Initialize

4.1.1 Initialize

This operation is used to initialize HBlock. If the server returns a 202 response code, it means that the initialization operation has begun.

After installing all servers, HBlock needs to be initialized.

Note:

- When initializing HBlock using API, you need to use default username and initial password to sign, default username is **storuser** and the initial password is **123456**. The password must be reset during initialization. When calling other APIs, use the newly set password for signing.
- Please ensure that the Linux user has permission for the required ports. By default, Linux systems do not open ports less than 1024 to ordinary users without root privileges.
- When setting the port range (**portRange**), please avoid overlapping with the local temporary port range of the Linux system(**ip_local_port_range**), otherwise the port used by the HBlock service may be occupied. Use the command **`cat /proc/sys/net/ipv4/ip_local_port_range`** to view the local temporary port range.

Request Syntax

Standalone Mode

```
POST /rest/v1/system/setup HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "storName": storName,
    "userName": userName,
    "newPassword": newPassword,
    "edition": edition,
    "iSCSIPort": iSCSIPort,
    "portRange": port1-port2,
    "ports":{
```

```
        "managementPort1": managementPort1,
        "managementPort2": managementPort2,
        "managementPort3": managementPort3,
        "managementPort4": managementPort4,
        "managementPort6": managementPort6
    },
    "servers":[
        {
        "ip": ip,
        "apiPort": apiPort,
        "diskPaths": [
            {
            "path": path,
            "capacityQuota": capacityvalue
            },
            {
            "path": path,
            "capacityQuota": capacityvalue
            },
       ……
          ]
        }
    ],
    "publicNetwork": publicNetwork
}
```

Cluster Mode (List Server IPs)

```
POST /rest/v1/system/setup HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "storName": storName,
    "userName": userName,
    "newPassword": newPassword,
    "edition": edition,
    "iSCSIPort": iSCSIPort,
```

```
    "portRange": port1-port2,
    "faultDomain": "faultDomain",
    "ports": {
        "dataPort1": dataPort1,
        "managementPort1": managementPort1,
        "managementPort2": managementPort2,
        "managementPort3": managementPort3,
        "managementPort4": managementPort4,
        "managementPort5": managementPort5,
        "managementPort6": managementPort6,
        "metadataPort1": metadataPort1,
        "metadataPort2": metadataPort2,
        "metadataPort3": metadataPort3,
        "metadataPort4": metadataPort4,
        "metadataPort5": metadataPort5,
        "metadataPort6": metadataPort6,
        "metadataPort7": metadataPort7,
        "metadataPort8": metadataPort8
    },
    "servers": [
        {
            "nodeName": servername,
            "ip": ip,
            "apiPort": apiPort,
            "diskPaths": [
                {
                    "path": path,
                    "capacityQuota": capacityvalue
                },
                {
                    "path": path,
                    "capacityQuota": capacityvalue
                },
                ……
            ]
        },
        ……
{
            "nodeName": servername,
            "ip": ip,
            "apiPort": apiPort,
```

```
            "diskPaths": [
                {
                    "path": path,
                    "capacityQuota": capacityvalue
                },
                {
                    "path": path,
                    "capacityQuota": capacityvalue
                },
                ……
            ]
        }
    ],
    "services": {
        "mdm": [
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            }
        ],
        "ls": [
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            }
        ],
        "cs": [
            {
                "ip": ip,
```

```
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            }
        ]
    },
    "clusterNetwork": clusterNetwork,
    "publicNetwork": publicNetwork
}
```

Cluster Mode (Import Topology File)

```
POST /rest/v1/system/setup HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "storName": storName,
    "userName": userName,
    "newPassword": newPassword,
    "edition": edition,
    "iSCSIPort": iSCSIPort,
    "portRange": port1-port2,
    "faultDomain": faultDomain,
    "topology": topologyString,
    "ports": {
        "dataPort1": dataPort1,
        "managementPort1": managementPort1,
        "managementPort2": managementPort2,
        "managementPort3": managementPort3,
        "managementPort4": managementPort4,
```

```
        "managementPort5": managementPort5,
        "managementPort6": managementPort6,
        "metadataPort1": metadataPort1,
        "metadataPort2": metadataPort2,
        "metadataPort3": metadataPort3,
        "metadataPort4": metadataPort4,
        "metadataPort5": metadataPort5,
        "metadataPort6": metadataPort6,
        "metadataPort7": metadataPort7,
        "metadataPort8": metadataPort8
    },
    "services": {
        "mdm": [
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            }
        ],
        "ls": [
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            }
        ],
        "cs": [
            {
                "ip": ip,
                "metaDir": path
            },
```

```
            {
                "ip": ip,
                "metaDir": path
            },
            {
                "ip": ip,
                "metaDir": path
            }
        ]
    },
    "clusterNetwork": clusterNetwork,
    "publicNetwork": publicNetwork
}
```

Request Parameters

Parameter	Type	Description	Required
storName	String	Specifies the HBlock name. Value: The value is a string of 1 to 64 case-sensitive characters. It can contain letters, digits, underscores (_), or hyphens (-). Only supports starting with a letter or a digit.	Yes
userName	String	Specifies HBlock Administrator Username. Value: The value is a string of 5 to 16 case-sensitive characters. It can only contain letters or digits. The default value is storuser.	No
newPassword	String	Specifies the password for admin user. The password must be set when initializing HBlock. Value: The value is a string of 8 to 16 case-sensitive characters: ● The password must contain at least three of the following: lowercase letters, uppercase letters, digits, or special characters. The special characters only include ~ ! @ # $ % ^ & * ( ) _ + [ ] { } | ; : , . / < > ?. ● The password cannot contain t 3 consecutive repeating characters, 3 consecutive or in-reverse order of numbers or letters (case-insensitive), 3 consecutive or in-reverse order of keyboard sequences (case-insensitive).	Yes

edition	String	Specifies the edition type. Value: ● Free: Free edition. ● Commercial: Commercial edition. The default value is Commercial.	No
iSCSIPort	Integer	Specifies the iSCSI port. Value: The value is an integer that ranges from 1 to 65535. The default value is 3260.	No
portRange	String	Specifies the port range. Storage services and services without specified ports will automatically be assigned ports from this range. Value: The value is an integer that ranges from 1 to 65535. *port1* is the minimum value of the port range, port2 is the maximum value of the port range, and *port1* < *port2*. The default value of *port1* is 20000, and the default value of *port2* is 20500. **Note**: It is recommended that the specified port range contains at least 500 ports.	No
faultDomain	String	Sets the fault domain level of the base storage pool (only supported by cluster mode). All disk path nodes in the cluster topology configured during initialization are added to the base storage pool. Value: ● path: disk path level. ● server: server level. ● rack: rack level. ● room: room level. The default value is server. **Note**: If the fault domain level is room or rack, you must import the topology file for initialization.	No
ports.dataPort1	Integer	Specifies data port 1, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort1	Integer	Specifies management service port 1. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort2	Integer	Specifies management service port 2. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort3	Integer	Specifies management service port 3.	No

		Value: The value is an integer that ranges from 1 to 65535.	
ports.managementPort4	Integer	Specifies management service port 4. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort5	Integer	Specifies management service port 5, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort6	Integer	Specifies management service port 6. Value: The value is an integer that ranges from 1 to 65535.	No
ports.metadataPort1	Integer	Specifies metadata port 1, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.metadataPort2	Integer	Specifies metadata port 2, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.metadataPort3	Integer	Specifies metadata port 3, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.metadataPort4	Integer	Specifies metadata port 4, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.metadataPort5	Integer	Specifies metadata port 5, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.metadataPort6	Integer	Specifies metadata port 6, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No
ports.metadataPort7	Integer	Specifies metadata port 7, only supported by cluster mode. Value: The value is an integer that ranges from 1 to 65535.	No

ports.metadataPort8	Integer	Specifies metadata port 8, only supported by cluster mode Value: The value is an integer that ranges from 1 to 65535.	No
topology	String	Import the content of the cluster topology file (only supported by cluster mode). Value: The topology file needs to be encoded in UTF-8 and in JSON file format, then converted to string format, and the converted content is assigned to the parameter. For details, see **Cluster Topology File**. **Note**: Either 'topology' or 'servers' must be selected, and only one can be selected. If the fault domain level is room or rack, the topology file import method must be used for initialization.	No
servers	Array of server	A set of properties of the HBlock server, see **Table 1 Parameter description of server** for details. **Note**: Either 'topology' or 'servers' must be selected, and only one can be selected. If the fault domain level is room or rack, the topology file import method must be used for initialization.	No
services	Array of service	A collection of service addresses, only supported by cluster mode, see **Table 3 Parameter description of service** for details.	No
clusterNetwork	String	Cluster network for data communication between clusters, only supported by cluster mode. ● If a cluster network is specified, please ensure that each server has an IP that matches the specified network segment, and the system will automatically use this IP for communication. ● If the cluster network is not specified, the HBlock's server IP will be used by default. In this case, HBlock's server IP cannot be specified as localhost, 127.0.0.1 or 0:0:0:0:0:0:0:1. Value: If an address range is specified, a mask is added after the IP address, such as 192.163.1.5/24.	No
publicNetwork	String	Public network for data transmission between client and server. ● If the public network is specified, please ensure that each server has an IP that matches the specified network segment, and the system will automatically use this IP to communicate with the	No

		client. ● If the public network is not specified or the specified network segment does not match any IP of the server, the HBlock's server IP is used by default. In this case, HBlock's server IP cannot be specified as localhost, 127.0.0.1 or 0:0:0:0:0:0:0:1. Value: If an address range is specified, the IP address is represented by adding a mask, such as the 192.163.1.5/24 list.	

Table 1 Parameter description of server

Parameter	Type	Description	Required
nodeName	String	Specifies the name of a topology node. Value: The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	No
ip	String	HBlock's server IP. Value: IPv4 or [IPv6] address.	Yes
apiPort	Integer	Specifies management API port. Value: The value is an integer that ranges from 1 to 65535, the default value is 1443. It needs to be consistent with the API port number set when installing HBlock on the server.	No
diskPaths	Array of diskPath	A set of disk path properties, see **Table 2 Parameter description of diskPath** for details.	Yes

Table 2 Parameter description of diskPath

Parameter	Type	Description	Required
path	String	Specifies the disk path. The disk path is used to store data and it is not recommended to share disks or file systems with the operating system. **Note**: For standalone mode, the first disk path is the default disk path. For the cluster mode, you must have at least one disk path. If the fault domain level is server or path, it is required. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :.	Yes
capacityQuota	Long	Specifies the capacity quota for the disk path, that is, for each	No

		disk path added to server, the total amount of data that can be written by HBlock. Once the space used by HBlock reaches the quota, data writing is immediately blocked, and no more space is allowed to be used beyond the quota. Value: The value is smaller than the total capacity of the disk where the disk path resides, in bytes. A negative integer means unlimited writing and 0 means write inhibit. Writes are not limited by default. **Note**: If the same disk path appears multiple times, the capacity quota of the disk path that appears first shall prevail.	

Table 3 Parameter description of service

Parameter	Type	Description	Required
mdm	Array of mdm	A collection of mdm, see **Table 4 Parameter description of mdm** for details.	No
ls	Array of ls	A collection of ls, see **Table 5 Parameter description of ls** for details.	No
cs	Array of cs	A collection of cs, see **Table 6 Parameter description of cs** for details.	No

Table 4 Parameter description of mdm

Parameter	Type	Description	Required
ip	String	The address of the metadata management service, only supported by cluster mode. If specifying the address of the metadata management service, you must also specify all two IP addresses in the cluster. Value: IPv4 or [IPv6] address.	No
mdm.metaDir	String	The disk path for storing metadata management data, only supported by cluster mode. **Note**: In order to improve read-write performance, it is recommended that the disk path for storing metadata management service data be independent of the installation disk	No

		path and the disk path where data is stored. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :. The default disk path is the installation disk path.	

Table 5 Parameter description of ls

Parameter	Type	Description	Required
ls.ip	String	The address of the log service, only supported by cluster mode. If specifying the address of the log service, you must also specify all three IP addresses in the cluster. Value: IPv4 or [IPv6] address.	No
ls.metaDir	String	The disk path for storing log service data, only supported by cluster mode. **Note**: In order to improve read-write performance, it is recommended that the disk path for storing log service data be independent of the installation disk path and the disk path where data is stored. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :. The default disk path is the installation disk path.	No

Table 6 Parameter description of cs

Parameter	Type	Description	Required
cs.ip	String	The address of the coordination service, only supported by cluster mode. If specifying the address of the coordination service, you must also specify all three IP addresses in the	No

		cluster. Value: IPv4 or [IPv6] address.	
cs.metaDir	String	The disk path for storing coordination service data, only supported by cluster mode. **Note**: In order to improve read-write performance, it is recommended that the disk path for storing coordination service data be independent of the installation disk path and the disk path where data is stored. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :. The default disk path is the installation disk path.	No

Sample Request 1

Initialization HBlock (standalone mode - commercial edition).

```
POST /rest/v1/system/setup HTTP/1.1
Date: Mon, 11 Dec 2023 06:06:47 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 543
Host: 192.168.0.32:1443
Authorization: HBlock storuser:signature

{
    "storName": "stor1",
    "newPassword": "*********",
    "portRange": "20000-20500",
    "iSCSIPort": 3260,
    "servers": [
        {
            "ip": "192.168.0.32",
            "apiPort": 1443,
            "diskPaths": [
                {
                    "path": "/mnt/storage01",
                    "capacityQuota": 96636764160
```

```
                },
                {
                    "path": "/mnt/dskb",
                    "capacityQuota": 96636764160
                }
            ]
        }
    ]
}
```

Sample Response 1

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 6589a0abcbde4bc5a4db3a6b9315008f
Connection: keep-alive
Date: Mon, 11 Dec 2023 06:06:47 GMT
Content-Length: 0
Server: HBlock
```

Sample Request 2

Initialization HBlock (standalone mode - free edition).

```
POST /rest/v1/system/setup HTTP/1.1
Date: Mon, 12 Jan 2026 09:45:13 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 431
Host: 192.168.0.66:1443
Authorization: HBlock storuser:signature

{
    "storName": "stor1",
    "newPassword": "*********",
    "edition": "Free",
    "portRange": "20000-20500",
    "iSCSIPort": 3260,
    "servers": [
        {
            "ip": "192.168.0.66",
            "apiPort": 1443,
            "diskPaths": [
```

```
                {
                    "path": "/mnt/stor01",
                    "capacityQuota": 16636764160
                }
            ]
        }
    ]
}
```

Sample Response 2

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 2bcc2a5cae4843f5bd08168128d63e7f
Connection: keep-alive
Date: Mon, 12 Jan 2026 09:45:13 GMT
Content-Length: 0
Server: HBlock
```

Sample Request 3

Initialize HBlock by listing server IP addresses (cluster mode - commercial edition).

```
POST /rest/v1/system/setup HTTP/1.1
Date: Mon, 12 Jan 2026 09:36:02 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 1653
Host: 192.168.0.65:1443
Authorization: HBlock storuser:signature

{
    "storName": "stor1",
    "UserName": "storuser",
    "newPassword": "*******",
    "iSCSIPort": 3260,
    "portRange": "20000-20500",
    "faultDomain": "path",
    "servers": [
        {
            "ip": "192.168.0.64",
            "apiPort": 1443,
            "diskPaths": [
```

```
                {
                    "path": "/mnt/stor02",
                    "capacityQuota": 96636764160
                }
            ]
        },
        {
            "ip": "192.168.0.65",
            "apiPort": 1443,
            "diskPaths": [
                {
                    "path": "/mnt/stor01",
                    "capacityQuota": 96636764160
                }
            ]
        },
        {
            "ip": "192.168.0.67",
            "apiPort": 1443,
            "diskPaths": [
                {
                    "path": "/mnt/stor01",
                    "capacityQuota": 96636764160
                }
            ]
        }
    ],
    "services": {
        "mdm": [
            {
                "ip": "192.168.0.64"
            },
            {
                "ip": "192.168.0.65"
            }
        ],
        "ls": [
            {
                "ip": "192.168.0.64"
            },
            {
```

```
                "ip": "192.168.0.65"
            },
            {
                "ip": "192.168.0.67"
            }
        ],
        "cs": [
            {
                "ip": "192.168.0.64"
            },
            {
                "ip": "192.168.0.65"
            },
            {
                "ip": "192.168.0.67"
            }
        ]
    }
}
```

Sample Response 3

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 900956191b34450eb1bc799bd69dd096
Connection: keep-alive
Date: Mon, 12 Jan 2026 09:36:02 GMT
Content-Length: 0
Server: HBlock
```

Sample Request 4

Initialize HBlock by importing topology file content (cluster mode - commercial edition).

```
POST /rest/v1/system/setup HTTP/1.1
Date: Wed, 3 Jul 2024 09:47:16 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 1951
Host: 192.168.0.110:1443
Authorization: HBlock storuser:signature

{
    "storName": "stor1",
```

```
    "UserName": "storuser",
    "newPassword": "********",
    "iSCSIPort": 3260,
    "portRange": "20000-20500",
    "faultDomain": "room",
    "topology": "{\r\n    \"name\": \"default\",\r\n    \"childNodes\": [\r\n        {\r\n
\"name\": \"room1\",\r\n            \"type\": \"room\",\r\n            \"childNodes\": [\r\n
{\r\n                    \"type\": \"server\",\r\n                    \"name\":
\"server1\",\r\n                    \"ip\": \"192.168.0.192\",\r\n
\"apiPort\": 1443,\r\n                    \"childNodes\": [\r\n                        {\r\n
\"name\": \"/mnt/stor\",\r\n                            \"type\":
\"path\"\r\n                        },\r\n                        {\r\n
\"name\": \"/mnt/storage01\",\r\n                            \"type\":
\"path\"\r\n                        }\r\n                    ]\r\n                },\r\n
{\r\n                    \"type\": \"server\",\r\n                    \"name\":
\"server2\",\r\n                    \"ip\": \"192.168.0.110\",\r\n
\"apiPort\": 1443,\r\n                    \"childNodes\": [\r\n                        {\r\n
\"name\": \"/mnt/stor\",\r\n                            \"type\":
\"path\"\r\n                        }\r\n                    ]\r\n                },\r\n
{\r\n                    \"type\": \"server\",\r\n                    \"name\":
\"server3\",\r\n                    \"ip\": \"192.168.0.102\",\r\n
\"apiPort\": 1443,\r\n                    \"childNodes\": [\r\n                        {\r\n
\"name\": \"/mnt/stor\",\r\n                            \"type\":
\"path\"\r\n                        }\r\n                    ]\r\n                }\r\n
       ]\r\n        }\r\n    ]\r\n}"
}
```

Note: The content of the topology file is a JSON file that conforms to the UTF-8 encoding format after being converted into a string. The source code of the topology file is as follows.

```
{
    "name": "default",
    "childNodes": [
        {
            "name": "room1",
            "type": "room",
            "childNodes": [
                {
                    "type": "server",
                    "name": "server1",
                    "ip": "192.168.0.192",
                    "apiPort": 1443,
                    "childNodes": [
```

```
                        {
                            "name": "/mnt/stor",
                            "type": "path"
                        },
                        {
                            "name": "/mnt/storage01",
                            "type": "path"
                        }
                    ]
                },
                {
                    "type": "server",
                    "name": "server2",
                    "ip": "192.168.0.110",
                    "apiPort": 1443,
                    "childNodes": [
                        {
                            "name": "/mnt/stor",
                            "type": "path"
                        }
                    ]
                },
                {
                    "type": "server",
                    "name": "server3",
                    "ip": "192.168.0.102",
                    "apiPort": 1443,
                    "childNodes": [
                        {
                            "name": "/mnt/stor",
                            "type": "path"
                        }
                    ]
                }
            ]
        }
    ]
}
```


Sample Response 4

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 068e0a8e16884bf28104b0e84fdbc50e
Connection: keep-alive
Date: Wed, 3 Jul 2024 09:47:16 GMT
Content-Length: 0
Server: HBlock
```

Sample Request 5

Initialize HBlock by listing server IP addresses (cluster mode - free edition).

```
POST /rest/v1/system/setup HTTP/1.1
Date: Mon, 12 Jan 2026 09:19:36 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 1014
Host: 192.168.0.65:1443
Authorization: HBlock storuser:signature

{
    "storName": "stor1",
    "UserName": "storuser",
    "newPassword": "********",
    "iSCSIPort": 3260,
    "portRange": "20000-20500",
    "edition": "Free",
    "faultDomain": "path",
    "servers": [
        {
            "ip": "192.168.0.64",
            "apiPort": 1443,
            "diskPaths": [
                {
                    "path": "/mnt/stor02",
                    "capacityQuota": 96636764160
                }
            ]
        },
        {
            "ip": "192.168.0.65",
            "apiPort": 1443,
            "diskPaths": [
                {
```

```
                    "path": "/mnt/stor01",
                    "capacityQuota": 96636764160
                }
            ]
        },
        {
            "ip": "192.168.0.67",
            "apiPort": 1443,
            "diskPaths": [
                {
                    "path": "/mnt/stor01",
                    "capacityQuota": 96636764160
                }
            ]
        }
    ]
}
```

Sample Response 5

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 60531d110f8a4b609402156f71c99ed2
Connection: keep-alive
Date: Mon, 12 Jan 2026 09:19:36 GMT
Content-Length: 0
Server: HBlock
```

4.1.2 Query Initialization Progress

This operation is used to query the initialization progress.

Syntax

```
GET /rest/v1/system/setup HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Note: This API request does not verify the signature.

Response Elements

Name	Type	Description
progress	Integer	Initialization progress percentage, the range is 0~100. If the initialization succeeds or fails, the progress is 100. You can check whether the initialization was successful through the returned status.
status	String	Initialization status: ● Uninitialized ● Processing ● Succeeded ● Failed

Sampel Request

Query initialization progress.

```
GET /rest/v1/system/setup HTTP/1.1
Date: Mon, 14 Mar 2022 10:21:44 GMT
Host: 192.168.0.121:1443
Authorization: HBlock userName:signature
```

Sample Response

```
HTTP/1.1 200 OK
Date: Mon, 14 Mar 2022 10:21:44 GMT
Content-Type: application/json;charset=utf-8
Content-Length: 46
Connection: keep-alive
x-hblock-request-id: fa25dee228334c70bd05c2edf46393a6
Server: HBlock

{
```

```
    "data": {
        "progress": 25,
        "status": "Processing"
    }
}
```

4.1.3 Error Code List

HTTP Status	Error Code	Error Message
400	BadUserName	Value '*value*' at '*argument*' failed to satisfy constraint: Argument can only contain letters and digits, and has length between 5 and 16.
400	CanNotConnectToIP	Can not connect to the IP *IP*.
400	CanNotConnectToServer	Can not connect to the server *IP*[:*port*].
400	ClusterNetworkDoesNotMatch	All IPs on the server *serverIP* do not match the 'cluster network' *clusterNetwork*.
400	DuplicateIP	The IP *IP* of '*argument*' is duplicated.
400	InconsistentIPformat	The server IPs in the cluster should be unified as IPv4 or IPv6 format when cluster network is not specified.
400	InsufficientPath	The base storage pool must have at least one disk path.
400	InsufficientPorts	Insufficient available ports for server *server*. Expand the port range to support *N* additional ports.
400	InvalidCIDR	Value *CIDR* at '*networkType* network' failed to satisfy constraint: Argument does not match the IP of the 'localhost'/'127.0.0.1'/'0:0:0:0:0:0:0:1' server.
400	InvalidClusterNetwork	Value *clusterNetwork* at 'cluster network' failed to satisfy constraint: Argument must satisfy CIDR specifications.
400	InvalidDiskPath	The disk paths do not exist: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The available disk space must be greater than or equal to 1 GiB for each disk path: *serverIP*:d*iskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths can not access: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths must be directory: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths include incompatible data: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths include unsupported symbols: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]].
400	InvalidDiskPathCapacityQuota	The capacity quota for the following disk paths failed to satisfy constraint. It must be integer and not greater than the total capacity of disk path.

		serverIP:*diskPaths* [,*diskPaths*...] [;*serverIP*:*diskPaths*[,*diskPaths*...]..].
400	InvalidEnumValue	Value value at '*argument*' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...].
400	InvalidIP	Value *IP* at '*argument*' failed to satisfy constraint: Argument must satisfy IPv4 or IPv6 specifications.
400	InvalidLong	Value *value* at '*argument*' failed to satisfy constraint: Argument must be of type long.
400	InvalidMetaDir	The meta directory *serverIP*:*metaDir* is invalid. *reason*
400	InvalidNewPassword	Value '*value*' at 'new password' failed to satisfy constraint: Argument must have length between 8 and 16, and must contain 3 of the following: uppercase letters, lowercase letters, digits, special symbols (~ ! @ # $ % ^ & * ( ) _ + [ ] { } | ; : , . / < > ?), and must not contain any of the following: 3 consecutive repeating characters, 3 consecutive or in-reverse order of numbers or letters (case-insensitive) , 3 consecutive or in-reverse order of keyboard sequences (case-insensitive).
400	InvalidNodeName	Value *value* at 'node name' failed to satisfy constraint: Argument must contain only letters, digits, dots (.), underscores (_) or hyphens (-), and does not exceed 63 characters, must begin with a letter or digit.
400	InvalidNodeType	Value *value* at 'node type' failed to satisfy constraint: the first node type must be root.
400	InvalidNodeType	Value *value* at 'node type' failed to satisfy constraint: childNodes of room are limited to [rack, server], childNodes of rack to [server], childNodes of server to [path] only.
400	InvalidPort	Value *value* at '*argument*' failed to satisfy constraint: Argument must have value between 1 and 65535.
400	InvalidPortRange	Value *value* at 'port range' failed to satisfy constraint: Argument must satisfy pattern 'port1-port2', where port1, port2 are positive integers between 1 and 65535, port1 is less than port2.
400	InvalidPublicNetwork	Value *publicNetwork* at 'public network' failed to satisfy constraint: Argument must satisfy CIDR specifications.
400	InvalidServers	The current server is not in the servers list.
400	InvalidServersCount	The number of servers for *xx* service shoule be *value*.
400	InvalidStorName	Value '*value*' at '*argument*' failed to satisfy constraint:

		Argument can only contain letters, digits, hyphens (-) or underscores (_), and does not exceed 64 characters, must begin with a letter or digit.
400	InvalidTopologyContent	The content of the topology is not compliant.
400	MissingClusterNetwork	Value null at 'cluster network' failed to satisfy constraint: Argument must not be null when 'server ip' contains 'localhost'/'127.0.0.1'/'0:0:0:0:0:0:0:1'.
400	MissingPublicNetwork	Value null at 'public network' failed to satisfy constraint: Argument must not be null when 'server ip' contains 'localhost'/'127.0.0.1'/'0:0:0:0:0:0:0:1'.
400	NotInterfaceIP	The IP *IP* is not an interface IP address, check and retry.
400	ProductTypeDoesNotMatch	HBlock product type does not match.
400	ServerAlreadyInitialized	The server has been initialized.
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
400	TooFewServers	The number of servers must be greater than or equal to 3.
400	UnrecognizedServer	Value *IP* at '*argument*' failed to satisfy constraint: Argument must be in the setup server list.
400	VersionDoesNotMatch	Please replace the HBlock version of server *serverIP* [,*serverIP*...] to *clutserVersion*, then try again.
403	InvalidUserName	Invalid user name.
403	InvalidUserNameOrPassword	Invalid user name or password hash.
409	PortChanged	Initialization failed because the port on the server *serverIP* is currently used by another service during the initialization process. Please try again.
409	PortConflict	The following port is/ports are in use. *server_ID/IP/local* server: *port_name port*[, *port_name port*...] [*server_ID/IP*/local server: *port_name port*[, *port_name port*...]...]
500	InitializeServerFailed	Server *serverIP* initialization failed, please check the firewall, network, memory, diskpath, etc, or contact technical team for support.

4.2 Software License

4.2.1 Import Software License

This operation is used to import a software license.

Note:

- After the HBlock software is initialized, a 30-day trial period is provided. If you decide to use it, it is recommended to contact the software vendor as soon as possible to obtain the software license and import it.
- You need to execute command **`./stor info --serial-id`** to get serial number of HBlock and contact the software vendor to get the software license.
- Trial period expired, or software license expired: only partial features are available. For details, see **Features Available After Software License Expiration (Trial or Subscription Mode)**.
- For perpetual license, after the maintenance service expires, the upgrade function becomes unavailable, while all other features remain fully functional.

Syntax

```
POST /rest/v1/system/license HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
   "key": "key"
}
```

Request Parameters

Parameter	Type	Description	Required
key	String	Software license key.	Yes

Response Elements

Name	Type	Description
licenseId	String	Software license ID.
account	String	Account to which the software license belongs.

customerName	String	Customer name. **Note**: This field will not be displayed if it was left blank when applying for the software license.
type	String	Software license purchase types: ● Subscription: Subscription mode. ● Perpetual: Perpetual license mode.
status	String	Software license status: ● Effective: The software license is effective. ● Expired: The software license has expired. ● Invalid: The software license is invalid. If the software license purchase type is Perpetual, there is no expiration status.
maximumLocalCapacity	Long	The total capacity allowed for all local LUNs at the current time, in TiB. If there is no capacity limit, this item will not be returned.
records	Array of record	A collection of software license purchase records, see **Table 1 Parameter description of record** for details.
usages	Array of usage	A collection of software license usage records, see **Table 2 Parameter description of usage** for details.

Table 1 Parameter description of record

Name	Type	Description
purchaseTime	Long	Record the time of purchase, unix timestamp (UTC), accurate to milliseconds.
operationtype	String	Record of software license purchase operations: ● New: First time purchase. ● Expand: Expand capacity. ● Renew: Renew subscription or maintenance.
localCapacity	Long	All local LUNs' capacity limit of the license within the specified period. The unit is TiB. This item is not returned if the capacity is not limited.
subscribeEffectiveTime	Long	For subscription software licenses, the time when the software license becomes effective. Unix timestamp (UTC), accurate to milliseconds.
subscribeExpireTime	Long	For subscription software licenses, the software license expiration time. Unix timestamp (UTC), accurate to milliseconds.
maintenanceEffectiveTime	Long	For perpetual software licenses, the software license maintenance effective time. Unix timestamp (UTC), accurate to milliseconds.

maintenanceExpireTime	Long	For perpetual software licenses, the software license maintenance effective time. Unix timestamp (UTC), accurate to milliseconds.
substatus	String	The current effective status of this purchase operation: ● NotStart ● Effective ● Expired

Table 2 Parameter description of usage

Name	Type	Description
maximumLocalCapacity	Long	The total capacity allowed for all local LUNs within the specified period, in TiB. This item is not returned if the capacity is not limited.
subscribeEffectiveTime	Long	For subscription software licenses, the time when the software license becomes effective. Unix timestamp (UTC), accurate to milliseconds.
subscribeExpireTime	Long	For subscription software licenses, the software license expiration time. Unix timestamp (UTC), accurate to milliseconds.
maintenanceEffectiveTime	Long	For perpetual software licenses, the software license maintenance effective time. Unix timestamp (UTC), accurate to milliseconds.
maintenanceExpireTime	Long	For perpetual software licenses, the software license maintenance expiration time. Unix timestamp (UTC), accurate to milliseconds.
substatus	String	For subscription software licenses, it indicates the status of the license in the corresponding time period; for perpetual software licenses, it indicates the maintenance status of the license in the corresponding time period: ● NotStart ● Effective ● Expired

Sample Request

Import software license.

```
POST /rest/v1/system/license HTTP/1.1
Date: Thu, 17 Mar 2022 08:26:28 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 876
Host: 192.168.0.121:1443
```

```
Authorization: HBlock userName:signature


{
   "key":"xxxxxxxxxxxxxx"
}
```

Sample Response

```
HTTP/1.1 200 OK
Date: Thu, 17 Mar 2022 08:26:28 GMT
Content-Length: 658
Connection: keep-alive
Content-Type: application/json; charset=utf-8
x-hblock-request-id: 24f2b6f45baf49a69fa9d0bfad1d76f3
Server: HBlock

{
    "data": {
        "licenseId": "ehc2b6a9-f3fb-4098-a6b3-3652a5d76269",
        "account": "xxx@testcom.cn",
        "status": "Effective",
        "type": "Subscription",
        "maximumLocalCapacity": 2048,
        "records": [
            {
                "purchaseTime": 1647505314201,
                "operationtype": "New",
                "localCapacity": 2048,
                "subscribeEffectiveTime": 1647505314201,
                "subscribeExpireTime": 1655281314201,
                "substatus": "Effective"
            },
            {
                "purchaseTime": 1650097314201,
                "operationtype": "Renew",
                "localCapacity": 2048,
                "subscribeEffectiveTime": 1655281314201,
                "subscribeExpireTime": 1663057314201,
                "substatus": "NotStart"
            }
        ],
        "usages": [
```

```
            {
                "maximumLocalCapacity": 2048,
                "subscribeEffectiveTime": 1647505314201,
                "subscribeExpireTime": 1663057314201,
                "substatus": "Effective"
            }
        ]
    }
}
```

4.2.2 Query Software License Information in Batches

This operation is used to query software license information in batches, including software license record information and usage information.

- Record information: purchase record information.
- Usage information: the corresponding capacity and status information of the software license in different time periods.

Syntax

```
GET /rest/v1/system/license?filter=filter&range=i-j&show=show HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization:authorization
```

Request Parameters

Name	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● licenseId: software license ID. ● status: status of the software license: ■ Effective ■ Expired ■ Invalid ● type: Purchase type of software license: ■ Subscription ■ Perpetual	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, i is less than j, and j-i<1000. Returns the i-th to j-th software licenses in descending order of when the licenses were purchased, from newest to oldest. If the entered query range exceeds the total number of	No

		software licenses, then an empty result set is returned. If the `range` parameter is not entered, all software licenses are returned.	
show	String	The output result of the query. Supported output results include record and usage. If not filled in, both information is output by default.	No

Response Element

Name	Type	Description
licenseId	String	Software license ID.
account	String	The account to which the software license belongs.
customerName	String	Customer name. **Note**: This field will not be displayed if it was left blank when applying for the software license.
type	String	Software license purchase types: ● Subscription ● Perpetual
status	String	Software license status: ● Effective ● Expired ● Invalid If the software license purchase type is Perpetual, there is no expiration status.
maximumLocalCapacity	Long	The total capacity allowed for all local LUNs within the specified period, in TiB. This item is not returned if the capacity is not limited.
records	Array of record	A collection of software license purchase records, see **Table 1 Parameter description of record** for details.
usages	Array of usage	A collection of software license usage records, **Table 2 Parameter description of usage** for details.

Table 1 Parameter description of record

Name	Type	Description
purchaseTime	Long	Record the time of purchase, unix timestamp (UTC), accurate to milliseconds.
operationtype	String	Operation records of software license: ● New ● Expand ● Renew
localCapacity	Long	All local LUNs' capacity limit of the license within the

		specified period. The unit is TiB. This item is not returned if the capacity is not limited.
subscribeEffectiveTime	Long	The effective time of the subscription license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
subscribeExpireTime	Long	The expiration time of the subscription license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
maintenanceEffectiveTime	Long	The maintenance effective time of the perpetual license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
maintenanceExpireTime	Long	The maintenance expiration time of the perpetual license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
substatus	String	The current effective status of this purchase operation: ● NotStart ● Effective ● Expired

Table 2 Parameter description of usage

Name	Type	Description
maximumLocalCapacity	Long	The total capacity allowed for all local LUNs within the specified period, in TiB. This item is not returned if the capacity is not limited.
subscribeEffectiveTime	Long	The effective time of the subscription license. Unix timestamp (UTC), accurate to milliseconds.
subscribeExpireTime	Long	The expiration time of the subscription license. Unix timestamp (UTC), accurate to milliseconds.
maintenanceEffectiveTime	Long	The maintenance effective time of the perpetual license. Unix timestamp (UTC), accurate to milliseconds.
maintenanceExpireTime	Long	The maintenance expiration time of the perpetual license. Unix timestamp (UTC), accurate to milliseconds.
substatus	String	For subscription software licenses, it indicates the status of the license in the corresponding time period; for perpetual software licenses, it indicates the maintenance status of the license in the corresponding time period: ● NotStart

		• Effective • Expired

Sample Example

Query software license information in batches.

```
GET /rest/v1/system/license?filter=type:Subscription HTTP/1.1
Date: Tue, 05 Aug 2025 03:09:08 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 649a886c536148418d05e717aa30769b
Connection: keep-alive
Content-Length: 700
Date: Tue, 05 Aug 2025 03:09:08 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "licenses": [
            {
                "licenseId": "ehc2b6a9-f3fb-4098-a6b3-3652a5d76269",
                "account": "test@ctyun.cn",
                "customerName": "Customer ABC",
                "status": "Invalid",
                "type": "Subscription",
                "maximumLocalCapacity": 2048,
                "records": [
                    {
                        "purchaseTime": 1647505314201,
                        "operationtype": "New",
                        "localCapacity": 2048,
                        "subscribeEffectiveTime": 1647505314201,
                        "subscribeExpireTime": 1655281314201,
                        "substatus": "Effective"
                    },
                    {
                        "purchaseTime": 1650097314201,
```

```
                        "operationtype": "Renew",
                        "localCapacity": 2048,
                        "subscribeEffectiveTime": 1655281314201,
                        "subscribeExpireTime": 1663057314201,
                        "substatus": "NotStart"
                    }
                ],
                "usages": [
                    {
                        "maximumLocalCapacity": 2048,
                        "subscribeEffectiveTime": 1647505314201,
                        "subscribeExpireTime": 1663057314201,
                        "substatus": "Effective"
                    }
                ]
            }
        ]
    }
}
```

4.2.3 Query Specified Software License Information

This operation is used to query the specified software license information. The information includes the record information and usage information:

(I) Record information: Information on purchasing software licenses.
(II) Usage information: Corresponding capacity and status information for software licenses in different time periods.

Syntax

```
GET /rest/v1/system/license/licenseId?show=show HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization
```

Request Parameters

Name	Type	Description	Required
licenseId	String	The ID of the software license.	No
show	String	The output result of the query. Supported output results include record and usage. If not filled, both information is output by default.	No

Response Elements

Name	Type	Description
licenseId	String	Software license ID.
account	String	The account to which the software license belongs.
customerName	String	Customer name. **Note**: This field will not be displayed if it was left blank when applying for the software license.
type	String	Software license purchase types: ● Subscription: Subscription mode. ● Perpetual: Perpetual license mode.
status	String	Software license status: ● Effective ● Expired ● Invalid This item is not returned if the order type of software license is Perpetual.
maximumLocalCapacity	Long	The total capacity allowed for all local LUNs within

		the specified period, in TiB. This item is not returned if the capacity is not limited.
records	Array of record	A collection of purchase records for software licenses, see **Table 1 Parameter description of record** for details.

Table 1 Parameter description of record

Name	Type	Description
purchaseTime	Long	Record the time of purchase, unix timestamp (UTC), accurate to milliseconds.
operationtype	String	Operation records of software license: ● New ● Expand ● Renew
localCapacity	Long	All local LUNs' capacity limit of the license within the specified period. The unit is TiB. This item is not returned if the capacity is not limited.
subscribeEffectiveTime	Long	The effective time of the subscription license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
subscribeExpireTime	Long	The expiration time of the subscription license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
maintenanceEffectiveTime	Long	The maintenance effective time of the perpetual license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
maintenanceExpireTime	Long	The maintenance expiration time of the perpetual license in this purchase. Unix timestamp (UTC), accurate to milliseconds.
substatus	String	Current status of this purchase: ● NotStart ● Effective ● Expired

Table 2 Parameter description of usage

Name	Type	Description
maximumLocalCapacity	Long	The total capacity allowed for all local LUNs within the specified period, in TiB. This item is not returned if the capacity is not limited.

subscribeEffectiveTime	Long	The effective time of the subscription license. Unix timestamp (UTC), accurate to milliseconds.
subscribeExpireTime	Long	The expiration time of the subscription license. Unix timestamp (UTC), accurate to milliseconds.
maintenanceEffectiveTime	Long	The maintenance effective time of the perpetual license. Unix timestamp (UTC), accurate to milliseconds.
maintenanceExpireTime	Long	The maintenance expiration time of the perpetual license. Unix timestamp (UTC), accurate to milliseconds.
substatus	String	For subscription software licenses, it indicates the status of the license in the corresponding time period; for perpetual software licenses, it indicates the maintenance status of the license in the corresponding time period: ● NotStart ● Effective ● Expired

Sample Request 1

Subscription mode: Query the software license information whose software license ID is ehc2b6a9-f3fb-4098-a6b3-3652a5d71232.

```
GET /rest/v1/system/license/ehc2b6a9-f3fb-4098-a6b3-3652a5d71232 HTTP/1.1
Date: Tue, 05 Aug 2025 02:40:01 GMT
Authorization: HBlock userName:signature
Host:192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: e4a388cfebe24398a09ee6bdc5d22b2a
Connection: keep-alive
Content-Length: 518
Date: Tue, 05 Aug 2025 02:40:01 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "licenseId": "ehc2b6a9-f3fb-4098-a6b3-3652a5d71232",
```

```
        "account": "testaccount1@ctyun.com",
        "status": "Effective",
        "type": "Subscription",
        "maximumLocalCapacity": 1024,
        "records": [
            {
                "purchaseTime": 1753857636859,
                "operationtype": "New",
                "localCapacity": 1024,
                "subscribeEffectiveTime": 1753857636859,
                "subscribeExpireTime": 1785393636859,
                "substatus": "Effective"
            }
        ],
        "usages": [
            {
                "maximumLocalCapacity": 1024,
                "subscribeEffectiveTime": 1753857636859,
                "subscribeExpireTime": 1785393636859,
                "substatus": "Effective"
            }
        ]
    }
}
```


Sample Request 2

Perpetual license mode: Query the software license information whose software license ID is qws2b6a9-f3fb-4098-a6b3-3652a5a76530.

```
GET /rest/v1/system/license/qws2b6a9-f3fb-4098-a6b3-3652a5a76530 HTTP/1.1
Date: Tue, 05 Aug 2025 02:17:13 GMT
Authorization: HBlock userName:signature
Host:192.168.0.65:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 7b4ee400d293497bba0c9182b256e678
Connection: keep-alive
Content-Length: 518
Date: Tue, 05 Aug 2025 02:17:13 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

```
{
    "data": {
        "licenseId": "qws2b6a9-f3fb-4098-a6b3-3652a5a76530",
        "account": "test@ctyun.cn",
        "customerName": "Customer ABC",
        "status": "Effective",
        "type": "Perpetual",
        "maximumLocalCapacity": 2048,
        "records": [
            {
                "purchaseTime": 1754357667366,
                "operationtype": "New",
                "localCapacity": 2048,
                "maintenanceEffectiveTime": 1754357667366,
                "maintenanceExpireTime": 1785893667366,
                "substatus": "Effective"
            }
        ],
        "usages": [
            {
                "maximumLocalCapacity": 2048,
                "maintenanceEffectiveTime": 1754357667366,
                "maintenanceExpireTime": 1785893667366,
                "substatus": "Effective"
            }
        ]
    }
}
```

4.2.4 Error Code List

HTTP Status	Error Code	Error Message
400	ExceedLocalCapacityLimit	The total capacity of local mode LUN can not exceed the maximum capacity limit agreed in the software license.
400	InvalidFilterEnum	Value *value* at 'filter' failed to satisfy constraint: Argument can only contain: [*licenseId*, *status*, *type*].
400	InvalidLicenseKey	The license key is invalid.
400	InvalidRange	Value *value* at 'range' failed to satisfy constraint: Argument must satisfy pattern 'i-j', where i, j are positive integers, i is less than j, and j-i<1000.
400	InvalidShow	Value *value* at 'show' failed to satisfy constraint: Argument can only contain: [record, usage].
400	LicenseKeyDoesNotMatch	This license key does not match the current HBlock. Please obtain the software license again.
400	ReimportLicenseKey	Do not reimport the license key that is in effect.
400	SystemTimeTooEarly	System time is *time*, it cannot be less than the effective time *time* of the software license.
400	SystemTimeTooLate	System time is *time*, it cannot be later than the expiration time *time* of the software license.
403	LicenseExpired	The software license has expired.
403	LicenseMaintenanceExpired	The maintenance for software license has expired.
403	LicenseNotEffective	The license is not yet effective.
403	TrialNotEffective	The trial period has not yet begun.
404	NoSuchLicenseID	The software license with ID *ID* does not exist.

4.3 LUN Management

4.3.1 Create a LUN

This operation is used to create a LUN. When creating a LUN, if the specified target name does not exist, the target will be created at the same time.

Note:

- HBlock supports a maximum of 32766 target IQNs. A target can be associated with up to 256 LUNs, but each LUN can only be associated with one target.
- After a LUN is created, only the following parameters can be modified: LUN capacity, write policy, minimum number of replicas (only supported by cluster mode), redundancy overlap (only supported by cluster mode), priority (only supported by cluster mode), Endpoint, cloud signature authentication version, region, AK/SK, and whether to compress data.

Syntax

- Local LUN
  - Standalone Mode

```
POST /rest/v1/block/lun HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "targetName": targetName,
    "capacity": capacity,
    "storageMode": storageMode,
    "config": {
        "sectorSize": sectorSize,
        "writePolicy": writePolicy,
        "qosPolicy": {
            "qosName": qosName,
            "IOPS": IOPS,
            "readIOPS": readIOPS,
```

```
            "writeIOPS": writeIOPS,
            "Bps": Bps,
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs
        },
        "path": path
    }
}
```

- Cluster Mode

```
POST /rest/v1/block/lun HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "targetName": targetName,
    "capacity": capacity,
    "storageMode": storageMode,
    "config": {
        "localStorageClass": localStorageClass,
        "minReplica": minReplica,
```

```
        "ECfragmentSize": ECfragmentSize,
        "redundancyOverlap": redundancyOverlap,
        "sectorSize": sectorSize,
        "cachePool": poolName,
        "pool": poolName,
        "highAvailability": highAvailability,
        "writePolicy": writePolicy,
        "serverAffinity": {
            "autoFailback": autoFailback,
            "priority": [
                SeverID,ServerID…
            ]
        },
        "qosPolicy": {
            "qosName": qosName,
            "IOPS": IOPS,
            "readIOPS": readIOPS,
            "writeIOPS": writeIOPS,
            "Bps": Bps,
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs
        }
    }
}
```

- Cloud LUN
  - Standalone Mode

```
POST /rest/v1/block/lun HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "targetName": targetName,
    "capacity": capacity,
    "storageMode": storageMode,
    "config": {
        "sectorSize": sectorSize,
        "writePolicy": writePolicy,
        "qosPolicy": {
            "qosName": qosName,
            "IOPS": IOPS,
            "readIOPS": readIOPS,
            "writeIOPS": writeIOPS,
            "Bps": Bps,
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs
```

```
        },
        "path": path
    },
    "cloud": {
        "provider": provider,
        "bucketName": bucketName,
        "prefix": prefix,
        "accessKey": accessKey,
        "secretKey": secretKey,
        "endpoint": endpoint,
        "signVersion": signVersion,
        "region": region,
        "objectSize": objectSize,
        "storageClass": storageClass,
        "compression": compression
    }
}
```

- Cluster Mode

```
POST /rest/v1/block/lun HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "targetName": targetName,
    "capacity": capacity,
    "storageMode": storageMode,
    "config": {
        "localStorageClass": localStorageClass,
        "minReplica": minReplica,
        "ECfragmentSize": ECfragmentSize,
```

```
        "redundancyOverlap": redundancyOverlap,
        "sectorSize": sectorSize,
        "cachePool": poolName,
        "pool": poolName,
        "highAvailability": highAvailability,
        "writePolicy": writePolicy,
        "serverAffinity": {
            "autoFailback": autoFailback,
            "priority": [
                SeverID,ServerID…
            ]
        },
        "qosPolicy": {
            "qosName": qosName,
            "IOPS": IOPS,
            "readIOPS": readIOPS,
            "writeIOPS": writeIOPS,
            "Bps": Bps,
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs,
        }
    },
    "cloud": {
        "provider": provider,
        "bucketName": bucketName,
        "prefix": prefix,
```

```
        "accessKey": accessKey,
        "secretKey": secretKey,
        "endpoint": endpoint,
        "signVersion": signVersion,
        "region": region,
        "objectSize": objectSize,
        "storageClass": storageClass,
        "compression": compression
    }
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the LUN name. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
targetName	String	Specifies the iSCSI target name. **Note**: If the specified iSCSI target name does not exist when creating a LUN, the iSCSI target will be created at the same time, the reclaim policy of the iSCSI target is Delete. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
capacity	Integer	Specifies the storage capacity of the LUN. Value: The value is an integer that ranges from 1 to 1048576. The unit is GiB.	Yes
storageMode	String	Specifies the storage mode for the LUN. Value: ● Local: Store all data at local only. ● Cache: Store part of hot data at local and store all data in cloud asynchronously. ● Storage: Store all data at local and asynchronously store it in cloud. The default value is Local.	No
config.localStorageClass	String	Specifies LUN data storage redundancy mode, only	No

		supported by cluster mode. Value: ● single-copy. ● 2-copy. ● 3-copy. ● EC *N+M*: Erasure code mode. N and M are positive integers, N ≥ M, and N + M ≤ 128. This indicates that the data is divided into N fragments and M pieces of verification data are generated. The default value is EC 2+1. **Note**: (All scenarios are based on the premise of cluster availability): ● After an EC *N+M* LUN is created: ■ Data can be written to the LUN if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the minimum number of replicas of the LUN. Data cannot be written to the LUN and an alarm is generated if the number of available fault domains in the storage pool where the LUN resides is smaller than the minimum number of replicas. ■ Data in the LUN is normal and will not degrade if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to N+M. Data in the LUN is being degraded if the number of available fault domains in the storage pool where the LUN resides is between [N, N+M]. We recommend that you add or repair the fault domains as soon as possible. Data written to the storage pool is corrupted if the number of available fault domains in the storage pool where the LUN resides is less than N. ● After a LUN in replica mode is created: ■ Data can be written to the LUN if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the minimum number of replicas of the LUN. Data cannot be written to the LUN and an alarm is generated if the number of	

		available fault domains in the storage pool where the LUN resides is smaller than the minimum number of replicas. ■ Data in the LUN is normal and will not degrade if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the number of replicas. For a two-replica or three-replica LUN, data in the LUN data is being degraded if the fault domain in the storage pool where the LUN resides is greater than or equal to 1, but less than the number of replicas. We recommend that you add or repair fault domains as soon as possible. Data written to the storage pool is corrupted if no fault domain is available in the storage pool where the LUN resides.	
config.minReplica	Integer	Specifies the minimum replica number, only supported by cluster mode. ● For a LUN in replica mode, assuming that the number of LUN replicas is X and the minimum replica number is Y (must satisfy Y <=X), each time the data is written to LUN, at least Y replicas of data are written successfully before this write request is considered successful. ● For a LUN in EC N + M mode, assuming that the minimum replica number of the LUN is set to Y (must satisfy N<=Y<=N + M), the data blocks and parity blocks that sum to at least Y blocks are written successfully before this write request is considered successful. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to N, where N is the number of replicas, the default value is 1. For a LUN in EC N + M mode, the value is an integer that ranges from N to N + M, the default value is N.	No
config.ECfragmentSize	Integer	The fragment size of erasure code, only supported by cluster mode. This parameter takes effect only when config.localStorageClass is in EC mode, otherwise it is ignored. Values: The value is 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024,	No

		2048, or 4096. The unit is KiB. The default value is 16.	
config.redundancyOverlap	Integer	Specifies the number of copies/fragments from the same data which are allowed to be distributed in the same fault domain, only supported by cluster mode. Different copies/fragments of the same data are distributed in different fault domains generally. When the fault domain is damaged, it is allowed to place multiple copies/fragments in the same fault domain but different paths according to the redundancy overlap principle. **Note**: If fault domain level of the storage pool is path, this parameter does not take effect. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to *N*, where *N* is the number of replicas, the default value is 1. For a LUN in EC N + M mode, the value is an integer that ranges from 1 to *N* + *M*, the default value is 1.	No
config.sectorSize	Integer	Specifies the sector size. Value: The value is 512 or 4096, the unit is bytes. The default value is 4096. **Note**: Selection of sector size: According to your business scenario, under normal circumstances, if the data size of a single I/O operation is greater than or close to 4 KiB, it is recommended to choose 4096; if the data size of a single I/O operation is close to 512 bytes, it is recommended to choose 512.	No
config.cachePool	String	Specifies a cache storage pool (only supported by cluster mode). If a cache storage pool is specified, LUN data is first written to the cache storage pool and then stored to the storage pool. **Note**: The storage pool and cache storage pool must not be the same. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	No
config.pool	String	Specifies a storage pool (only supported by cluster mode). The storage pool is the final storage pool in which LUN data is stored. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-),	No

		and underscores (_). Only supports starting with a letter or a digit. By default, the base storage pool in the cluster is used.	
config.highAvailability	String	Set the high availability type of the LUN, only supported by cluster mode. Value: ● ActiveStandby: Enable active and standby; this LUN is associated with all IQNs under the corresponding target. ● Disabled: Disable active and standby LUNs. The LUN is associated with 1 target IQN under the corresponding target. The default value is ActiveStandby.	No
config.writePolicy	String	Sets the write policy for the LUN. Value: ● WriteBack: After the data is written to the memory, it returns to the client successfully, and then the data is written to the disk asynchronously. It is suitable for scenarios with high performance requirements and low stability requirements. ● WriteThrough: The data is written to both memory and disk at the same time, and then returns to the client after successful writing. It is suitable for scenarios that the stability requirements are high, the write performance requirements are not high, and the recently written data will be read in a short time. ● WriteAround: Write data directly to the disk without writing to memory. It is suitable for scenarios with high stability requirements, low performance requirements, and more writing and less reading. The default value is WriteBack.	No
config.serverAffinity	Object	LUN primary-secondary distribution priority settings, only supported by cluster mode, see **Table 1 Parameter description of config.serverAffinity** for details.	No
config.qosPolicy	Object	QoS policy information associated with the LUN, see **Table 2 Parameter description of config.qosPolicy** for details.	No
config.path	String	Specifies the disk path to store LUN data, only	No

		supported by standalone mode. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :. If not specified, the default disk path of the server will be used for the LUN.	
cloud.provider	String	Specifies the type of object storage。 Value: ● OOS: eSurfing Cloud Object-Oriented Storage. ● S3: Other object storage compatible with S3. The default value is OOS.	No
cloud.bucketName	String	Specifies bucket name of object storage. **Note**: Do not enable bucket lifecycle settings and compliance retention.	Cloud LUN required
cloud.prefix	String	Specifies the prefix name for the LUN in object storage. After specifying the prefix name, the LUN data will be stored in the folder named with the prefix in the bucket. If no prefix is specified, it is stored directly in the folder named after the LUN name. Value: The value is a string of 1 to 256 characters.	No
cloud.accessKey	String	Specifies access key of object storage.	Cloud LUN required
cloud.secretKey	String	Specifies secret key of object storage.	Cloud LUN required
cloud.endpoint	String	Specifies endpoint of object storage. **Note**: ● The Endpoint must match the object storage type you're using. If you use OOS, enter its Endpoint. If you use other object storage compatible with S3, enter its Endpoint. ● Access will be via HTTPS if only the domain name is entered. For OOS endpoint details, see **OOS Endpoint and Region**.	Cloud LUN required
cloud.signVersion	String	Specifies signature authentication version. Value: ● v2 ● v4 The default value is v2.	No

cloud.region	String	Specifies the region of endpoint. For the specific OOS region, see **OOS Endpoint and Region**. If the signature authentication version is v4, this item is required.	No
cloud.objectSize	Integer	Specifies the size of data stored in object storage. Value: The value is 128, 256, 512, 1024, 2048, 4096, or 8192, in KiB. The default value is 1024.	No
cloud.storageClass	String	Specifies storage class of object storage. Value: ● STANDARD. ● STANDARD_IA. The default value is STANDARD.	No
cloud.compression	String	Whether to compress data and upload it to object storage. Value: ● Enabled: Compress data and upload it to object storage. ● Disabled: Do not compress data and upload it to object storage. The default value is Enabled	No

Table 1 Parameter description of config.serverAffinity

Parameter	Type	Description	Required
autoFailback	String	Indicates whether to automatically switch active and standby iSCSI targets of the LUN based on affinity priority. That is, when the high-priority server returns to normal, whether to automatically switch active and standby iSCSI targets of the LUN. Value: ● Enabled: Automatic switch active and standby iSCSI targets. ● Disabled: No automatic switch active and standby iSCSI targets. The default value is Enabled.	No
priority	Array of string	Specifies the sequential list of server ID used to identify the affinity priority of active and standby iSCSI targets, only supported by cluster mode. The system will select the active and standby IQN of the LUN based on the sequence of the specified server IDs. Multiple server IDs can be	No

		added at one time, separated by comma (,). **Prerequisite**: The name of the iSCSI target already exists, and the specified server must be the same as the one where the iSCSI target is located. Value: Server ID.	

Table 2 Parameter description of config.qosPolicy

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy. **Note**: If the specified QoS policy name does not exist when creating a LUN, the QoS policy will be created at the same time, the reclaim policy of the QoS policy is Delete. For cluster mode, when no QoS policy is explicitly specified: ● If the LUN has both a `cachePool` and a `pool`, its QoS policy is the default QoS policy for LUNs in the `cachePool`. If the `cachePool` has not defined such a default policy, the LUN has no QoS policy. ● If the LUN has only a `pool`, its QoS policy is the default QoS policy for LUNs in that `pool`. If the `pool` has not defined such a default policy, the LUN has no QoS policy. Value: The value is a string of 1 to 64 case-sensitive characters. It can contain letters, digits, and hyphens (-). Only supports starting with a letter or a digit. **Note**: ● If `qosName` is not specified but any IOPS/Bps parameter is set, a new QoS policy is automatically created based on the specified IOPS/Bps. The system assigns the policy name in the format: `lun-`*`lunname`*`-qos-`*`timestamp`*. ● If `qosName` is specified and any IOPS/Bps parameter is set, `qosName` must be unique and cannot match any existing QoS policy. ● If `qosName` is specified and no IOPS/Bps parameter is set, `qosName` must be the name	No

		of an existing QoS policy.	
IOPS	Long	Specifies the limit of I/O operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
readIOPS	Long	Specifies the limit of read operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
writeIOPS	Long	Specifies the limit of write operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
Bps	Long	Specifies the limit of I/O throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
readBps	Long	Specifies the limit of read throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
writeBps	Long	Specifies the limit of write throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
IOPSBurst	Long	Specifies the burst limit of I/O operations per second. Value: This setting only takes effect when IOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*IOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
readIOPSBurst	Long	Specifies the burst limit of read operations per second. Value: This setting only takes effect when readIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readIOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
writeIOPSBurst	Long	Specifies the burst limit of write operations per	No

		second. Value: This setting only takes effect when writeIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeIOPS*, 999,999,999]. The default value is –1, indicating no limit.	
BpsBurst	Long	Specifies the burst limit of I/O throughput per second. Value: This setting only takes effect when Bps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*Bps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
readBpsBurst	Long	Specifies the burst limit of read throughput per second. Value: This setting only takes effect when readBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
writeBpsBurst	Long	Specifies the burst limit of write throughput per second. Value: This setting only takes effect when writeBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
IOPSBurstSecs	Long	Specifies the duration of I/O operations with burst limit. **Note**: This setting is only effective when the IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readIOPSBurstSecs	Long	Specifies the duration of read operations with burst limit. **Note**: This setting is only effective when the read IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No

writeIOPSBurstSecs	Long	Specifies the duration of write operations with burst limit. **Note**: This setting is only effective when the write IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
BpsBurstSecs	Long	Specifies the duration of I/O throughput with burst limit. **Note**: This setting is only effective when the Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readBpsBurstSecs	Long	Specifies the duration of read throughput with burst limit. **Note**: This setting is only effective when the read Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeBpsBurstSecs	Long	Specifies the duration of write throughput with burst limit. **Note**: This setting is only effective when the write Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No

Response Elements

Name	Type	Description
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties, see **Table 3 Parameter description of iSCSITarget** for details.
message	String	If the StorageMode is set to Local, but the request body contains the cloud parameters, this message will be returned: "message": "Ignore cloud property when the LUN storage mode is local.

Table 3 Parameter description of iSCSITarget

Name	Type	Description

iqn	String	iSCSI target IQN.
status	String	The status of the iSCSI target of the LUN: ● Active: Active target. ● Standby: Hot standby target. ● Unavailable: Cold standby target.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 4 Parameter description of ip** for details.
serverId	String	Server ID.

Table 4 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Sample Request 1

Local LUN of standalone mode: Create LUN lun8.

```
POST /rest/v1/block/lun HTTP/1.1
Date: Wed, 18 Oct 2023 02:56:09 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 210
Host:192.168.0.69:1443

{
    "lunName": "lun8",
    "targetName": "target8",
    "capacity": 500,
    "config": {
        "sectorSize": 512,
        "writePolicy": "WriteThrough",
        "path": "/mnt/storage01"
        }
}
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: c79736f32fe249cc8c40af6d90d3fd68
Connection: keep-alive
Content-Length: 158
```

```
Date: Wed, 18 Oct 2023 02:56:09 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target8.2",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.202",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ]
    }
}
```

Sample Request 2

Local LUN of cluster mode: Create LUN lun08a.

```
POST /rest/v1/block/lun HTTP/1.1
Date: Thu, 5 Dec 2024 09:11:40 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 529
Host:192.168.0.192:1443

{
    "lunName": "lun08a",
    "targetName": "target08",
    "capacity": 500,
    "config": {
        "localStorageClass": "EC 2+1",
        "minReplica": 3,
        "ECfragmentSize": 1024,
        "sectorSize": 512,
        "cachePool": "default",
```

```
        "pool": "pool2",
        "highAvailability": "ActiveStandby",
        "writePolicy": "WriteThrough",
        "serverAffinity": {
            "autoFailback": "Enabled",
            "priority": [
                "hblock_1"
            ]
        }
    }
}
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 9430c50b4152442c8401d3fc8f4ced1b
Connection: keep-alive
Content-Length: 303
Date: Thu, 5 Dec 2024 09:11:40 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target08.11",
                "status": "Unavailable",
                "ips": [
                    {
                        "ip": "192.168.0.192",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target08.12",
                "status": "Unavailable",
                "ips": [
                    {
                        "ip": "192.168.0.117",
```

```
                        "port": 3260
                    }
                ],
                "serverId": "hblock_2"
            }
        ]
    }
}
```

Sample Request 3

Cloud LUN of standalone mode: Create LUN luna9.

```
POST /rest/v1/block/lun HTTP/1.1
Date: Mon, 13 May 2024 09:50:20 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 617
Host:192.168.0.32:1443

{
    "lunName": "luna9",
    "targetName": "targeta",
    "storageMode": "Storage",
    "capacity": 500,
    "config": {
        "sectorSize": 512,
        "writePolicy": "WriteThrough"
        },
    "cloud": {
        "bucketName": "hblocktest3",
        "prefix": "hblock1",
        "accessKey": "cb22b08b1f9229f85874",
        "secretKey": "****************************",
        "endpoint": "oos-cn.ctyunapi.cn",
        "signVersion": "v4",
        "region": "cn",
        "objectSize": 1024,
        "storageClass": "STANDARD",
        "compression": "Enabled"
    }
}
```

Sample Response 3

```
HTTP/1.1 200 OK
x-hblock-request-id: 2019e40fcec64256b68983a9b03e844e
Connection: keep-alive
Content-Length: 157
Date: Mon, 13 May 2024 09:50:20 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.2",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.32",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ]
    }
}
```

Sample Request 4

Cloud LUN of cluster mode: Create LUN luna03a.

```
POST /rest/v1/block/lun HTTP/1.1
Date: Thu, 9 May 2024 07:15:36 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 749
Host:192.168.0.192:1443

{
    "lunName": "lun03a",
    "targetName": "target03",
    "capacity": 300,
```

```
    "storageMode": "Cache",
    "config": {
        "localStorageClass": "EC 2+1",
        "minReplica": 3,
        "ECfragmentSize": 1024,
        "sectorSize": 512,
        "highAvailability": "ActiveStandby",
        "writePolicy": "WriteThrough"
    },
    "cloud": {
        "bucketName": "hblocktest2",
        "prefix": "hblock",
        "accessKey": "d0434d3e9e8dd462d6e0",
        "secretKey": "**************************",
        "endpoint": "oos-cn.ctyunapi.cn",
        "signVersion": "v4",
        "region": "cn",
        "objectSize": 1024,
        "storageClass": "STANDARD",
        "compression": "Enabled"
    }
}
```

Sample Response 4

```
HTTP/1.1 200 OK
x-hblock-request-id: 3d4faf99cb9447bfaa337fd2a63187eb
Connection: keep-alive
Content-Length: 296
Date: Thu, 9 May 2024 07:15:36 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target03.7",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.192",
```

```
                        "port": 3260
                    }
                ],
                "serverId": "hblock_2"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target03.8",
                "status": "Unavailable",
                "ips": [
                    {
                        "ip": "192.168.0.102",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_3"
            }
        ]
    }
}
```

4.3.2 Create a Clone LUN

This operation is used to create a clone LUN.

Prerequisite: The snapshot used for creating a clone LUN must be in "Normal" status.

Notes:

- Maximum clone LUNs supported by the system: 100,000.
- Maximum clone LUNs creatable from a single snapshot: 512.
- Maximum cloning depth supported by the system: 16.

Syntax

- **Standalone Mode**

```
POST /rest/v1/block/lun/clone HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "snapshotName": snapshotName,
    "targetName": targetName,
    "capacity": capacity,
    "config": {
        "sectorSize": sectorSize,
        "writePolicy": writePolicy,
        "qosPolicy": {
            "qosName": qosName,
            "IOPS": IOPS,
            "readIOPS": readIOPS,
            "writeIOPS": writeIOPS,
            "Bps": Bps,
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
```

```
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs
            },
        "path": path
    }
}
```

- **Cluster Mode**

```
POST /rest/v1/block/lun/clone HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "snapshotName": snapshotName,
    "targetName": targetName,
    "capacity": capacity,
    "config": {
        "localStorageClass": localStorageClass,
        "minReplica": minReplica,
        "ECfragmentSize": ECfragmentSize,
        "redundancyOverlap": redundancyOverlap,
        "sectorSize": sectorSize,
        "cachePool": poolName,
        "pool": poolName,
```

```
        "highAvailability": highAvailability,
        "writePolicy": writePolicy,
        "serverAffinity": {
            "autoFailback": autoFailback,
            "priority": [
                SeverID,ServerID…
            ]
        },
        "qosPolicy": {
            "qosName": qosName,
             "IOPS": IOPS,
            "readIOPS": readIOPS,
            "writeIOPS": writeIOPS,
            "Bps": Bps,
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs
        }
    }
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the clone LUN name. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes

snapshotName	String	Specifies the name of the snapshot associated with the clone LUN. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit.	Yes
targetName	String	Specifies the name of the iSCSI target associated with the clone LUN, which can differ from that of the source LUN. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit. **Note**: If the specified iSCSI target name does not exist when creating a clone LUN, the iSCSI target will be created at the same time, the reclaim policy of the iSCSI target is Delete.	Yes
capacity	Integer	Specifies the storage capacity of the clone LUN. Value: The value is an integer that ranges from 1 to 1048576. The unit is GiB. The default is the source LUN's capacity at the snapshot time. If reconfigured, it must be no less than the source LUN's capacity at the snapshot time.	No
config.localStorageClass	String	Specifies the clone LUN data storage redundancy mode, only supported by cluster mode. **Note**: If `minReplica` or `redundancyOverlap` is set for the cloned LUN, this parameter must also be specified. Value: ● single-copy. ● 2-copy. ● 3-copy. ● EC *N+M*: Erasure code mode. N and M are positive integers, N ≥ M, and N	No

		+ M ≤ 128. This indicates that the data is divided into N fragments and M pieces of verification data are generated. The default value matches the source LUN's configuration. **Note**: (All scenarios are based on the premise of cluster availability): ● After an EC *N+M* LUN is created: ■ Data can be written to the LUN if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the minimum number of replicas of the LUN. Data cannot be written to the LUN and an alarm is generated if the number of available fault domains in the storage pool where the LUN resides is smaller than the minimum number of replicas. ■ Data in the LUN is normal and will not degrade if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to N+M. Data in the LUN is being degraded if the number of available fault domains in the storage pool where the LUN resides is between [N, N+M]. We recommend that you add or repair the fault domains as soon as possible. Data written to the storage pool is corrupted if the number of available fault domains in the storage pool where the LUN resides is less than N.	

		● After a LUN in replica mode is created: ■ Data can be written to the LUN if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the minimum number of replicas of the LUN. Data cannot be written to the LUN and an alarm is generated if the number of available fault domains in the storage pool where the LUN resides is smaller than the minimum number of replicas. ■ Data in the LUN is normal and will not degrade if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the number of replicas. For a two-replica or three-replica LUN, data in the LUN data is being degraded if the fault domain in the storage pool where the LUN resides is greater than or equal to 1, but less than the number of replicas. We recommend that you add or repair fault domains as soon as possible. Data written to the storage pool is corrupted if no fault domain is available in the storage pool where the LUN resides.	
config.minReplica	Integer	Specifies the minimum replica number, only supported by cluster mode. ● For a LUN in replica mode, assuming that the number of LUN replicas is X and the minimum replica number is	No

		Y (must satisfy Y <=X), each time the data is written to LUN, at least Y replicas of data are written successfully before this write request is considered successful. ● For a LUN in EC N + M mode, assuming that the minimum replica number of the LUN is set to Y (must satisfy N<=Y<=N + M), the data blocks and parity blocks that sum to at least Y blocks are written successfully before this write request is considered successful. **Note**: If this parameter is specified, you must also specify `localStorageClass` for the cloned LUN. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to *N*, where *N* is the number of replicas. For a LUN in EC N + M mode, the value is an integer that ranges from *N* to *N* + *M*. The default value matches the source LUN's configuration.	
config.ECfragmentSize	Integer	The fragment size of erasure code. This parameter takes effect only when LUN data storage redundancy mode is in EC mode, otherwise it is ignored. Value: The value is 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048 or 4096, and the unit is KiB. The default value matches the source LUN's configuration.	No
config.redundancyOverlap	Integer	Specifies the number of copies/fragments from the same data which are allowed to be distributed in the same fault domain, only supported by cluster mode. Different copies/fragments of the same data are distributed in different fault domains generally. When the fault domain is damaged, it is allowed to place multiple	No

		copies/fragments in the same fault domain but different paths according to the redundancy overlap principle. **Note**: If fault domain level of the storage pool is path, this parameter does not take effect. If this parameter is specified, you must also specify `localStorageClass` for the cloned LUN. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to *N*, where *N* is the number of replicas. For a LUN in EC N + M mode, the value is an integer that ranges from 1 to *N* + *M*. The default value matches the source LUN's configuration.	
config.sectorSize	Integer	Specifies the sector size. The value is 512 or 4096, the unit is bytes. The default value matches the source LUN's configuration. **Note**: Selection of sector size: According to your business scenario, under normal circumstances, if the data size of a single I/O operation is greater than or close to 4 KiB, it is recommended to choose 4096; if the data size of a single I/O operation is close to 512 bytes, it is recommended to choose 512. If connecting to virtualization platforms such as VMware, it is recommended to choose 512 bytes.	No
config.cachePool	String	Specifies a cache storage pool, only supported by cluster mode. The default value matches the source LUN's configuration. **Note**: ● The pool and cachePool must not be the same. ● If the clone LUN's pool and cachePool settings match the source LUN's, no extra	No

		configuration is needed. If either the pool or cachePool for the clone LUN is set separately, the corresponding settings of the source LUN are overridden, and the configured parameter values are used. For example, if the source LUN has both cachePool and pool and the clone LUN only sets pool without setting cachePool, then the clone LUN will only use the newly set pool and have no cachePool. Conversely, if the clone LUN sets cachePool, you must also set pool or use the base storage pool.	
config.pool	String	Specifies the storage pool, only supported by cluster mode. The default value matches the source LUN's configuration. **Note**: ● The pool and cachePool must not be the same. ● If the clone LUN's pool and cachePool settings match the source LUN's, no extra configuration is needed. If either the pool or cachePool for the clone LUN is set separately, the corresponding settings of the source LUN are overridden, and the configured parameter values are used. For example, if the source LUN has both cachePool and pool and the clone LUN only sets pool without setting cachePool, then the clone LUN will only use the newly set pool and have no cachePool. Conversely, if the clone LUN sets cachePool, you must also set pool	No

		or use the base storage pool.	
config.highAvailability	String	Sets the high availability type of the clone LUN, only supported by cluster mode. Value: ● ActiveStandby: Enable active and standby. The LUN is associated with all IQNs under the corresponding target. ● Disabled: Disable active and standby LUNs. The LUN is associated with 1 target IQN under the corresponding target. The default value matches the source LUN's configuration.	No
config.writePolicy	String	Sets the write policy for the clone LUN: ● WriteBack: After the data is written to the memory, it returns to the client successfully, and then the data is written to the disk asynchronously. It is suitable for scenarios with high performance requirements and low stability requirements. ● WriteThrough: The data is written to both memory and disk at the same time, and then returns to the client after successful writing. It is suitable for scenarios that the stability requirements are high, the write performance requirements are not high, and the recently written data will be read in a short time. ● WriteAround: Write data directly to the disk without writing to memory. It is suitable for scenarios with high stability requirements, low performance requirements, and more writing and less reading. The default value matches the source LUN's configuration.	No

config.serverAffinity	Object	LUN primary-secondary distribution priority settings, only supported by cluster mode, see **Table 1 Parameter description of config.serverAffinity** for details.	No
config.qosPolicy	Object	QoS policy information associated with the LUN, see **Table 2 Parameter description of config.qosPolicy** for details.	No
config.path	String	Specifies the disk path to store clone LUN data, only supported by standalone mode. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :. The default disk path matches the source LUN's configuration.	No

Table 1 Parameter description of config.serverAffinity

Parameter	Type	Description	Required
autoFailback	String	Indicates whether to automatically switch active and standby iSCSI targets of the LUN based on affinity priority. That is, when the high-priority server returns to normal, whether to automatically switch active and standby iSCSI targets of the LUN. Value: ● Enabled: Automatic switch active and standby iSCSI targets. ● Disabled: No automatic switch active and standby iSCSI targets. The default value is Enabled.	No
priority	Array of string	Specifies the sequential list of server ID used to identify the affinity priority of active and standby iSCSI targets, only supported by cluster mode. The system will select the active and standby IQN of the LUN based on the sequence of the specified server IDs. Multiple server IDs can be added at one time, separated by comma (,). **Prerequisite**: The name of the iSCSI target already exists, and the specified server must be the same as the one where the iSCSI target is located.	No

		Value: Server ID.	

Table 2 Parameter description of config.qosPolicy

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy. **Note**: If the specified QoS policy name does not exist when creating a LUN, the QoS policy will be created at the same time, the reclaim policy of the QoS policy is Delete. For cluster mode, when no QoS policy is explicitly specified: ● If the LUN has both a `cachePool` and a `pool`, its QoS policy is the default QoS policy for LUNs in the `cachePool`. If the `cachePool` has not defined such a default policy, the LUN has no QoS policy. ● If the LUN has only a `pool`, its QoS policy is the default QoS policy for LUNs in that `pool`. If the `pool` has not defined such a default policy, the LUN has no QoS policy. Value: The value is a string of 1 to 64 case-sensitive characters. It can contain letters, digits, and hyphens (-). Only supports starting with a letter or a digit. **Note**: ● If `qosName` is not specified but any IOPS/Bps parameter is set, a new QoS policy is automatically created based on the specified IOPS/Bps. The system assigns the policy name in the format: `lun-`*`lunname`*`-qos-`*`timestamp`*. ● If `qosName` is specified and any IOPS/Bps parameter is set, `qosName` must be unique and cannot match any existing QoS policy. ● If `qosName` is specified and no IOPS/Bps parameter is set, `qosName` must be the name of an existing QoS policy.	No
IOPS	Long	Specifies the limit of I/O operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates	No

		no limit.	
readIOPS	Long	Specifies the limit of read operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
writeIOPS	Long	Specifies the limit of write operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
Bps	Long	Specifies the limit of I/O throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
readBps	Long	Specifies the limit of read throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
writeBps	Long	Specifies the limit of write throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
IOPSBurst	Long	Specifies the burst limit of I/O operations per second. Value: This setting only takes effect when IOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*IOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
readIOPSBurst	Long	Specifies the burst limit of read operations per second. Value: This setting only takes effect when readIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readIOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
writeIOPSBurst	Long	Specifies the burst limit of write operations per second. Value: This setting only takes effect when writeIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range	No

		(*writeIOPS*, 999,999,999]. The default value is –1, indicating no limit.	
BpsBurst	Long	Specifies the burst limit of I/O throughput per second. Value: This setting only takes effect when Bps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*Bps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
readBpsBurst	Long	Specifies the burst limit of read throughput per second. Value: This setting only takes effect when readBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
writeBpsBurst	Long	Specifies the burst limit of write throughput per second. Value: This setting only takes effect when writeBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
IOPSBurstSecs	Long	Specifies the duration of I/O operations with burst limit. **Note**: This setting is only effective when the IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readIOPSBurstSecs	Long	Specifies the duration of read operations with burst limit. **Note**: This setting is only effective when the read IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeIOPSBurstSecs	Long	Specifies the duration of write operations with burst limit. **Note**: This setting is only effective when the write	No

		IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	
BpsBurstSecs	Long	Specifies the duration of I/O throughput with burst limit. **Note**: This setting is only effective when the Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readBpsBurstSecs	Long	Specifies the duration of read throughput with burst limit. **Note**: This setting is only effective when the read Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeBpsBurstSecs	Long	Specifies the duration of write throughput with burst limit. **Note**: This setting is only effective when the write Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No

Response Elements

Name	Type	Description
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties, see **Table 3 Parameter description of iSCSITarget** for details.
cloneDepth	Integer	The depth of the clone LUN.

Table 3 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	iSCSI target IQN.
status	String	The status of the iSCSI target of the clone LUN: ● Active: Active target. ● Standby: Hot standby target. ● Unavailable: Cold standby target.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 4**

		Parameter description of ip for details.
serverId	String	Server ID.

Table 4 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Sample Request 1

Standalone Mode: Create clone LUN luna1-C2.

```
POST /rest/v1/block/lun/clone HTTP/1.1
Date: Tue, 11 Mar 2025 06:55:43 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Connection: keep-alive
Content-Length: 211
Host:192.168.0.66:1443

{
    "lunName": "luna1-C2",
    "snapshotName": "luna1-snap4",
    "targetName": "targeta",
    "capacity": 500,
    "config": {
        "sectorSize": 512,
        "writePolicy": "WriteThrough"
    }
}
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 1e3c374dc4044830828d69d3657d996a
Connection: keep-alive
Content-Length: 172
Date: Tue, 11 Mar 2025 06:55:43 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

```
{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.1",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.66",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ],
        "cloneDepth": 1
    }
}
```

Sample Request 2

Cluster Mode: Create clone LUN lun02-clone-6.

```
POST /rest/v1/block/lun/clone HTTP/1.1
Date: Tue, 11 Mar 2025 06:41:03 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Connection: keep-alive
Content-Length: 559
Host:192.168.0.64:1443

{
    "lunName": "lun02-clone-6",
    "snapshotName": "lun02-snap20250304170942",
    "targetName": "target02",
    "capacity": 500,
    "config": {
        "localStorageClass": "EC 2+1",
```

```
        "ECfragmentSize": 1024,
        "sectorSize": 512,
        "cachePool": "default",
        "pool": "pool2",
        "highAvailability": "ActiveStandby",
        "writePolicy": "WriteThrough",
        "serverAffinity": {
            "autoFailback": "Enabled",
            "priority": [
                "hblock_1"
            ]
        }
    }
}
```


Sample Response 2


```
HTTP/1.1 200 OK
x-hblock-request-id: 379a264ec280457ea92a44ba3e0413eb
Connection: keep-alive
Content-Length: 314
Date: Tue, 11 Mar 2025 06:41:03 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target02.3",
                "status": "Unavailable",
                "ips": [
                    {
                        "ip": "192.168.0.65",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target02.4",
                "status": "Unavailable",
```

```
                "ips": [
                    {
                        "ip": "192.168.0.64",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_2"
            }
        ],
        "cloneDepth": 1
    }
}
```

4.3.3 Flatten the Clone LUN

This operation is used to flatten the clone LUN. This operation copies the data stored in the snapshot to the clone LUN, and after the relationship chain is disconnected, the LUN becomes an independent LUN.

Note:

- If the source LUN's data is damaged or unreadable due to other reasons, the system will keep retrying until it can read and copy the data to the clone LUN.
- This operation cannot be performed if the clone LUN is being rolled back.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/flatten HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the clone LUN to be flattened. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes

Sample Request

Flatten the clone LUN luna1-C2.

```
PUT /rest/v1/block/lun/luna1-C2/flatten HTTP/1.1
Date: Tue, 11 Mar 2025 07:38:50 GMT
Authorization: HBlock userName:signature
Connection: keep-alive
Content-Length: 0
Host: 192.168.0.66:1443
```

Sample Response

```
TTP/1.1 204 No Content
x-hblock-request-id: 10263b8586af4cdd8dfc6863032d7d66
Connection: keep-alive
Date: Tue, 11 Mar 2025 07:38:50 GMT
Server: HBlock
```

4.3.4 Delete a LUN

This operation is used to delete the specified LUN.
For the cache or storage mode LUN, if the data on the cloud is not deleted when deleting the LUN, the LUN restore function can be used later for LUN data restoration. When deleting a LUN, ensure it has no snapshots or consistency snapshots.

Note:

- For the cache or storage mode LUN, if forcibly deleting the LUN while also deleting cloud data may result in residual cloud data, which needs to be manually deleted.
- If a LUN has associated clone LUNs that are not in "Deleting" or "Flattening" status, deleting the source LUN is prohibited.
- If a LUN has associated snapshots or consistency snapshots, you can only force-delete the LUN. Forcing deletion will also delete the snapshots and LUN snapshots in the consistency snapshots. This may cause data residue, please proceed with caution.

Syntax

- Local LUN

```
DELETE /rest/v1/block/lun/lunName?force=force HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

- Cloud LUN

```
DELETE /rest/v1/block/lun/lunName?force=force&deleteCloudData=deleteCloudData HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN to be deleted. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
force	Boolean	Forcibly deleting the LUN. Value: ● true: Force delete the LUN.	No

		● false: Do not force delete the LUN. The default value is false. **Note**: Forcibly deleting the LUN may result in data residue. Please proceed with caution.	
deleteCloudData	Boolean	Whether to delete the data on the cloud when the cloud LUN is deleted. Value: ● true: Delete the data on the cloud when the cloud LUN is deleted. ● false: Do not delete the data on the cloud when the cloud LUN is deleted. The default value is false. **Note**: ● If this parameter is carried when deleting local LUN, it will be ignored directly. ● If the LUN status is Suspended, Suspending, or SuspendFailed, the cloud data cannot be deleted even if the LUN is forcibly deleted.	No

Sample Request 1

Local LUN: Delete the LUN testLun1.

```
DELETE /rest/v1/block/lun/testLun1 HTTP/1.1
Date: Tue, 15 Mar 2022 02:40:17 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response 1

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 75dd09b8f97941d98b74ac15b4b5c855
Connection: keep-alive
Content-Length: 0
Date: Tue, 15 Mar 2022 02:40:17 GMT
Server: HBlock
```

Sample Request 2

Cloud LUN: Delete the LUN lun03a, and delete the data on the cloud when deleting the LUN.

```
DELETE /rest/v1/block/lun/lun03a?deleteCloudData=true HTTP/1.1
Date: Thu, 9 May 2024 08:26:41 GMT
Authorization: HBlock userName:signature
```

```
Host: 192.168.0.192:1443
```

Sample Response 2

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 460b71d05c4c4b119811cb4b8f6ddc5b
Connection: keep-alive
Content-Length: 0
Date: Thu, 9 May 2024 08:26:41 GMT
Server: HBlock
```

4.3.5 Expand a LUN

This operation is used to expand the storage capacity of the specified LUN.

Note: If the LUN is already mounted by the client, the expansion can only take effect after the LUN on the iSCSI initiator is also expanded. For detailed operations, please refer to the command line manual "**4.6.5 Expansion LUN"** chapter.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/expand HTTP/1.1
Date: date
Host: ip:port
Authorization:authorization

{
   "capacity": capacity
 }
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN to be expanded. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit	Yes
capacity	Integer	The capacity of the LUN to be expanded. Value: The value is an integer that ranges from 1 to 1048576. The unit is GiB	Yes

Sample Request

Expand LUN lunName1 to 200000 GiB.

```
PUT /rest/v1/block/lun/lunName1/expand HTTP/1.1
Date: Fri, 29 Jul 2022 06:43:11 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 26
Host: 192.168.0.121:1443

{
    "capacity":200000
```

```
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 49ed1b92c7e74137ae8d5572cb1a0aa1
Connection: keep-alive
Date: Fri, 29 Jul 2022 06:43:11 GMT
Server: HBlock
```

4.3.6 Edit a LUN

This operation is used to edit the specified LUN.

Note: LUN configurations cannot be modified if the LUN is in "Deleting" or "Rollbacking" status.

Request Syntax

- Local LUN

```
PUT /rest/v1/block/lun/lunName HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization

{
    "config": {
        "minReplica": minReplica,
        "redundancyOverlap": redundancyOverlap,
        "writePolicy": writePolicy,
        "serverAffinity": {
            "autoFailback": autoFailback,
            "priority": [
                SeverID,ServerID…
            ]
        }
    }
}
```

- Cloud LUN

```
PUT /rest/v1/block/lun/lunName HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization

{
    "config": {
        "minReplica": minReplica,
        "redundancyOverlap": redundancyOverlap,
        "writePolicy": writePolicy,
        "serverAffinity": {
            "autoFailback": autoFailback,
            "priority": [
                SeverID,ServerID…
```

```
            ]
        }
    },
    "cloud": {
        "compression": compression,
        "accessKey": accessKey,
        "secretKey": secretKey,
        "endpoint": endpoint,
        "signVersion": signVersion,
        "region": region
    }
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN to be edited. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
config.minReplica	Integer	Specifies the minimum replica number, only supported by cluster mode. ● For a LUN in replica mode, assuming that the number of LUN replicas is X and the minimum replica number is Y (must satisfy Y <=X), each time the data is written to LUN, at least Y replicas of data are written successfully before this write request is considered successful. ● For a LUN in EC N + M mode, assuming that the minimum replica number of the LUN is set to Y (must satisfy N<=Y<=N + M), the data blocks and parity blocks that sum to at least Y blocks are written successfully before this write	No

		request is considered successful. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to *N*, where *N* is the number of replicas, the default value is 1. For a LUN in EC N + M mode, the value is an integer that ranges from *N* to *N* + *M*, the default value is *N*.	
config.redundancyOverlap	Integer	Specifies the number of copies/fragments from the same data which are allowed to be distributed in the same fault domain, only supported by cluster mode. Different copies/fragments of the same data are distributed in different fault domains generally. When the fault domain is damaged, it is allowed to place multiple copies/fragments in the same fault domain but different paths according to the redundancy overlap principle. **Note**: If fault domain level of the storage pool is path, this parameter does not take effect. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to *N*, where *N* is the number of replicas. For a LUN in EC N + M mode, the value is an integer that ranges from 1 to *N* + *M*.	No
config.writePolicy	String	LUN write policies. Value: ● WriteBack: After the data is written to the memory, it returns to the client successfully, and then the data is written to the disk asynchronously. It is suitable for scenarios with high performance requirements and low stability requirements. ● WriteThrough: The data is written to both memory and disk at the same time, and then returns to the client	No

		after successful writing. It is suitable for scenarios that the stability requirements are high, the write performance requirements are not high, and the recently written data will be read in a short time. ● WriteAround: Write data directly to the disk without writing to memory. It is suitable for scenarios with high stability requirements, low performance requirements, and more writing and less reading.	
config.serverAffinity	Object	LUN primary-secondary distribution priority settings, only supported by cluster mode, see **Table 1 Parameter description of config.serverAffinity** for details.	No
cloud.compression	String	Whether to compress data and upload it to object storage. Value: ● Enabled Compress data and upload it to object storage. ● Disabled: Do not compress data and upload it to object storage.	No
cloud.accessKey	String	Access key of object storage. **Note**: Access key and Secret key must be modified simultaneously.	No
cloud.secretKey	String	Secret key of object storage. **Note**: Access key and Secret key must be modified simultaneously.	No
cloud.endpoint	String	Specifies endpoint of object storage. **Note**: ● The Endpoint must match the object storage type you're using. If you use OOS, enter its Endpoint. If you use other object storage compatible with S3, enter its Endpoint. ● Access will be via HTTPS if only the domain name is entered.	No

cloud.signVersion	String	Specifies signature authentication version. Value: ● v2 ● v4	No
cloud.region	String	Specifies the region of endpoint. If the signature authentication version is v4, this item is required.	No

Table 1 Parameter description of config.serverAffinity

Parameter	Type	Description	Required
autoFailback	String	Whether to automatically switch active and standby iSCSI targets of the LUN based on affinity priority. That is, when the high-priority server returns to normal, whether to automatically switch active and standby iSCSI targets of the LUN. Value: ● Enabled: Automatic switch active and standby iSCSI targets. ● Disabled: No automatic switch active and standby iSCSI targets.	No
priority	Array of string	Specifies the sequential list of server ID used to identify the affinity priority of active and standby iSCSI targets, only supported by cluster mode. The system will select the active and standby IQN of the LUN based on the sequence of the specified server IDs. Multiple server IDs can be added at one time, separated by comma (,). **Note**: If it is an empty array, i.e., [ ], it indicates clearing the priority settings. Value: Server ID.	No

Sample Request 1

Modify the write policy of LUN lun8 to WriteThrough.

```
PUT /rest/v1/block/lun/lun8 HTTP/1.1
Date: Fri, 29 Jul 2022 07:29:17 GMT
Host: 192.168.0.121:1443
Content-Length: 53
Authorization: HBlock userName:signature
```

```
{
  "config":{
        "writePolicy":"WriteThrough"
    }
}
```

Sample Response 1

```
HTTP/1.1 204 No Content
Date: Fri, 29 Jul 2022 07:29:18 GMT
Connection: keep-alive
x-hblock-request-id: 140a25c99a9a4efc87e561b44b595926
Server: HBlock
```

Sample Request 2

Modify the minimum copies of LUN lun01a to 3

```
PUT /rest/v1/block/lun/lun01a HTTP/1.1
Date: Sat, 7 Oct 2023 07:58:35 GMT
Host: 192.168.0.117:1443
Content-Length: 53
Authorization: HBlock userName:signature

{
    "config": {
        "minReplica": 3
    }
}
```

Sample Response 2

```
HTTP/1.1 204 No Content
Date: Sat, 7 Oct 2023 07:58:35 GMT
Connection: keep-alive
x-hblock-request-id: 437f52eff9fe44a6ad9aae796beda55e
Server: HBlock
```

Sample Request 3

Modify the cloud configuration of LUN lun02a.

```
PUT /rest/v1/block/lun/lun02a HTTP/1.1
Date: Thu, 9 May 2024 09:12:47 GMT
Host: 192.168.0.110:1443
```

```
Content-Length: 271
Authorization: HBlock userName:signature

{
    "cloud": {
        "accessKey": "d0434d3e9e8dd462d6e0",
        "secretKey": "**************************",
        "endpoint": "oos-cn.ctyunapi.cn",
        "signVersion": "v4",
        "region": "cn",
        "compression": "Enabled"
    }
}
```

Sample Response 3

```
HTTP/1.1 204 No Content
Date: Thu, 9 May 2024 09:12:47 GMT
Connection: keep-alive
x-hblock-request-id: 01d8a27085444f6aaabbd3ebd16348db
Server: HBlock
```

4.3.7 Set LUN Primary-Secondary Priority or Automatic Failover (Cluster Mode)

This operation is used to modify the configuration of LUNs in batches.

Note: LUN configurations cannot be modified if the LUN is in "Deleting" or "Rollbacking" status.

Request Syntax

```
PUT /rest/v1/block/lun HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization

{
    "action": action,
    "lunList": [
        lunName,lunName…
    ],
    "autoFailback": autoFailback,
    "priority": [
        SeverID,ServerID…
    ],
    "statusDriven": statusDriven
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the LUN name. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
action	String	Specifies the operation on the LUNs. Value: ● setServerAffinity: Set the primary-secondary priority or automatic failover of the LUN. ● switch: Trigger the active/standby switchover of the target corresponding to the LUN.	Yes
lunList	Array of LUN	List of LUNs to be modified. Type: Array Value: LUN name. **Note**: If this parameter is specified as empty, i.e., "lunList": [], or if this parameter is not specified, it	No

		indicates that all LUNs will be modified in batches.	
autoFailback	String	Indicate whether to automatically switch active and standby iSCSI targets of the LUN based on affinity priority. That is, when the high-priority server returns to normal, whether to automatically switch active and standby iSCSI targets of the LUN. Note: Effective when the value of action is setServerAffinity. Value: ● Enabled: Automatic switch active and standby iSCSI targets. ● Disabled: No automatic switch active and standby iSCSI targets.	No
priority	Array of priority	Specifies the sequential list of server ID used to identify the affinity priority of active and standby iSCSI targets, only supported by cluster mode. The system will select the active and standby IQN of the LUN based on the sequence of the specified server IDs. Multiple server IDs can be added at one time, separated by comma (,). **Note**: Effective when the value of 'action' is 'setServerAffinity', and 'priority' and 'statusDriven' are mutually exclusive. If it is an empty array, i.e., [ ], it indicates clearing the priority settings. Value: If a single LUN is specified in the LUN list, the value of 'priority' can be a list of server IDs or an empty array. If multiple (more than one) LUNs are specified in the LUN list, or if the LUN list is empty, or if the LUN list is not specified, the value of 'priority' must be an empty array or 'priority' must not be specified.	No
statusDriven	Boolean	Sets the priority based on the locations of the current Active target, Standby target, and Cold target of the LUN on the servers. **Note**: Effective when the value of action is setServerAffinity. Value: ● true: Sets the priority based on the locations of the current Active target, Standby target, and Cold target of the LUN on the servers. ● false: Make no changes.	No

Sample Request 1

Clear the priority settings for LUNs lun01a and lun02a.

```
PUT /rest/v1/block/lun HTTP/1.1
Date: Wed, 15 Jan 2025 09:27:11 GMT
Host: 192.168.0.192:1443
Content-Length: 123
Authorization: HBlock userName:signature

{
    "action": "setServerAffinity",
    "lunList": [
        "lun01a",
        "lun02a"
    ],
    "priority": []
}
```

Sample Response 1

```
HTTP/1.1 202 Accepted
Date: Wed, 15 Jan 2025 09:27:11 GMT
Connection: keep-alive
x-hblock-request-id: bdb3c7eb8eac4342b161364f5034c3e9
Content-Length: 66
Server: HBlock

{
    "data": {
        "successLunList": [
            "lun01a",
            "lun02a"
        ],
        "failedLunList": []
    }
}
```

Sample Request 2

Trigger the active/standby switchover of the target corresponding to LUNs lun01a, lun02a, and

lun03a.

```
PUT /rest/v1/block/lun HTTP/1.1
Date: Wed, 15 Jan 2025 09:36:44 GMT
Host: 192.168.0.192:1443
Content-Length: 110
Authorization: HBlock userName:signature

{
    "action": "switch",
    "lunList": [
        "lun01a",
        "lun02a",
        "lun03a"
    ]
}
```

Sample Response 2

```
HTTP/1.1 202 Accepted
Date: Wed, 15 Jan 2025 09:36:44 GMT
Connection: keep-alive
x-hblock-request-id: 4e48e27a0db4495ca60b673ffd2cb3d5
Content-Length: 75
Server: HBlock

{
    "data": {
        "successLunList": [
            "lun01a",
            "lun02a"
        ],
        "failedLunList": []
    }
}
```

4.3.8 Trigger Active/Standby Switchover of the Target Corresponding to the LUN (Cluster Mode)

This operation is used to trigger the active/standby switchover of the target corresponding to the LUN.

Note: After performing this operation, no action is required on the client side.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/switch HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the LUN name. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes

Response Elements

Name	Type	Description
iSCSITargets	Array of iSCSITarget	A collection of attributes of an iSCSI target, see **Table 1 Parameter description of iSCSITarget** for details.

Table 1 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	Target IQN.
status	String	The status of the target corresponding to the LUN: ● Active: Active target. ● Standby: Hot standby target. ● Unavailable: Cold standby target.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 2 Parameter description of ip** for details.

Table 2 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.

port	Integer	iSCSI target port.

Sample Request

Trigger the active/standby switchover of the target corresponding to LUN lun01a.

```
PUT /rest/v1/block/lun/lun01a/switch HTTP/1.1
Date: Fri, 10 Feb 2023 09:42:01 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.117:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 10d4e743ef08473fbe41cc61cd933844
Connection: keep-alive
Content-Length: 296
Date: Fri, 10 Feb 2023 09:42:01 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.3",
                "status": "Unavailable",
                "ips": [
                    {
                        "ip": "192.168.0.117",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.4",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.192",
                        "port": 3260
                    }
                ],
```

```
                "serverId": "hblock_3"
            }
        ]
    }
}
```

4.3.9 Recover a LUN (Cache/Storage Mode LUN)

This operation is used to recover a cache or storage mode LUN.

The following scenarios are suitable for using the recover LUN function:

- There is a storage mode LUN or a cache mode LUN in the original HBlock, and the LUN data has been uploaded to the cloud. If the HBlock fails and cannot be started at this time, the LUN can be regenerated in another HBlock through the function of recovering the LUN, and LUN data can be recovered from the cloud.
- The original cache mode LUN or storage mode LUN has been deleted, but the cloud data is retained. The LUN data can be recovered through the recover function.

Note:

- When performing recover operation, please ensure that the connection between the original HBlock and the cloud has been disconnected, and no new data will be written to the LUN.
- The LUN name to be recovered does not exist in the current HBlock.
- The LUN to be recovered must be found in the specified bucket/prefix and the data must be complete.
- The recover LUN operation is executed asynchronously. Please check the recover progress by querying the LUN function.
- Before recovering a LUN in standalone mode, ensure that no residual data of that LUN exists in its corresponding data directory.
- When a LUN is in Recovering or RecoverFailed status, read and write operations are not supported.

Request Syntax

- Standard Mode

```
POST /rest/v1/block/lun/recover HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "uuid": lunuuid,
    "targetName": targetName,
```

```
    "storageMode": storageMode,
    "config": {
        "sectorSize": sectorSize,
        "writePolicy": writePolicy,
        "qosPolicy": {
            "qosName": qosName,
            "IOPS": IOPS,
            "readIOPS": readIOPS,
            "writeIOPS": writeIOPS,
            "Bps": Bps,
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs
        },
        "path": path
    },
    "cloud": {
        "provider": provider,
        "bucketName": bucketName,
        "prefix": prefix,
        "accessKey": accessKey,
        "secretKey": secretKey,
        "endpoint": endpoint,
        "signVersion": signVersion,
        "region": region,
        "storageClass": storageClass,
        "compression": compression
```

```
    }
}
```

- Cluster Mode

```
POST /rest/v1/block/lun/recover HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "lunName": lunName,
    "uuid": lunuuid,
    "targetName": targetName,
    "storageMode": storageMode,
    "config": {
        "localStorageClass": localStorageClass,
        "minReplica": minReplica,
        "redundancyOverlap": redundancyOverlap,
        "ECfragmentSize": ECfragmentSize,
        "cachePool": poolName,
        "pool": poolName,
        "highAvailability": highAvailability,
        "writePolicy": writePolicy,
        "serverAffinity": {
            "autoFailback": autoFailback,
            "priority": [
                SeverID,ServerID…
            ]
        },
        "qosPolicy": {
            "qosName": qosName,
            "IOPS": IOPS,
            "readIOPS": readIOPS,
            "writeIOPS": writeIOPS,
            "Bps": Bps,
```

```
            "readBps": readBps,
            "writeBps": writeBps,
            "IOPSBurst": IOPSBurst,
            "readIOPSBurst": readIOPSBurst,
            "writeIOPSBurst": writeIOPSBurst,
            "BpsBurst": BpsBurst,
            "readBpsBurst": readBpsBurst,
            "writeBpsBurst": writeBpsBurst,
            "IOPSBurstSecs": IOPSBurstSecs,
            "readIOPSBurstSecs": readIOPSBurstSecs,
            "writeIOPSBurstSecs": writeIOPSBurstSecs,
            "BpsBurstSecs": BpsBurstSecs,
            "readBpsBurstSecs": readBpsBurstSecs,
            "writeBpsBurstSecs": writeBpsBurstSecs
        }
    },
    "cloud": {
        "provider": provider,
        "bucketName": bucketName,
        "prefix": prefix,
        "accessKey": accessKey,
        "secretKey": secretKey,
        "endpoint": endpoint,
        "signVersion": signVersion,
        "region": region,
        "storageClass": storageClass,
        "compression": compression
    }
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the source LUN name.	Yes
uuid	String	Universally unique identifier of the source LUN.	Yes
targetName	String	Specifies the iSCSI target name for the LUN.	Yes

		Note: If the specified iSCSI target name does not exist when recovering the LUN, the iSCSI target will be created at the same time. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	
storageMode	String	Specifies the storage mode for the LUN. Value: ● Cache: Store part of hot data at local and store all data in cloud asynchronously. ● Storage: Store all data at local and asynchronously store it in cloud. Consistent with configuration of source LUN by default.	No
config.localStorageClass	String	Sets the redundancy mode for the restored LUN (only supported by cluster mode). Value: ● single-copy. ● 2-copy. ● 3-copy. ● EC *N*+*M*: Erasure code mode. Wherein, N and M are positive integers, N ≥ M, and N + M ≤ 128. Indicates that the data is divided into N fragments and M pieces of parity data is generated. The default value is the redundancy mode of the source LUN. **Note** (In the following scenarios, the cluster is available):	No

		● After the EC *N*+*M* LUN is restored: ■ Data can be written to the LUN if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the minimum number of replicas of the LUN. Data cannot be written to the LUN and an alarm is generated if the number of available fault domains in the storage pool where the LUN resides is smaller than the minimum number of replicas. ■ Data in the LUN is normal and will not degrade if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to N+M. Data in the LUN is being degraded if the number of available fault domains in the storage pool where the LUN resides is between [N, N+M]. We recommend that you add or repair the fault domains as soon as possible. Data written to the storage pool is corrupted if the number of available fault domains in the storage pool where the LUN resides is less than N. ● After a LUN is restored in	

		replica mode: ■ Data can be written to the LUN if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the minimum number of replicas of the LUN. Data cannot be written to the LUN and an alarm is generated if the number of available fault domains in the storage pool where the LUN resides is smaller than the minimum number of replicas. ■ Data in the LUN is normal and will not degrade if the number of available fault domains in the storage pool where the LUN resides is greater than or equal to the number of replicas. For a two-replica or three-replica LUN, data in the LUN data is being degraded if the fault domain in the storage pool where the LUN resides is greater than or equal to 1, but less than the number of replicas. We recommend that you add or repair fault domains as soon as possible. Data written to the storage pool is corrupted if no fault domain is available in the storage pool where the	

		LUN resides.	
config.minReplica	Integer	Specifies the minimum replica number, only supported by cluster mode. ● For a LUN in replica mode, assuming that the number of LUN replicas is X and the minimum replica number is Y (must satisfy Y <=X), each time the data is written to LUN, at least Y replicas of data are written successfully before this write request is considered successful. ● For a LUN in EC N + M mode, assuming that the minimum replica number of the LUN is set to Y (must satisfy N<=Y<=N + M), the data blocks and parity blocks that sum to at least Y blocks are written successfully before this write request is considered successful. **Note**: If the minimum number for the LUN is specified, the redundancy mode for the LUN must be specified. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to *N*, where *N* is the number of replicas. For a LUN in EC N + M mode, the value is an integer that ranges from *N* to *N* + *M*. Consistent with configuration of source LUN by default.	No
config.redundancyOverlap	Integer	Specifies the number of copies/fragments from the same data which are allowed to be distributed in the same fault domain, only supported by cluster	No

		mode. Different copies/fragments of the same data are distributed in different fault domains generally. When the fault domain is damaged, it is allowed to place multiple copies/fragments in the same fault domain but different paths according to the redundancy overlap principle. **Note**: If fault domain level of the storage pool is path, this parameter does not take effect. Value: For a LUN in replica mode, the value is an integer that ranges from 1 to *N*, where *N* is the number of replicas. For a LUN in EC N + M mode, the value is an integer that ranges from 1 to *N* + *M*. Consistent with source configuration by default.	
config.ECfragmentSize	Integer	The fragment size of erasure code, only supported by cluster mode. This parameter takes effect only when LUN data storage redundancy mode is in EC mode, otherwise it is ignored. Value: The value is 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048 or 4096, and the unit is KiB. Consistent with configuration of source LUN by default.	No
config.cachePool	String	Specifies the cache storage pool (only supported by cluster mode). If a cache storage pool is specified, LUN data is first written to the cache storage pool and then stored to the storage pool. **Note**: The storage pool and cache storage pool must not be the same. Value: The value is a string of 1 to	No

		16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	
config.pool	String	Specifies the storage pool (only supported by cluster mode). The storage pool is the final storage pool in which LUN data is stored. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit. By default, the base storage pool in the cluster is used.	No
config.highAvailability	String	Set the high availability type of the LUN, only supported by cluster mode. Value: ● ActiveStandby: Enable active and standby. The LUN is associated with all IQNs under the corresponding target. ● Disabled: Disable active and standby LUNs. The LUN is associated with 1 target IQN under the corresponding target. Consistent with configuration of source LUN by default.	No
config.writePolicy	String	Sets the write policy for the LUN. Value: ● WriteBack: After the data is written to the memory, it returns to the client successfully, and then the data is written to the disk asynchronously. It is suitable for scenarios with high performance requirements	No

		and low stability requirements. ● WriteThrough: The data is written to both memory and disk at the same time, and then returns to the client after successful writing. It is suitable for scenarios that the stability requirements are high, the write performance requirements are not high, and the recently written data will be read in a short time. ● WriteAround: Write data directly to the disk without writing to memory. It is suitable for scenarios with high stability requirements, low performance requirements, and more writing and less reading. Consistent with configuration of source LUN by default.	
config.serverAffinity	Object	LUN primary-secondary distribution priority settings, only supported by cluster mode, see **Table 1 Parameter description of config.serverAffinity** for details.	config.serverAffinity
config.qosPolicy	Object	QoS policy information associated with the LUN, see **Table 2 Parameter description of config.qosPolicy** for details.	No
config.path	String	Specifies the disk path to store LUN data, only supported by standalone mode. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :. If not specified, the default disk path of the server will be used for the LUN.	No

cloud.provider	String	Specifies the type of object storage. ● OOS: eSurfing Cloud Object-Oriented Storage. ● S3: Other object storage compatible with S3. The default value is OOS. **Note**: The recovered LUN and the source LUN must use the same object storage service.	No
cloud.bucketName	String	The bucket where the source LUN data is stored. **Note**: Do not enable bucket lifecycle settings and compliance retention.	Yes
cloud.prefix	String	The prefix name of the source LUN in object storage. If the source LUN does not specify a prefix, the parameter does not need to be specified. Value: The value is a string of 1 to 256 characters.	No
cloud.accessKey	String	The source LUN's access key of object storage.	Yes
cloud.secretKey	String	The source LUN's secret key of object storage.	Yes
cloud.endpoint	String	The source LUN's endpoint.	Yes
cloud.signVersion	String	Specifies signature authentication version. Value: ● v2 ● v4 The default value is v2.	No
cloud.region	String	Specifies the region of endpoint. If the signature authentication version is v4, this item is required.	No
cloud.storageClass	String	Specifies storage class of object storage. Value: ● STANDARD.	No

		● STANDARD_IA. Consistent with source configuration by default.	
cloud.compression	String	Whether to compress data and upload it to object storage. Value: ● Enabled: Compress data and upload it to object storage. ● Disabled: Do not compress data and upload it to object storage. Consistent with source configuration by default.	No

Table 1 Parameter description of config.serverAffinity

Parameter	Type	Description	Required
autoFailback	String	Indicates whether to automatically switch active and standby iSCSI targets of the LUN based on affinity priority. That is, when the high-priority server returns to normal, whether to automatically switch active and standby iSCSI targets of the LUN. Value: ● Enabled: Automatic switch active and standby iSCSI targets. ● Disabled: No automatic switch active and standby iSCSI targets. The default value is Enabled.	No
priority	Array of string	Specifies the sequential list of server ID used to identify the affinity priority of active and standby iSCSI targets, only supported by cluster mode. The system will select the active and standby IQN of the LUN based on the sequence of the specified server IDs. Multiple server IDs can be added at one time, separated by comma (,). **Prerequisite**: The name of the iSCSI target already exists, and the specified server must be the same as the one where the iSCSI target is located. Value: Server ID.	No

Table 2 Parameter description of config.qosPolicy

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy. **Note**: If the specified QoS policy name does not exist when creating a LUN, the QoS policy will be created at the same time, the reclaim policy of the QoS policy is Delete. For cluster mode, when no QoS policy is explicitly specified: ● If the LUN has both a `cachePool` and a `pool`, its QoS policy is the default QoS policy for LUNs in the `cachePool`. If the `cachePool` has not defined such a default policy, the LUN has no QoS policy. ● If the LUN has only a `pool`, its QoS policy is the default QoS policy for LUNs in that `pool`. If the `pool` has not defined such a default policy, the LUN has no QoS policy. Value: The value is a string of 1 to 64 case-sensitive characters. It can contain letters, digits, and hyphens (-). Only supports starting with a letter or a digit. **Note**: ● If `qosName` is not specified but any IOPS/Bps parameter is set, a new QoS policy is automatically created based on the specified IOPS/Bps. The system assigns the policy name in the format: `lun-`*`lunname`*`-qos-`*`timestamp`*. ● If `qosName` is specified and any IOPS/Bps parameter is set, `qosName` must be unique and cannot match any existing QoS policy. ● If `qosName` is specified and no IOPS/Bps parameter is set, `qosName` must be the name of an existing QoS policy.	No
IOPS	Long	Specifies the limit of I/O operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
readIOPS	Long	Specifies the limit of read operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates	No

		no limit.	
writeIOPS	Long	Specifies the limit of write operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
Bps	Long	Specifies the limit of I/O throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
readBps	Long	Specifies the limit of read throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
writeBps	Long	Specifies the limit of write throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
IOPSBurst	Long	Specifies the burst limit of I/O operations per second. Value: This setting only takes effect when IOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*IOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
readIOPSBurst	Long	Specifies the burst limit of read operations per second. Value: This setting only takes effect when readIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readIOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
writeIOPSBurst	Long	Specifies the burst limit of write operations per second. Value: This setting only takes effect when writeIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeIOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
BpsBurst	Long	Specifies the burst limit of I/O throughput per second.	No

		Value: This setting only takes effect when Bps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*Bps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	
readBpsBurst	Long	Specifies the burst limit of read throughput per second. Value: This setting only takes effect when readBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
writeBpsBurst	Long	Specifies the burst limit of write throughput per second. Value: This setting only takes effect when writeBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
IOPSBurstSecs	Long	Specifies the duration of I/O operations with burst limit. **Note**: This setting is only effective when the IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readIOPSBurstSecs	Long	Specifies the duration of read operations with burst limit. **Note**: This setting is only effective when the read IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeIOPSBurstSecs	Long	Specifies the duration of write operations with burst limit. **Note**: This setting is only effective when the write IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No

BpsBurstSecs	Long	Specifies the duration of I/O throughput with burst limit. **Note**: This setting is only effective when the Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readBpsBurstSecs	Long	Specifies the duration of read throughput with burst limit. **Note**: This setting is only effective when the read Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeBpsBurstSecs	Long	Specifies the duration of write throughput with burst limit. **Note**: This setting is only effective when the write Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No

Sample Request 1

Standard Mode: Recover LUN luna9.

```
POST /rest/v1/block/lun HTTP/1.1
Date: Mon, 13 May 2024 10:46:42 GMT
Content-Type: application/json; charset=utf-8
Connection: keep-alive
Authorization: HBlock userName:signature
Content-Length: 516
Host:192.168.0.32:1443

{
    "lunName": "luna9",
    "uuid": "lun-uuid-df8308a9-bfb0-40a0-bf9d-7e741b1b6a63",
    "targetName": "targeta",
    "storageMode": "Storage",
    "config": {
        "writePolicy": "WriteThrough"
```

```
    },
    "cloud": {
        "bucketName": "hblocktest3",
        "prefix": "hblock1",
        "accessKey": "cb22b08b1f9229f85874",
        "secretKey": "**************************",
        "endpoint": "oos-cn.ctyunapi.cn",
        "signVersion": "v4",
        "region": "cn"
    }
}
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 20b087c7711f44af9588cc013ede8654
Connection: keep-alive
Content-Length: 0
Date: Mon, 13 May 2024 10:46:42 GMT
Server: HBlock
```

Sample Request 2

Cluster Mode: Recover LUN lun08a.

```
POST /rest/v1/block/lun/recover HTTP/1.1
Date: Mon, 13 May 2024 09:33:12 GMT
Content-Type: application/json; charset=utf-8
Connection: keep-alive
Authorization: HBlock userName:signature
Content-Length: 629
Host:192.168.0.110:1443

{
    "lunName": "lun08a",
    "uuid": "lun-uuid-a74475f7-8d73-49b5-bd82-0ac0309e1fae",
    "targetName": "target08",
    "storageMode": "Storage",
    "config": {
        "localStorageClass": "EC 2+1",
        "minReplica": 2,
        "highAvailability": "ActiveStandby",
        "writePolicy": "WriteThrough"
    },
```

```
    "cloud": {
        "bucketName": "hblocktest3",
        "prefix": "hblock",
        "accessKey": "cb22b08b1f9229f85874",
        "secretKey": "****************************",
        "endpoint": "oos-cn.ctyunapi.cn",
        "signVersion": "v4",
        "region": "cn"
    }
}
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 251c5dcfab5247599aca4f60f5784b34
Connection: keep-alive
Content-Length: 0
Date: Mon, 13 May 2024 09:33:12 GMT
Server: HBlock
```

4.3.10 Suspend the LUN (Cache/Storage Mode LUN)

This operation is used to suspend a cache or a storage mode LUN.
Suspending a LUN is applicable to scenarios where "multiple clusters take turns writing to the same cloud LUN." For example: Cluster A suspends the LUN, then performs cloud data restore on Cluster B, after which Cluster B performs read/write operations on the LUN data. When Cluster B suspends the LUN, Cluster A can then resume the LUN. During the resume process, only incremental data needs to be synchronized, allowing direct access to the latest data.
Note:

- Suspending a LUN will immediately freeze all read and write requests to that LUN. Ensure that all data on the LUN has been persisted; that is, if the LUN has been mounted by a client, ensure that all client data has been synchronized to the LUN. Business dependent on this LUN will be unavailable until the LUN returns to Normal status.
- When a LUN is in Suspended status, only suspend, edit the LUN, edit cloud configuration, resume, delete, and query operations are permitted.
- When a LUN is in Suspended, Suspending, or SuspendFailed status, read and write operations are not supported.
- Before suspending a LUN, you must first log out to disconnect client connections; otherwise, client connections cannot be disconnected until the LUN status returns to Normal.
- This operation can only be performed when the LUN is in Normal, Suspended, Suspending, or SuspendFailed status.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/suspend HTTP/1.1
Date: date
Content-Length: length
Host: ip:port
Authorization:authorization


{
    "force": force
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN that needs to be suspended.	Yes

		Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	
force	Boolean	Forcibly suspending the LUN. **Note**: Forcibly suspending a LUN carries the risk that local data may not be uploaded to the cloud. Please proceed with caution. Value: ● true: Force suspend the LUN. ● false: Do not force suspend the LUN. The default value is false.	No

Sample Request

Suspend LUN lunb1.

```
PUT /rest/v1/block/lun/lunb1/suspend HTTP/1.1
Date: Wed, 21 Jan 2026 06:01:23 GMT
Content-Length: 0
Connection: keep-alive
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 8804e05a56b5425087f83db16b85a021
Connection: keep-alive
Content-Length: 0
Date: Wed, 21 Jan 2026 06:01:23 GMT
Server: HBlock
```

4.3.11 Resume LUN from Restore Interruption or Suspension (Cache/Storage Mode LUN)

This operation is used to resume a LUN from restore interruption or suspension.

Note:

- This operation can only be performed when the LUN is in RecoverFailed or Suspended status.
- Ensure that the LUN data files in the local data directory have not been modified; otherwise, the resumed LUN may contain incomplete data or become unusable.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/resume-recovery HTTP/1.1
Date: date
Content-Length: length
Host: ip:port
Authorization:authorization


{
    "syncMode": syncMode,
    "force": force
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN to be resumed from restore interruption or suspension. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
syncMode	String	Specifies the data scope for resuming a cache-mode LUN. Value: ● MetaOnly: Updates only the differences in the LUN index compared to the cloud data index. ● Full: Updates both the differences in the LUN index compared to the cloud, and the differences between locally stored hot data and the cloud. The default value is Full. **Note**: This parameter applies only to cache mode LUNs. If no	No

		local data exists, no local data will be updated.	
force	Boolean	Forcibly resuming the LUN. **Note**: Forcibly resuming a LUN carries the risk of partial local data loss. Please proceed with caution. Value: ● true: Force resume the LUN. ● false: Do not force resume the LUN. The default value is false.	No

Sample Request

Resume LUN lun04a.

```
PUT /rest/v1/block/lun/lun04a/resume-recovery HTTP/1.1
Date: Wed, 31 Dec 2025 01:44:32 GMT
Content-Length: 0
Connection: keep-alive
Authorization: HBlock userName:signature
Host: 192.168.0.192:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: f9c9a201db6a4104a57d9e3c27eea7e7
Connection: keep-alive
Date: Wed, 31 Dec 2025 01:44:32 GMT
Server: HBlock
```

4.3.12 Wipe a LUN (Local Mode LUN)

This operation is used to wipe the specified LUN.

Note:

- If a clone LUN is wiped of all data and its associated snapshots, it will become an independent LUN.
- When a LUN is in Wiping or WipeFailed status, read and write operations are not supported.
- Before wiping a LUN, you must first log out to disconnect client connections; otherwise, client connections cannot be disconnected until the LUN status returns to Normal.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/wipe HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization:authorization

{
    "scope":scope
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN that needs to be wiped. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
scope	String	Specifies the data scope for wiping the LUN. Value: ● All: Wipes all LUN data and its associated snapshots. **Note**: If the LUN has associated clone LUNs, this operation cannot be performed. ● NoSnapshot: Wipes LUN data while retaining its associated snapshots. The LUN snapshots can subsequently be used for LUN rollback or backup export. **Note**: Clone LUNs cannot perform the operation of	No

		wiping data only while retaining associated snapshots. The default value is `All`.	

Sample Request 1

Wipe LUN lun01, including all LUN data and its associated snapshots.

```
PUT /rest/v1/block/lun/lun01/wipe HTTP/1.1
Date: Fri, 12 Dec 2025 03:31:37 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 25
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443

{
    "scope": "All"
}
```

Sample Response 1

```
HTTP/1.1 202 Accept
x-hblock-request-id: e6b663f013574507b542ce507528bde0
Connection: keep-alive
Date: Fri, 12 Dec 2025 03:31:37 GMT
Content-Length: 0
Server: HBlock
```

Sample Request 2

Wipe LUN lun04b, wiping LUN data while retaining its associated snapshots.

```
PUT /rest/v1/block/lun/lun04b/wipe HTTP/1.1
Date: Fri, 12 Dec 2025 03:49:34 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 32
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443

{
    "scope": "NoSnapshot"
}
```

Sample Response 2

```
HTTP/1.1 202 Accept
x-hblock-request-id: 535e2361cb1c4dd1b7b8f72ba79db002
Connection: keep-alive
Date: Fri, 12 Dec 2025 03:49:34 GMT
Content-Length: 0
Server: HBlock
```

4.3.13 Set LUN Extended Attributes (Local Mode LUN)

This operation is used to set the extended attributes (xattr) of a specified LUN.

Note:

- Setting the LUN's xattr is not allowed when the LUN status is Deleting or DeleteFailed.
- Setting the LUN's xattr is not allowed when the LUN has no active IQN.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/xattr HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization:authorization


{
    "action": "update",
    "xattrKey":xattrKey,
    "xattrValue": {
        xattrInnerKey1: xattrInnerKeyValue1,
        xattrInnerKeyKey2: xattrInnerKeyValue2,
        ……
    }
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN for which to set the extended attributes. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
action	String	Operation type. Value: update: Modifies the extended attributes of a single LUN. That is, updates the KV pairs in xattrValue (innerKey and innerValue). Non-existent KV pairs are added according to the input parameters, and existing KV pairs are updated according to the input parameters.	Yes

xattrKey	String	Specifies the key value of the LUN's extended attribute. Value: ● OPENSTACK_META: Defines the OpenStack extended attributes of the LUN. ● CUSTOM: User-defined extended attributes of the LUN.	Yes
xattrValue	Object	The value of the LUN's extended attribute, in JSON object format, with a maximum length of 262,144 bytes, see **Table 1 Parameter description of xattrValue** for details.	Yes

Table 1 Parameter description of xattrValue

Parameter	Type	Description	Required
xattrInnerKey	String	Specifies the Key in xattrValue. Value: The value is a string of 1 to 500 case-insensitive characters. It can contain letters, digits, Chinese characters, and special symbols (~ ! @ $ ( ) _ + - ; . :). Special symbols need to be escaped.	Yes
xattrInnerKeyValue	String	Specifies the Value of the Key in xattrValue. Value: The value is a string with a length not exceeding 255 bytes.	Yes

Sample Request

Set extended attributes of LUN lun01a.

```
PUT /rest/v1/block/lun/lun01a/xattr HTTP/1.1
Date: Fri, 19 Dec 2025 02:57:22 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 279
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443

{
    "action": "update",
    "xattrKey": "OPENSTACK_META",
    "xattrValue": {
        "5b157817-cccf-471d-bca3-5cb7598bb376": "{\"key1\":\"value1\",\"key2\":\"value2\"}",
        "27157817-cccf-471d-bca3-5cb7598bb389": "{\"key1\":\"value1\",\"key2\":\"value2\"}"
    }
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: e57fb247430d4711a711588cc5faa70d
Connection: keep-alive
Date: Fri, 19 Dec 2025 02:57:22 GMT
Server: HBlock
```

4.3.14 Delete Specified Extended Attributes of LUN (Local Mode LUN)

This operation is used to delete the specified extended attributes of LUN.

Note:

- Deleting the specified extended attributes of LUN is not allowed when the LUN status is Deleting or DeleteFailed.
- Deleting the the specified extended attributes of LUN is not allowed when the LUN has no active IQN.

Request Syntax

```
PUT /rest/v1/block/lun/lunName/xattr HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization:authorization

{
    "action": "delete",
    "xattrKey":xattrKey,
    "xattrInnerKey": "xattrInnerKey1, xattrInnerKey2…"
}
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN for which to delete the specified extended attributes. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
action	String	Operation type. Value: **delete**: Deletes specified extended attributes of a single LUN.	Yes
xattrKey	String	Specifies the key value of the LUN's extended attribute. Value: ● OPENSTACK_META: Defines the OpenStack extended attributes of the LUN. ● CUSTOM: User-defined extended attributes of the LUN.	Yes

xattrInnerKey	String	Specifies the Key in xattrValue to be deleted. Multiple Keys can be configured and be separated by commas. Value: The value is a string of 1 to 500 case-insensitive characters. It can contain letters, digits, Chinese characters, and special symbols (~ ! @ $ ( ) _ + - ; . :). Special symbols need to be escaped.	No

Sample Request

Delete the extended attributes with xattrInnerKey 5b157817-cccf-471d-bca3-5cb7598bb376 and 27157817-cccf-471d-bca3-5cb7598bb389 from LUN lun01a.

```
PUT /rest/v1/block/lun/lun01a/xattr HTTP/1.1
Date: Tue, 03 Mar 2026 02:17:39 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 162
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443

{
    "action": "delete",
    "xattrKey": "OPENSTACK_META",
    "xattrInnerKey": "5b157817-cccf-471d-bca3-5cb7598bb376,27157817-cccf-471d-bca3-
5cb7598bb389"
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: ff7f2e6f32c24ee68d1e838c263ac8c6
Connection: keep-alive
Date: Tue, 03 Mar 2026 02:17:39 GMT
Server: HBlock
```

4.3.15 Delete All Extended Attributes of LUN (Local Mode LUN)

This operation is used to delete all extended attributes of LUN.

Request Syntax

```
DELETE /rest/v1/block/lun/lunName/xattr HTTP/1.1
Date: date
Host: ip:port
Authorization:authorization
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN for which to delete all extended attributes. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes

Sample Request

Delete all extended attributes of LUN lun01a.

```
DELETE /rest/v1/block/lun/lun01a/xattr HTTP/1.1
Date: Fri, 19 Dec 2025 08:52:07 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 6a0d6941ab09438a98c7918a22ae4195
Connection: keep-alive
Date: Fri, 19 Dec 2025 08:52:07 GMT
Server: HBlock
```

4.3.16 Query LUN Extended Attributes (Local Mode LUN)

This operation is used to query extended attribute of a specified LUN.

Note: If the returned information content exceeds 2 MiB overall, only data within 2 MiB will be returned.

Request Syntax

```
GET /rest/v1/block/lun/lunName/xattr?xattrKey=xattrKey&xattrInnerKey=xattrInnerKey HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN for which to query the extended attributes. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
xattrKey	String	Specifies the key value of the LUN's extended attribute. Value: ● OPENSTACK_META: Defines the OpenStack extended attributes of the LUN. ● CUSTOM: User-defined extended attributes of the LUN.	No
xattrInnerKey	String	Specifies the Key in xattrValue. Multiple Keys can be configured and be separated by commas. If omitted, all attributes under this extended attribute key will be returned. Value: The value is a string of 1 to 500 case-insensitive characters. It can contain letters, digits, Chinese characters, and special symbols (~ ! @ $ ( ) _ + - ; . :). Special symbols need to be escaped.	No

Response Elements

Name	Type	Description
xattr	Object	LUN's extended attribute, see **Table 1 Parameter description of xattr** for details.

Table 1 Parameter description of xattr

Name	Type	Description
xattrInnerKey	Object	The Key in xattrValue, see **Table 2 Parameter description of xattrInnerKey** for details.

Table 2 Parameter description of xattrInnerKey

Name	Type	Description
xattrInnerKey	String	The Key in xattrValue.
xattrInnerKeyValue	String	The Value of the Key in xattrValue.

Sample Request 1

Query the extended attribute OPENSTACK_META of LUN lun01a.

```
GET /rest/v1/block/lun/lun01a/xattr?xattrKey=OPENSTACK_META HTTP/1.1
Date: Tue, 3 Mar 2026 02:41:07 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 440b18eb0f374be0830fe086ff307981
Connection: keep-alive
Content-Length: 371
Date: Tue, 3 Mar 2026 02:41:07 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
{
    "data": {
        "xattr": {
            "OPENSTACK_META": {
                "5b157817-cccf-471d-bca3-5cb7598bb376": "{\"key1\":\"value1\",\"key2\":\"value2\"}",
                "27157817-cccf-471d-bca3-5cb7598bb389": "{\"key1\":\"value1\",\"key2\":\"value2\"}",
                "6b157817-cccf-471d-bca3-5cb7598bb376": "{\"key1\":\"value1\",\"key2\":\"value2\"}",
                "77157817-cccf-471d-bca3-5cb7598bb389": "{\"key1\":\"value1\",\"key2\":\"value2\"}"
            }
        }
    }
}
```

Sample Request 2

Query the extended attributes of LUN lun01a, where xattrKey is OPENSTACK_META, and xattrInnerKey is 5b157817-cccf-471d-bca3-5cb7598bb376 and 27157817-cccf-471d-bca3-5cb7598bb389.

```
GET /rest/v1/block/lun/lun01a/xattr?xattrKey=OPENSTACK_META&xattrInnerKey=5b157817-cccf-
471d-bca3-5cb7598bb376,27157817-cccf-471d-bca3-5cb7598bb389 HTTP/1.1
Date: Tue, 03 Mar 2026 02:37:36 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: a1e5b61f421844f9bbdafbd4a9d383f6
Connection: keep-alive
Content-Length: 205
Date: Tue, 03 Mar 2026 02:37:36 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
{
    "data": {
        "xattr": {
            "OPENSTACK_META": {
                "5b157817-cccf-471d-bca3-5cb7598bb376": "{\"key1\":\"value1\",\"key2\":\"value2\"}",
                "27157817-cccf-471d-bca3-5cb7598bb389": "{\"key1\":\"value1\",\"key2\":\"value2\"}"
            }
        }
    }
}
```

4.3.17 Query LUNs in Batches

This operation is used to query LUNs in batches. You can query LUNs by setting filter conditions and range. If no filter conditions and range are set, all LUNs will be queried.

Request Syntax

```
GET /rest/v2/block/lun?filter=filter&range=i-j HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● lunName: LUN name. ● status: The status of the LUN. ● capacity: The storage capacity of the LUN. ● iqn: Target IQN. ● isClone: Whether it is a clone LUN, values: true, false. ● Pool: Storage pool, only supported by cluster mode. ● cachePool: Cache storage pool, only supported by cluster mode. ● storageMode: The storage mode for the LUN ● path: Disk path to store LUN data, only supported by standalone mode.	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the LUN names and returns the i-th to j-th LUNs. If the range exceeds the total number of LUNs, the returned result is empty. If the range is not specified, all LUNs that	No

		meet the conditions are returned.	

Response Elements

Name	Type	Description
luns	Array of lun	A collection of LUN information, see **Table 1 Parameter description of lun** for details.

Table 1 Parameter description of lun

Name	Type	Description
lunName	String	LUN name.
status	String	LUN status: ● Normal: The LUN is normal. ● Deleting: The LUN is being deleted. ● DeleteFailed: The LUN deletion failed. ● Recovering: The LUN is recovering. ● RecoverFailed: The LUN recovered failed. ● Rollbacking: The LUN is rollbacking. ● Flattening: The chain-breaking process between the clone LUN and the snapshot is underway. The clone LUN is copying data from the source LUN. After the copy is complete, it becomes an independent LUN that no longer depends on the snapshot or source LUN. ● Importing: The LUN is being imported with backup data. ● Wiping: The LUN is being wiped. ● WipeFailed: The LUN data wiping failed. ● Suspended: The LUN is suspended. ● Suspending: The LUN is being suspended. ● SuspendFailed: The LUN failed to be suspended.
progress	Double	LUN recovery progress percentage. Displayed only when the LUN status is Recovering.
recoverFailedReason	String	The reason for the failure of LUN recovery

		when the LUN status is RecoverFailed.
deleteFailedReason	String	The reason for the failure of deleting cloud data of the LUN when the LUN status is DeleteFailed.
wipeFailedReason	String	The reason why LUN data wiping fails when the LUN status is WipeFailed.
waitUploadBytes	String	Pending upload data size, in bytes. Displayed only when the LUN status is Suspending.
SuspendFailedReason	String	The reason why the LUN failed to be suspended when the LUN status is SuspendFailed.
storageMode	String	The storage mode for the LUN: ● Local: Store all data at local only. ● Cache: Store part of hot data at local and store all data in cloud asynchronously. ● Storage: Store all data at local and asynchronously store it in cloud.
capacity	Integer	The storage capacity of LUN. The unit is GiB.
createTime	Long	LUN creation time. Unix timestamp (UTC), accurate to milliseconds.
iSCSITargets	Array of iSCSITarget	iSCSI target attribute collection, see **Table 2 Parameter description of iSCSITarget** for details.
cloud.bucketName	String	Bucket name of object storage, only supported by cloud LUN.
cloud.endpoint	String	Endpoint of object storage, only supported by cloud LUN.
cloud.signVersion	String	Signature authentication version, only supported by cloud LUN: ● v2. ● v4.
cloud.region	String	The region of endpoint.
cloud.provider	String	The type of object storage: ● OOS: eSurfing Cloud Object-Oriented Storage. ● S3: Other object storage compatible with S3.
config.localStorageClass	String	LUN redundancy mode (only supported by

		cluster mode): ● single-copy ● 2 -copy ● 3-copy ● EC *N+M*
config.minReplica	Integer	Minimum replica number (only supported by cluster mode).
config.sectorSize	Integer	LUN Sector size: ● 512 ● 4096
config.highAvailability	String	High availability type of LUN (supported in Cluster Mode only): ● ActiveStandby: Enable active and standby. This LUN is associated with all IQNs under the corresponding target. ● Disabled: Disable active/standby. The LUN is associated with one IQN under the corresponding target.
config.writePolicy	String	LUN write policies: ● WriteBack: After the data is written to the memory, it returns to the client successfully, and then the data is written to the disk asynchronously. ● WriteThrough: The data is written to both memory and disk at the same time, and then returns to the client after successful writing. ● WriteAround: Write data directly to the disk without writing to memory.
config.cachePool	String	Cache storage pool (only supported by cluster mode).
config.pool	String	Storage pool (only supported by cluster mode): Indicates the final storage pool in which LUN data is stored.
config.redundancyOverlap	Integer	Redundancy overlap (only supported by cluster mode).
config.reclaimPolicy	String	The LUN's reclaim policy: ● Delete: When all snapshots associated with the LUN are deleted, the system triggers automatic deletion of the LUN.

		• Retain: When all snapshots associated with the LUN are deleted, the LUN is retained.
config.serverAffinity	Object	LUN primary-secondary distribution priority settings, only supported by cluster mode, see **Table 4 Parameter description of config.serverAffinity** for details.
config.qosPolicy	Object	A collection of QoS policy information associated with the LUN, see **Table 5 Parameter description of config.qosPolicy** for details.
config.qosPolicyforLUN	Object	A collection of the default Qos policy properties for LUN in the pool, see **Table 6 Parameter description of config.qosPolicyforLUN** for details. **Note**: • If both a `cachePool` and a `pool` exist for the LUN, return the default QoS policy for LUNs in the `cachePool`. If the `cachePool` has not set a default QoS policy for LUNs in the pool, omit this field. • If the LUN has only a `pool`, return the default QoS policy for LUNs in the pool. If the `pool` has not set a default QoS policy for LUNs in the pool, omit this field.
config.ECfragmentSize	String	The fragment size of erasure code. This item is returned if the redundancy mode is EC *N*+*M*.
config.path	String	The disk path to store LUN data (only supported by standalone mode).
dataHealth.normal	Double	The percentage of normal data.
dataHealth.lowRedundancy	Double	The percentage of low redundancy data.
dataHealth.error	Double	The percentage of erroneous data.
dataHealth.reconstructionProgress	Double	The percentage of data reconstruction progress when the LUN has low redundancy data.
dataHealth.ETR	Long	The estimated remaining reconstruction time when the LUN has low redundancy

		data, in seconds. If the return value is negative, the data cannot be reconstructed and the user needs to repair it as soon as possible.
number	String	LUN number.
isClone	Boolean	Indicates whether the LUN is a clone LUN: ● true: The LUN is a clone LUN. ● false: The LUN is not a clone LUN.
sourceSnapshotName	String	Snapshot associated with the clone LUN (only supported by clone LUN).
sourceLunName	String	Source LUN name of the clone LUN (only supported by clone LUN).
snapshots.snapshotNumbers	Integer	Number of snapshots of the LUN (only supported by local LUN).
snapshots.snapshotSize	Long	Total size of snapshots associated with the LUN (only supported by local LUN), representing the amount of data recorded in the snapshots. The unit is bytes. **Note**: Snapshot size may vary due to LUN issues or parent snapshot deletion.
WWID	String	Unique identifier of the LUN.

Table 2 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	iSCSI target IQN.
status	String	The status of the target corresponding to the LUN: ● Active: Active target. ● Standby: Hot standby target. ● Offline: Offline target. ● Unavailable: Cold standby target.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 3 Parameter description of ip** for details.
serverId	string	The server ID where the target IQN is located.

Table 3 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Table 4 Parameter description of config.serverAffinity

Name	Type	Description
autoFailback	String	When the high-priority server returns to normal, whether to automatically switch active and standby iSCSI targets of the LUN. ● Enabled: Automatic switch active and standby iSCSI targets. ● Disabled: No automatic switch active and standby iSCSI targets.
priority	Array of string	The sequential list of server ID used to identify the affinity priority of active and standby iSCSI targets, only supported by cluster mode. The system will select the active and standby IQN of the LUN based on the sequence of the specified server IDs.

Table 5 Parameter description of config.qosPolicy

Name	Type	Description
qosName	String	QoS policy name.

Table 6 Parameter description of config.qosPolicyforLUN

Name	Type	Description
qosName	String	QoS policy name.
poolName	String	Storage pool name.

Sample Request 1

Standalone Mode: Query LUNs with names containing luna or lunb.

```
GET /rest/v2/block/lun?filter=lunName:luna or lunName:lunb HTTP/1.1
Date: Wed, 31 Dec 2025 07:47:17 GMT
Authorization: userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: a9700efafc624b89b529c534283b777f
Connection: keep-alive
Content-Length: 2875
Date: Wed, 31 Dec 2025 07:47:17 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "luns": [
```

```
        {
            "lunName": "luna1",
            "status": "Normal",
            "capacity": 100,
            "storageMode": "Local",
            "createTime": 1765260238771,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.1",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.66",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                }
            ],
            "config": {
                "sectorSize": 4096,
                "writePolicy": "WriteBack",
                "path": "/mnt/stor01",
                "reclaimPolicy": "Retain",
                "qosPolicy": {
                    "qosName": "QoS1"
                }
            },
            "dataHealth": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            },
            "number": 0,
            "isClone": false,
            "snapshots": {
                "snapshotNumbers": 3,
                "snapshotSize": 494063616
            },
            "WWID": "33000000027321825"
        },
```

```
        {
            "lunName": "luna1-C1",
            "status": "Normal",
            "capacity": 200,
            "storageMode": "Local",
            "createTime": 1766387401903,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta1.4",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.66",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                }
            ],
            "config": {
                "sectorSize": 4096,
                "writePolicy": "WriteBack",
                "path": "/mnt/stor01",
                "reclaimPolicy": "Retain"
            },
            "dataHealth": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            },
            "number": 0,
            "isClone": true,
            "sourceSnapshotName": "luna1-snapshot",
            "sourceLunName": "luna1",
            "snapshots": {
                "snapshotNumbers": 1,
                "snapshotSize": 0
            },
            "WWID": "33000000077524d87"
        },
        {
```

```
            "lunName": "luna2",
            "status": "Normal",
            "capacity": 1,
            "storageMode": "Local",
            "createTime": 1766022566790,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.1",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.66",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                }
            ],
            "config": {
                "sectorSize": 4096,
                "writePolicy": "WriteBack",
                "path": "/mnt/stor01",
                "reclaimPolicy": "Retain",
                "qosPolicy": {
                    "qosName": "QosPolicy20251218094923"
                }
            },
            "dataHealth": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            },
            "number": 1,
            "isClone": false,
            "snapshots": {
                "snapshotNumbers": 1,
                "snapshotSize": 0
            },
            "WWID": "33fffffffc93cbdeb"
        },
        {
```

```
            "lunName": "luna2-c1",
            "status": "Normal",
            "capacity": 1,
            "storageMode": "Local",
            "createTime": 1766371846053,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.1",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.66",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                }
            ],
            "config": {
                "sectorSize": 4096,
                "writePolicy": "WriteBack",
                "path": "/mnt/stor01",
                "reclaimPolicy": "Retain"
            },
            "dataHealth": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            },
            "number": 2,
            "isClone": true,
            "sourceSnapshotName": "luna2-snap20251218095041",
            "sourceLunName": "luna2",
            "snapshots": {
                "snapshotNumbers": 0,
                "snapshotSize": 0
            },
            "WWID": "33fffffff893d7109"
        },
        {
            "lunName": "lunb1",
```

```
            "status": "Normal",
            "capacity": 220,
            "storageMode": "Cache",
            "createTime": 1765260305925,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:targetb.2",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.66",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                }
            ],
            "cloud": {
                "bucketName": "hblocktest3",
                "endpoint": "https://oos-cn.ctyunapi.cn",
                "signVersion": "v2",
                "provider": "OOS"
            },
            "config": {
                "sectorSize": 4096,
                "writePolicy": "WriteBack",
                "path": "/mnt/stor01",
                "reclaimPolicy": "Retain",
                "qosPolicy": {
                    "qosName": "QoS1"
                }
            },
            "dataHealth": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            },
            "number": 0,
            "WWID": "3300000003ea215ef"
        }
    ]
```

```
    }
}
```

Sample Request 2

Cluster Mode: Query LUNs with names containing lun04 or lun01a, and only list the 1th to 5th query results.

```
GET /rest/v2/block/lun?filter=lunName:lun04 or lunName:lun01a &range=1-5 HTTP/1.1
Date: Wed, 31 Dec 2025 07:56:50 GMT
Authorization: HBlock userName:signature
Connection: keep-alive
Host: 192.168.0.65:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 0aa67f8aec6443689a4b09e6b2d878cb
Connection: keep-alive
Content-Length: 4643
Date: Wed, 31 Dec 2025 07:56:50 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "luns": [
            {
                "lunName": "lun01a",
                "status": "Normal",
                "capacity": 110,
                "storageMode": "Local",
                "createTime": 1766021937501,
                "iSCSITargets": [
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.1",
                        "status": "Active",
                        "ips": [
                            {
```

```
                        "ip": "192.168.0.67",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_3"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.2",
                "status": "Standby",
                "ips": [
                    {
                        "ip": "192.168.0.64",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_2"
            }
        ],
        "config": {
            "localStorageClass": "EC 2+1",
            "minReplica": 2,
            "sectorSize": 4096,
            "highAvailability": "ActiveStandby",
            "writePolicy": "WriteBack",
            "pool": "default",
            "redundancyOverlap": 1,
            "reclaimPolicy": "Retain",
            "serverAffinity": {
                "autoFailback": "Enabled"
            },
            "qosPolicy": {
                "qosName": "QoS1"
            },
            "qosPolicyforLUN": {
                "qosName": "QoS1",
```

```
                    "poolName": "default"
                },
                "ECfragmentSize": 16
            },
            "dataHealth": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            },
            "number": 0,
            "isClone": false,
            "snapshots": {
                "snapshotNumbers": 2,
                "snapshotSize": 494260224
            },
            "WWID": "33fffffffc9c6296b"
        },
        {
            "lunName": "lun01a-C1",
            "status": "Normal",
            "capacity": 110,
            "storageMode": "Local",
            "createTime": 1766022784343,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.1",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.67",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_3"
                },
```

```
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.2",
                    "status": "Standby",
                    "ips": [
                        {
                            "ip": "192.168.0.64",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_2"
                }
            ],
            "config": {
                "localStorageClass": "EC 2+1",
                "minReplica": 2,
                "sectorSize": 4096,
                "highAvailability": "ActiveStandby",
                "writePolicy": "WriteBack",
                "pool": "default",
                "redundancyOverlap": 1,
                "reclaimPolicy": "Retain",
                "serverAffinity": {
                    "autoFailback": "Enabled"
                },
                "qosPolicy": {
                    "qosName": "QoS1"
                },
                "qosPolicyforLUN": {
                    "qosName": "QoS1",
                    "poolName": "default"
                },
                "ECfragmentSize": 16
            },
            "dataHealth": {
                "normal": 100,
```

```
                "lowRedundancy": 0,
                "error": 0
            },
            "number": 2,
            "isClone": true,
            "sourceSnapshotName": "lun01a-s1",
            "sourceLunName": "lun01a",
            "snapshots": {
                "snapshotNumbers": 1,
                "snapshotSize": 4096
            },
            "WWID": "3300000000142740b3"
        },
        {
            "lunName": "lun04a",
            "status": "Suspended",
            "capacity": 420,
            "storageMode": "Storage",
            "createTime": 1766382960537,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.8",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.67",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_3"
                },
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.7",
                    "status": "Standby",
                    "ips": [
```

```
                {
                    "ip": "192.168.0.65",
                    "port": 3260
                }
            ],
            "serverId": "hblock_1"
        }
    ],
    "cloud": {
        "bucketName": "hblocktest3",
        "endpoint": "https://oos-cn.ctyunapi.cn",
        "signVersion": "v2",
        "provider": "OOS"
    },
    "config": {
        "localStorageClass": "EC 2+1",
        "minReplica": 2,
        "sectorSize": 4096,
        "highAvailability": "ActiveStandby",
        "writePolicy": "WriteBack",
        "pool": "default",
        "redundancyOverlap": 1,
        "reclaimPolicy": "Retain",
        "serverAffinity": {
            "autoFailback": "Enabled"
        },
        "qosPolicyforLUN": {
            "qosName": "QoS1",
            "poolName": "default"
        },
        "ECfragmentSize": 16
    },
    "dataHealth": {
        "normal": 100,
        "lowRedundancy": 0,
```

```
                "error": 0
            },
            "number": 0,
            "WWID": "33fffffff94c72aed"
        },
        {
            "lunName": "lun04c",
            "status": "Recovering",
            "progress": 0,
            "capacity": 480,
            "storageMode": "Cache",
            "createTime": 1767160398843,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.7",
                    "status": "Unavailable",
                    "ips": [
                        {
                            "ip": "192.168.0.65",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                },
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.8",
                    "status": "Unavailable",
                    "ips": [
                        {
                            "ip": "192.168.0.67",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_3"
                }
```

```
        ],
        "cloud": {
            "bucketName": "hblocktest3",
            "endpoint": "https://oos-cn.ctyunapi.cn",
            "signVersion": "v4",
            "region": "cn",
            "provider": "OOS"
        },
        "config": {
            "localStorageClass": "EC 2+1",
            "minReplica": 2,
            "sectorSize": 4096,
            "highAvailability": "ActiveStandby",
            "writePolicy": "WriteBack",
            "pool": "default",
            "redundancyOverlap": 1,
            "reclaimPolicy": "Retain",
            "serverAffinity": {
                "autoFailback": "Enabled"
            },
            "qosPolicy": {
                "qosName": "QoS1"
            },
            "qosPolicyforLUN": {
                "qosName": "QoS1",
                "poolName": "default"
            },
            "ECfragmentSize": 16
        },
        "dataHealth": {
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        },
        "number": 2,
```

```
            "WWID": "330000000006405e91"
        },
        {
            "lunName": "lun040012",
            "status": "Normal",
            "capacity": 101,
            "storageMode": "Local",
            "createTime": 1766728790846,
            "iSCSITargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.7",
                    "status": "Active",
                    "ips": [
                        {
                            "ip": "192.168.0.65",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                },
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.8",
                    "status": "Standby",
                    "ips": [
                        {
                            "ip": "192.168.0.67",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_3"
                }
            ],
            "config": {
                "localStorageClass": "EC 2+1",
                "minReplica": 2,
```

```
                    "sectorSize": 4096,
                    "highAvailability": "ActiveStandby",
                    "writePolicy": "WriteBack",
                    "pool": "default",
                    "redundancyOverlap": 1,
                    "reclaimPolicy": "Retain",
                    "serverAffinity": {
                        "autoFailback": "Enabled"
                    },
                    "qosPolicyforLUN": {
                        "qosName": "QoS1",
                        "poolName": "default"
                    },
                    "ECfragmentSize": 16
                },
                "dataHealth": {
                    "normal": 100,
                    "lowRedundancy": 0,
                    "error": 0
                },
                "number": 1,
                "isClone": false,
                "snapshots": {
                    "snapshotNumbers": 0,
                    "snapshotSize": 0
                },
                "WWID": "33fffffffcc028cda"
            }
        ]
    }
}
```

4.3.18 Query a Specified LUN

This operation is used to query a specified LUN.

Request Syntax

```
GET /rest/v2/block/lun/lunName HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN to be queried. If this item is not filled in, all LUN information will be returned. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	No

Response Elements

Name	Type	Description
lunName	String	LUN name.
targetName	String	Target name.
status	String	LUN status: ● Normal: The LUN is normal. ● Deleting: The LUN is being deleted. ● DeleteFailed: The LUN deletion failed. ● Recovering: The LUN is recovering. ● RecoverFailed: The LUN recovered failed. ● Rollbacking: The LUN is rollbacking. ● Flattening: The chain-breaking process between the clone LUN and the snapshot is underway. The clone LUN is copying data from the source LUN. After the copy is complete, it becomes an independent LUN that no longer depends on the snapshot or source LUN.

		• Importing: The LUN is being imported with backup data. • Wiping: The LUN is being wiped. • WipeFailed: The LUN data wiping failed. • Suspended: The LUN is suspended. • Suspending: The LUN is being suspended. • SuspendFailed: The LUN failed to be suspended.
progress	Double	LUN recovery progress percentage. Displayed only when the LUN status is Recovering.
recoverFailedReason	String	The reason for the failure of LUN recovery when the LUN status is RecoverFailed.
deleteFailedReason	String	The reason for the failure of deleting cloud data of the LUN when the LUN status is DeleteFailed.
wipeFailedReason	String	The reason why LUN data wiping fails when the LUN status is WipeFailed.
waitUploadBytes	String	Pending upload data size, in bytes. Displayed only when the LUN status is Suspending.
SuspendFailedReason	String	The reason why the LUN failed to be suspended when the LUN status is SuspendFailed.
capacity	Integer	The storage capacity of LUN. The unit is GiB.
storageMode	String	The storage mode for the LUN: • Local: Store all data at local only. • Cache: Store part of hot data at local and store all data in cloud asynchronously. • Storage: Store all data at local and asynchronously store it in cloud.
createTime	Long	The creation time of the LUN. Unix timestamp (UTC), accurate to milliseconds.
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties, see **Table 1 Parameter description of iSCSITarget** for details.
cloud.bucketName	String	Bucket name of object storage, only

		supported by cloud LUN.
cloud.prefix	String	The prefix name for the LUN in object storage.
cloud.accessKey	String	Access key of object storage
cloud.endpoint	String	Endpoint of object storage, only supported by cloud LUN.
cloud.objectSize	Integer	The size of data stored in object storage.
cloud.storageClass	String	Storage class of object storage: ● STANDARD. ● STANDARD_IA.
cloud.compression	String	Whether to compress data and upload it to object storage: ● Enabled: Compress data and upload it to object storage. ● Disabled: Do not compress data and upload it to object storage.
cloud.signVersion	String	Signature authentication version, only supported by cloud LUN: ● v2. ● v4.
cloud.region	String	The region of endpoint.
cloud.provider	String	The type of object storage: ● OOS: eSurfing Cloud Object-Oriented Storage. ● S3: Other object storage compatible with S3.
config.localStorageClass	String	LUN redundancy mode (only supported by the cluster mode): ● single-copy ● 2-copy ● 3-copy ● EC N+M.
config.minReplica	Integer	Minimum copies of the LUN (only supported by cluster mode).
config.ECfragmentSize	Integer	The fragment size of erasure code. This item is returned if the redundancy mode is EC *N+M*.
config.sectorSize	Long	LUN Sector size.
config.highAvailability	String	High availability mode type (only supported by cluster mode):

		• ActiveStandby: Enable active and standby. This LUN is associated with all IQNs under the corresponding target. • Disabled: Disable active/standby. The LUN is associated with one IQN under the corresponding target.
config.writePolicy	String	LUN write policies: • WriteBack: After the data is written to the memory, it returns to the client successfully, and then the data is written to the disk asynchronously. • WriteThrough: The data is written to both memory and disk at the same time, and then returns to the client after successful writing. • WriteAround: Write data directly to the disk without writing to memory.
config.cachePool	String	Cache storage pool (only supported by cluster mode).
config.pool	String	Storage pool (only supported by cluster mode): Indicates the final storage pool in which LUN data is stored.
config.redundancyOverlap	Integer	Redundancy overlap (only supported by cluster mode).
config.reclaimPolicy	String	The LUN's reclaim policy: • Delete: When all snapshots associated with the LUN are deleted, the system triggers automatic deletion of the LUN. • Retain: When all snapshots associated with the LUN are deleted, the LUN is retained.
config.serverAffinity	Object	LUN primary-secondary distribution priority settings, only supported by cluster mode, see **Table 5 Parameter description of config.serverAffinity** for details.
config.qosPolicy	Object	A collection of QoS policy information associated with the LUN, see **Table 6 Parameter description of config.qosPolicy** for details.
config.qosPolicyforLUN	Object	A collection of the default Qos policy

		properties for LUN in the pool, see **Table 7 Parameter description of config.qosPolicyforLUN** for details. **Note**: ● If both a `cachePool` and a `pool` exist for the LUN, return the default QoS policy for LUNs in the `cachePool`. If the `cachePool` has not set a default QoS policy for LUNs in the pool, omit this field. ● If the LUN has only a `pool`, return the default QoS policy for LUNs in the pool. If the `pool` has not set a default QoS policy for LUNs in the pool, omit this field.
config.path	String	The disk path to store LUN data (only supported by standalone mode).
dataHealth.normal	Double	The percentage of normal data.
dataHealth.lowRedundancy	Double	The percentage of low redundancy data.
dataHealth.error	Double	The percentage of erroneous data.
dataHealth.reconstructionProgress	Double	The percentage of data reconstruction progress when the LUN has low redundancy data.
dataHealth.ETR	Long	The estimated remaining reconstruction time when the LUN has low redundancy data, in seconds. If the return value is negative, the data cannot be reconstructed and the user needs to repair it as soon as possible.
number	Long	LUN number. The number assigned to the LUN under the target is allocated by the storage system, corresponding to the LUN ID in the device address when mounting storage devices on the client. If there is only one LUN under the target, the LUN number is usually 0.
uuid	String	Universally unique identifier of the LUN.
isClone	Boolean	Indicates whether the LUN is a clone LUN: ● true: The LUN is a clone LUN. ● false: The LUN is not a clone LUN.

sourceSnapshotName	String	Snapshot associated with the clone LUN (only supported by clone LUN).
sourceLunName	String	Source LUN name of the clone LUN (only supported by clone LUN).
snapshots.snapshotNumbers	Integer	Number of snapshots of the LUN (only supported by local LUN).
snapshots.lunSnapshots	Array of lunSnapshot	Collection snapshot of information for the LUN (only supported by local LUN), for details, see **Table 8 Parameter description of lunSnapshot/Children** for details.
snapshots.snapshotSize	Long	Total size of snapshots associated with the LUN (only supported by local LUN), representing the amount of data recorded in the snapshots. The unit is bytes. **Note**: Snapshot size may vary due to LUN issues or parent snapshot deletion.
WWID	String	World wide identifier of the LUN.

Table 1 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	iSCSI target IQN.
status	String	The status of the target corresponding to the LUN: ● Active: Active target. ● Standby: Hot standby target. ● Offline: Offline target. ● Unavailable: Cold standby target.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 2 Parameter description of ip** for details.
targetPortalIP	Array of targetPortalIP	A collection of target portal attributes of an iSCSI target, see **Table 3 Parameter description of targetPortalIP** for details.
serverId	string	The server ID where the target IQN is located.

Table 2 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Table 3 Parameter description of targetPortalIP

Name	Type	Description
ips	Array of ip	A collection of portal IP attributes of an iSCSI target, see **Table 4**

		Parameter description of ip (iSCSI target portal IP) for details.
status	String	Status of the iSCSI target portal: ● Enabled. ● Disabled.

Table 4 Parameter description of ip (iSCSI target portal IP)

Name	Type	Description
ip	String	iSCSI target portal IP.
port	Integer	iSCSI target portal port.

Table 5 Parameter description of config.serverAffinity

Name	Type	Description
autoFailback	String	When the high-priority server returns to normal, whether to automatically switch active and standby iSCSI targets of the LUN. ● Enabled: Automatic switch active and standby iSCSI targets. ● Disabled: No automatic switch active and standby iSCSI targets.
priority	Array of string	The sequential list of server ID used to identify the affinity priority of active and standby iSCSI targets, only supported by cluster mode. The system will select the active and standby IQN of the LUN based on the sequence of the specified server IDs.

Table 6 Parameter description of config.qosPolicy

Name	Type	Description
qosName	String	QoS policy name.

Table 7 Parameter description of config.qosPolicyforLUN

Name	Type	Description
qosName	String	QoS policy name.
poolName	String	Storage pool name.

Table 8 Parameter description of lunSnapshot/Children

Name	Type	Description
snapshotName	String	Snapshot name
description	String	Snapshot description.
lunCapacity	Integer	Source LUN capacity at snapshot creation.
consistencySnapshotName	String	The name of the consistency snapshot it belongs to. **Note**: Shown only for single-LUN snapshot in a consistency snapshot

status	String	Snapshot status: ● Normal. ● Error. ● Pending: The snapshot is being created. ● Deleting.
reclaimPolicy	String	Reclaim Policy: Snapshot reclaim policy: ● Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other snapshots depend on it or current write operations aren't based on it). ● Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node.
createTime	Long	Snapshot creation time.
basisofCurData	Boolean	Indicates whether the LUN's current data is based on the snapshot: ● true: The LUN's data is based on the snapshot. ● false: The LUN's data isn't based on the snapshot.
snapshotSize	Long	Snapshot size, representing the actual amount of data recorded in the snapshot. The unit is bytes. **Note**: Snapshot size may vary due to LUN issues or parent snapshot deletion.
children	Array of children	Collection of snapshots created based on this snapshot. For parameter descriptions, refer to this table.

Sample Request 1

Local LUN of standalone mode (non-clone LUN): Query LUN luna1.

```
GET /rest/v2/block/lun/luna1 HTTP/1.1
Date: Wed, 31 Dec 2025 08:03:56 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 929380badbc446278733a8c5230c128f
Connection: keep-alive
Content-Length: 1245
```

```
Date: Wed, 31 Dec 2025 08:03:56 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "lunName": "luna1",
        "targetName": "targeta",
        "status": "Normal",
        "capacity": 100,
        "storageMode": "Local",
        "createTime": 1765260238771,
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.1",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.66",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ],
        "config": {
            "sectorSize": 4096,
            "writePolicy": "WriteBack",
            "path": "/mnt/stor01",
            "reclaimPolicy": "Retain",
            "qosPolicy": {
                "qosName": "QoS1"
            }
        },
        "dataHealth": {
```

```
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        },
        "number": 0,
        "uuid": "lun-uuid-b5e99a16-1ec0-415b-88d1-f14c4ac8e455",
        "isClone": false,
        "snapshots": {
            "snapshotNumbers": 3,
            "basisofCurData": false,
            "lunSnapshots": [
                {
                    "snapshotName": "luna1-s1",
                    "lunCapacity": 100,
                    "status": "Normal",
                    "reclaimPolicy": "Retain",
                    "createTime": 1766022586905,
                    "basisofCurData": false,
                    "children": [
                        {
                            "snapshotName": "luna1-snap20251218095041",
                            "lunCapacity": 100,
                            "consistencySnapshotName": "cons1",
                            "status": "Normal",
                            "reclaimPolicy": "Retain",
                            "createTime": 1766022641722,
                            "basisofCurData": false,
                            "children": [
                                {
                                    "snapshotName": "luna1-snapshot",
                                    "lunCapacity": 100,
                                    "status": "Normal",
                                    "reclaimPolicy": "Retain",
                                    "createTime": 1766387371152,
                                    "basisofCurData": true,
```

```
                                    "snapshotSize": 45056
                                }
                            ],
                            "snapshotSize": 200536064
                        }
                    ],
                    "snapshotSize": 293482496
                }
            ],
            "snapshotSize": 494063616
        },
        "WWID": "330000000027321825"
    }
}
```

Sample Request 2

Local LUN of standalone mode (clone LUN): Query LUN luna1-C1.

```
GET /rest/v2/block/lun/luna1-C1 HTTP/1.1
Date: Wed, 31 Dec 2025 08:19:51 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: ff7ef330b99a4632825e1b10f648d6df
Connection: keep-alive
Content-Length: 858
Date: Wed, 31 Dec 2025 08:19:51 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "lunName": "luna1-C1",
        "targetName": "targeta1",
```

```
        "status": "Normal",
        "capacity": 200,
        "storageMode": "Local",
        "createTime": 1766387401903,
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta1.4",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.66",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ],
        "config": {
            "sectorSize": 4096,
            "writePolicy": "WriteBack",
            "path": "/mnt/stor01",
            "reclaimPolicy": "Retain"
        },
        "dataHealth": {
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        },
        "number": 0,
        "uuid": "lun-uuid-e1db792b-7171-48c0-b5ae-75f2351a5356",
        "isClone": true,
        "sourceSnapshotName": "luna1-snapshot",
        "sourceLunName": "luna1",
        "snapshots": {
            "snapshotNumbers": 1,
```

```
            "basisofCurData": false,
            "lunSnapshots": [
                {
                    "snapshotName": "a1-C1-s1",
                    "lunCapacity": 200,
                    "status": "Normal",
                    "reclaimPolicy": "Retain",
                    "createTime": 1767166277470,
                    "basisofCurData": true,
                    "snapshotSize": 0
                }
            ],
            "snapshotSize": 0
        },
        "WWID": "33000000077524d87"
    }
}
```

Sample Request 3

Cloud LUN of standalone mode: query LUN lunb1.

```
GET /rest/v2/block/lun/lunb1 HTTP/1.1
Date: Wed, 31 Dec 2025 08:24:53 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 3

```
HTTP/1.1 200 OK
x-hblock-request-id: 284bb95a14f84f7dbdc5ae501ab09ab9
Connection: keep-alive
Content-Length: 777
Date: Wed, 31 Dec 2025 08:24:53 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
```

```
    "data": {
        "lunName": "lunb1",
        "targetName": "targetb",
        "status": "Normal",
        "capacity": 220,
        "storageMode": "Cache",
        "createTime": 1765260305925,
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targetb.2",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.66",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ],
        "cloud": {
            "bucketName": "hblocktest3",
            "accessKey": "8f129a5529f202811fd0",
            "endpoint": "https://oos-cn.ctyunapi.cn",
            "objectSize": 1024,
            "storageClass": "STANDARD",
            "compression": "Enabled",
            "signVersion": "v2",
            "provider": "OOS"
        },
        "config": {
            "sectorSize": 4096,
            "writePolicy": "WriteBack",
            "path": "/mnt/stor01",
            "reclaimPolicy": "Retain",
```

```
            "qosPolicy": {
                "qosName": "QoS1"
            }
        },
        "dataHealth": {
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        },
        "number": 0,
        "uuid": "lun-uuid-6d66d545-e76b-489d-a9af-b918871b7626",
        "WWID": "3300000003ea215ef"
    }
}
```

Sample Request 4

Local LUN of cluster mode (non-clone LUN): query LUN lun01a.

```
GET /rest/v2/block/lun/lun01a HTTP/1.1
Date: Wed, 31 Dec 2025 08:26:50 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 4

```
HTTP/1.1 200 OK
x-hblock-request-id: 46d64571da7e4c2b9056b728cde33a49
Connection: keep-alive
Content-Length: 1414
Date: Wed, 31 Dec 2025 08:26:50 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "lunName": "lun01a",
        "targetName": "target01",
```

```
        "status": "Normal",
        "capacity": 110,
        "storageMode": "Local",
        "createTime": 1766021937501,
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.1",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.67",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_3"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.2",
                "status": "Standby",
                "ips": [
                    {
                        "ip": "192.168.0.64",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_2"
            }
        ],
        "config": {
            "localStorageClass": "EC 2+1",
            "minReplica": 2,
            "sectorSize": 4096,
            "highAvailability": "ActiveStandby",
            "writePolicy": "WriteBack",
            "pool": "default",
```

```
            "redundancyOverlap": 1,
            "reclaimPolicy": "Retain",
            "serverAffinity": {
                "autoFailback": "Enabled"
            },
            "qosPolicy": {
                "qosName": "QoS1"
            },
            "qosPolicyforLUN": {
                "qosName": "QoS1",
                "poolName": "default"
            },
            "ECfragmentSize": 16
        },
        "dataHealth": {
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        },
        "number": 0,
        "uuid": "lun-uuid-efa1d8b2-92ee-487e-8f5d-bf0c9d5f3d8d",
        "isClone": false,
        "snapshots": {
            "snapshotNumbers": 2,
            "basisofCurData": true,
            "lunSnapshots": [
                {
                    "snapshotName": "lun01a-s1",
                    "lunCapacity": 110,
                    "status": "Normal",
                    "reclaimPolicy": "Retain",
                    "createTime": 1766022696553,
                    "basisofCurData": false,
                    "children": [
                        {
```

```
                            "snapshotName": "lun01a-snap20251218095146",
                            "lunCapacity": 110,
                            "consistencySnapshotName": "cons1",
                            "status": "Normal",
                            "reclaimPolicy": "Retain",
                            "createTime": 1766022706147,
                            "basisofCurData": false,
                            "snapshotSize": 0
                        }
                    ],
                    "snapshotSize": 494260224
                }
            ],
            "snapshotSize": 494260224
        },
        "WWID": "33fffffffc9c6296b"
    }
}
```

Sample Request 5

Local LUN of cluster mode (clone LUN): query LUN lun01a-C1.

```
GET /rest/v2/block/lun/lun01a-C1 HTTP/1.1
Date: Wed, 31 Dec 2025 08:29:57 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 5

```
HTTP/1.1 200 OK
x-hblock-request-id: 3673ff6f3068432f983cf3fc08d91880
Connection: keep-alive
Content-Length: 1297
Date: Wed, 31 Dec 2025 08:29:57 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

```
{
    "data": {
        "lunName": "lun01a-C1",
        "targetName": "target01",
        "status": "Normal",
        "capacity": 110,
        "storageMode": "Local",
        "createTime": 1766022784343,
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.1",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.67",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_3"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.2",
                "status": "Standby",
                "ips": [
                    {
                        "ip": "192.168.0.64",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_2"
            }
        ],
        "config": {
            "localStorageClass": "EC 2+1",
            "minReplica": 2,
```

```
            "sectorSize": 4096,
            "highAvailability": "ActiveStandby",
            "writePolicy": "WriteBack",
            "pool": "default",
            "redundancyOverlap": 1,
            "reclaimPolicy": "Retain",
            "serverAffinity": {
                "autoFailback": "Enabled"
            },
            "qosPolicy": {
                "qosName": "QoS1"
            },
            "qosPolicyforLUN": {
                "qosName": "QoS1",
                "poolName": "default"
            },
            "ECfragmentSize": 16
        },
        "dataHealth": {
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        },
        "number": 2,
        "uuid": "lun-uuid-28273c97-1517-4146-8aaa-8bdb5b29b51f",
        "isClone": true,
        "sourceSnapshotName": "lun01a-s1",
        "sourceLunName": "lun01a",
        "snapshots": {
            "snapshotNumbers": 1,
            "basisofCurData": false,
            "lunSnapshots": [
                {
                    "snapshotName": "lun01a-C1-snap20251218104054",
                    "lunCapacity": 110,
```

```
                    "consistencySnapshotName": "cons2",
                    "status": "Normal",
                    "reclaimPolicy": "Retain",
                    "createTime": 1766025654740,
                    "basisofCurData": true,
                    "snapshotSize": 4096
                }
            ],
            "snapshotSize": 4096
        },
        "WWID": "330000000142740b3"
    }
}
```

Sample Request 6

Cloud LUN of cluster mode: query LUN lun04c.

```
GET /rest/v2/block/lun/lun04c HTTP/1.1
Date: Wed, 31 Dec 2025 08:32:41 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 6

```
HTTP/1.1 200 OK
x-hblock-request-id: ed453e40a5e745c5961074ad300d97ae
Connection: keep-alive
Content-Length: 1145
Date: Wed, 31 Dec 2025 08:32:41 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "lunName": "lun04c",
        "targetName": "target04",
        "status": "Normal",
```

```
        "capacity": 480,
        "storageMode": "Cache",
        "createTime": 1767160398843,
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.8",
                "status": "Active",
                "ips": [
                    {
                        "ip": "192.168.0.67",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_3"
            },
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target04.7",
                "status": "Standby",
                "ips": [
                    {
                        "ip": "192.168.0.65",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ],
        "cloud": {
            "bucketName": "hblocktest3",
            "accessKey": "8f129a5529f202811fd0",
            "endpoint": "https://oos-cn.ctyunapi.cn",
            "objectSize": 1024,
            "storageClass": "STANDARD",
            "compression": "Enabled",
            "signVersion": "v4",
```

```
            "region": "cn",
            "provider": "OOS"
        },
        "config": {
            "localStorageClass": "EC 2+1",
            "minReplica": 2,
            "sectorSize": 4096,
            "highAvailability": "ActiveStandby",
            "writePolicy": "WriteBack",
            "pool": "default",
            "redundancyOverlap": 1,
            "reclaimPolicy": "Retain",
            "serverAffinity": {
                "autoFailback": "Enabled"
            },
            "qosPolicy": {
                "qosName": "QoS1"
            },
            "qosPolicyforLUN": {
                "qosName": "QoS1",
                "poolName": "default"
            },
            "ECfragmentSize": 16
        },
        "dataHealth": {
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        },
        "number": 2,
        "uuid": "lun-uuid-faad3b10-cdbe-4e36-a849-2ba57987c41b",
        "WWID": "33000000006405e91"
    }
}
```

4.3.19 Query the QoS Policy Associated with the LUN

This operation is used to query the QoS policy associated with the LUN.

Request Syntax

```
GET /rest/v1/block/lun/lunName/qos HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Specifies the name of the LUN to be queried.	Yes

Response Elements

Name	Type	Description
qosPolicy	Array of qosPolicy	A collection of Qos policy properties, see **Table 1 Parameter description of qosPolicy/qosPolicyforLUN** for details. **Note**: This field is only returned when the LUN is associated with a specific QoS policy.
qosPolicyforLUN	Array of qosPolicyforLUN	A collection of the default Qos policy properties for LUN in the pool, see **Table 1 Parameter description of qosPolicy/qosPolicyforLUN** for details. **Note**: This field is only returned when the storage pool containing the LUN has a default QoS policy configured for its LUNs.

Table 1 Parameter description of qosPolicy/qosPolicyforLUN

Name	Type	Description
qosName	String	QoS policy name.
IOPS	Long	The limit of I/O operations per second. **Note**: -1 indicates no limit.
readIOPS	Long	The limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPS	Long	The limit of write operations per second. **Note**: -1 indicates no limit.

Bps	Long	The limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBps	Long	The limit of read throughput in bytes per second. **Note**: -1 indicates no limit.
writeBps	Long	The limit of write throughput in bytes per second. **Note**: -1 indicates no limit.
IOPSBurst	Long	The burst limit of I/O operations per second. **Note**: -1 indicates no limit.
readIOPSBurst	Long	The burst limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPSBurst	Long	The burst limit of write operations per second. **Note**: -1 indicates no limit.
BpsBurst	Long	The burst limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBpsBurst	Long	The burst limit of read throughput in bytes per second. **Note**: -1 indicates no limit.
writeBpsBurst	Long	The burst limit of write throughput in bytes per second. **Note**: -1 indicates no limit.
IOPSBurstSecs	Long	The duration in seconds of I/O operations with burst limit
readIOPSBurstSecs	Long	The duration in seconds of read operations with burst limit.
writeIOPSBurstSecs	Long	The duration in seconds of write operations with burst limit.
BpsBurstSecs	Long	The duration in seconds of I/O throughput with burst limit.
readBpsBurstSecs	Long	The duration in seconds of read throughput with burst limit.
writeBpsBurstSecs	Long	The duration in seconds of write throughput with burst limit.
createTime	Long	The creation time of the QoS policy.
reclaimPolicy	String	QoS policy reclaim policy: ● `Delete`: When all objects associated with the QoS policy are disassociated or deleted, the system will automatically remove the QoS policy. ● `Retain`: When all objects associated with

		the QoS policy are disassociated or deleted, the QoS policy itself remains and is not deleted.
poolName	String	Name of the storage pool to which the LUN belongs, only supported by cluster mode. Appears only within qosPolicyforLUN{}.
description	String	The description of the QoS policy.

Sample Request 1

Standalone mode: Query the QoS policy of LUN luna1.

```
GET /rest/v1/block/lun/luna1/qos HTTP/1.1
Date: Thu, 21 Aug 2025 03:09:15 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 824579904057466ebbc9e2e0aadb0afd
Connection: keep-alive
Content-Length: 484
Date: Thu, 21 Aug 2025 03:09:15 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "qosPolicy": {
            "qosName": "QoS1",
            "readIOPS": 1000,
            "writeIOPS": 1000,
            "readBps": 3670016000,
            "writeBps": 3670016000,
            "readIOPSBurst": 1000,
            "writeIOPSBurst": 1500,
            "readBpsBurst": 3670016000,
```

```
            "writeBpsBurst": 3670016000,
            "readIOPSBurstSecs": 1,
            "writeIOPSBurstSecs": 1,
            "readBpsBurstSecs": 1,
            "writeBpsBurstSecs": 1,
            "createTime": 1754375362963,
            "reclaimPolicy": "Retain",
            "description": "It is QoS1.",
            "IOPS": 2500,
            "Bps": 5242880000,
            "IOPSBurst": 2000,
            "BpsBurst": 5242880000,
            "IOPSBurstSecs": 1,
            "BpsBurstSecs": 1
        }
    }
}
```

Sample Request 2

Cluster mode: Query the QoS policy of LUN lun01a.

```
GET /rest/v1/block/lun/lun01a/qos HTTP/1.1
Date: Thu, 21 Aug 2025 02:55:16 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 694c5550cf95444597e49f9d7321abb3
Connection: keep-alive
Content-Length: 753
Date: Thu, 21 Aug 2025 02:55:16 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
```

```
    "data": {
        "qosPolicy": {
            "qosName": "QoS6",
            "readIOPS": 600,
            "writeIOPS": 440,
            "readBps": 1048576000,
            "writeBps": 1572864000,
            "readIOPSBurst": 6000,
            "writeIOPSBurst": 4000,
            "readBpsBurst": 2097152000,
            "writeBpsBurst": 2097152000,
            "readIOPSBurstSecs": 1,
            "writeIOPSBurstSecs": 1,
            "readBpsBurstSecs": 1,
            "writeBpsBurstSecs": 1,
            "createTime": 1753950531353,
            "reclaimPolicy": "Retain",
            "description": "It is QoS6.",
            "IOPS": 1000,
            "Bps": 2097152000,
            "IOPSBurst": 10000,
            "BpsBurst": 2202009600,
            "IOPSBurstSecs": 1,
            "BpsBurstSecs": 1
        },
        "qosPolicyforLUN": {
            "qosName": "QoS-Test",
            "readIOPSBurstSecs": 1,
            "writeIOPSBurstSecs": 1,
            "readBpsBurstSecs": 1,
            "writeBpsBurstSecs": 1,
            "createTime": 1754470952232,
            "reclaimPolicy": "Retain",
            "poolName": "defaultpool",
            "IOPS": 8000,
```

```
            "Bps": 8388608000,
            "IOPSBurstSecs": 1,
            "BpsBurstSecs": 1
        }
    }
}
```

4.3.20 Error Code List

HTTP status	Error Code	Error Message
400	AccessCloudFailed	Failed to access cloud. Please check your network or contact your software vendor.
400	BucketEnableLifecycle	Can not use this bucket because the life cycle was enabled. Please use another bucket.
400	BucketEnableObjectLock	Can not use this bucket because the object lock configuration was enabled. Please use another bucket.
400	CanNotDeleteCloudData	The cloud data for LUN lunName can not be deleted. The LUN has been recoverd.
400	CanNotModifyEndpoint	Can not modify endpoint for LUN *lunname*.
400	ExceedMaxCapacity	Value *value* at 'capacity' failed to satisfy constraint: Argument must be less than *value*.
400	ExceedThreshold	The number of *operation* cannot exceed value.
400	FailedOperateLUN	Failed to *operation* LUN, *reason*
400	HighAvailabilityNotAllowed	The 'high availability' is invalid for standalone mode of HBlock.
400	InvalidBucketName	The bucket name *bucketName* is invalid.
400	InvalidDiskPath	The disk paths do not exist: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The available disk space must be greater than or equal to 1 GiB for each disk path: *serverIP*:d*iskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths can not access: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths must be directory: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths include incompatible data: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths include unsupported symbols: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths is already on the server and the status is removing: *serverIP*:*diskPaths* [,*diskPaths*...]

400	InvalidEndpoint	The endpoint *endpoint* is invalid.
400	InvalidEnumValue	Value *value* at '*argument*' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...]
400	InvalidFilterEnum	Value *value* at 'filter' failed to satisfy constraint: Argument can only contain: [lunName, status, capacity, targetName].
400	InvalidHighAvailability	Value *value* at 'high availability' failed to satisfy constraint: Argument must satisfy enum value set: [Disabled, ActiveStandby].
400	InvalidLUNName	Value *value* at 'lun name' failed to satisfy constraint: Argument must contain only letters, digits, or hyphens (-), and does not exceed 16 characters, must begin with a letter or digit.
400	InvalidMinReplicaNumber	Argument 'min replica' failed to satisfy constraint: argument range is [1, copy number] for replica mode and [N, N+M] for EC N+M mode.
400	InvalidPathStatus	The path *path* status is '*status*', the request is invalid.
400	InvalidPositiveInteger	Value *value* at '*number*' failed to satisfy constraint: Argument must be positive integer.
400	InvalidPrefix	Value *value* at 'prefix' failed to satisfy constraint: Argument must not exceed 256 characters.
400	InvalidRange	Value *value* at 'range' failed to satisfy constraint: Argument must satisfy pattern 'i-j', where i, j are positive integers, i is less than j, and j-i<1000.
400	InvalidRecoverLUN	The LUN with name *lunName* and uuid *uuid* can not be recovered.
400	InvalidSectorSize	Value *value* at 'sector size' failed to satisfy constraint: Argument must satisfy enum value set: [512, 4096].
400	InvalidStorageClass	Value *value* at 'local storage class' failed to satisfy constraint: Argument must satisfy enum value set: [single-copy, 2-copy, 3-copy, EC *N+M*], N and M are positive integers, N >= M and N + M <= 128.
400	InvalidStorageMode	Value *value* at 'storage mode' failed to satisfy constraint: Argument must satisfy enum value set: [Local, Cache, Storage].
400	InvalidTargetName	Value *value* at 'target name' failed to satisfy constraint: Argument must contain only lowercase letters, digits, dots (.) or hyphens (-), and does not exceed 16 characters, must begin with a letter or digit.
400	InvalidWritePolicy	Value *value* at 'write policy' failed to satisfy constraint: Argument must satisfy enum value set: [WriteBack,

		WriteThrough, WriteAround].
400	InvalidXattrInnerKey	Value '*value*' at 'xattr inner key' failed to satisfy constraint: Argument include unsupported symbols.
400	LessThanCurrentCapacity	Value *value* at 'capacity' failed to satisfy constraint: Argument must be greater than *value*.
400	LessThanMinCapacity	Value *value* at 'capacity' failed to satisfy constraint: Argument must be greater than or equal to 1 GiB.
400	LUNDuplicatedCatalog	Duplicated with the existing LUN catalog.
400	MissingRelevantArgument	Value null at '*argument1*' failed to satisfy constraint: Argument must not be null when '*argument2*' has value.
400	NoSuchStoragePool	The storage pool with name *poolName* does not exist.
400	OnlyHALUNAllowed	'*operation*' is not supported for LUN luname which is not configured for high availability.
400	SamePool	Cannot use the same storage pool poolName.
400	ServerNotMatchTarget	The server *serverid* does not match the location of target *targetname*.
400	SingleLUNforAffinityPriority	Only one LUN is supported for allocation when a specific server list is designated as the affinity priority.
400	SignVersionNotAllowed	The sign version '*signVersion*' is not supported by provider '*provider*'.
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
400	StorageClassNotAllowed	The 'local storage class' is invalid for standalone mode of HBlock.
400	SwitchLUNNotAllowed	Failed to switch LUN. The LUN does not support high availability.
400	TooManyLUNs	The number of LUNs in a target cannot exceed 256.
403	CloudAccessDenied	Failed to authenticate because of the privilege of access key and secret key. Please use another one.
403	CloudAccountAbnormal	Your cloud account has been frozen due to arrears or violations, please resolve it and try again.
403	CloudRequestTimeTooSkewed	The difference between the server's time and cloud time is too large.
403	GetLifecycleDenied	User is not authorized to perform: GetLifecycleConfiguration on resource:*bucketName*.
403	GetObjectLockDenied	User is not authorized to perform: GetBucketObjectLockConfiguration on resource:*bucketName*.

404	NoSuchBackupConfiguration	Backup is not configured.
404	NoSuchBucket	The bucket with name *bucketName* does not exist.
404	NoSuchLicense	The HBlock license does not exist.
404	NoSuchLUN	The LUN with name *lunName* does not exist.
404	NoSuchLUNUuid	The LUN with name *lunName* and uuid *uuid* does not exist.
404	NoSuchLUNUuidConfiguration	Configuration file of the LUN with name *lunName* and uuid *uuid* does not exist.
404	NoSuchPath	The path *path* does not exist in the HBlock.
409	CloneLUNExist	There are clone LUNs referencing *Name*. Please delete or flatten all these clone LUNs and try again.
409	InvalidLUNMode	The storage mode of LUN lunName is storageMode, cannot operate.
409	InvalidSnapshotStatus	The status of snapshot *name* is '*status*', the request is invalid.
409	InvalidTargetIQNsStatus	The request is invalid. Ensure the number of target IQNs whose status is neither unavailable nor offline is greater than or equal to 2.
409	LUNAlreadyExists	The LUN with name *lunName* already exists.
409	LUNDataResidue	Data residue is detected for LUN *lunname* on path *path*. Please clean up promptly and try again.
409	LUNRollbacking	The LUN *lunname* is using snapshot *snapshotname* for rollback, the request is invalid.
409	SnapshotExists	The LUN *lunname* has snapshot or consistency snapshot. You can use force delete. When using this option, all snapshots of the LUN, including LUN snapshots within consistency snapshots, will be deleted together.
500	CloudInternalError	Cloud encountered an internal error. Please try again.

4.4 Snapshot Management

4.4.1 Create a Snapshot

This operation is used to create a snapshot.

Note:

- Before performing this operation, ensure all data on the source LUN is persistent. If the source LUN is mounted by a client, make sure the client's data has been synchronized to the LUN. Before creating a snapshot:
  - For Linux clients: If the client supports `sync -f` (check with `sync --help`), run `sync -f`; otherwise, run `sync`.
  - For Windows clients: Take the disk corresponding to the source LUN offline on the client before the snapshot, and bring it back online afterward.
- The source LUN needs to be in Normal status.

Usage restrictions:

- Maximum snapshots per LUN: 512.
- Maximum snapshots per system: 100,000.
- Maximum clones per snapshot: 512.
- Maximum snapshot depth per system: 512.

Request Syntax

```
POST /rest/v1/block/snapshot HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "snapshotName": snapshotName,
    "lunName": lunName,
    "reclaimPolicy": reclaimPolicy,
    "description": description
}
```

Request Parameters

Parameter	Type	Description	Required
snapshotName	String	Specifies the snapshot name. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or	Yes

		underscores (_). Only supports starting with a letter or a digit. **Note**: Snapshot names, consistency snapshot names, and names of single-LUN snapshots in a consistency snapshot must be unique and not duplicated across each other.	
lunName	String	Specifies the source LUN for the snapshot. **Note**: Snapshots can only be created for local LUNs.	Yes
reclaimPolicy	String	Specifies snapshot reclaim policy. Value: ● Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other snapshots depend on it or current write operations aren't based on it). **Note**: If the snapshot reclaim policy is set to Delete, the following operations will trigger snapshot deletion: rolling back a consistency snapshot, rolling back a snapshot, flattening a clone LUN, deleting a clone LUN, wiping a LUN, and deleting a snapshot. ● Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node. The default value is Retain.	No
description	String	The description for the snapshot. Value: The value is a string of 1 to 256 characters.	No

Response Elements

Name	Type	Description
snapshotName	String	Snapshot name.
lunName	String	The source LUN for the snapshot.

Sample Request

Create a snapshot named snapshot-lun01a-2 for LUN lun01a.

```
POST /rest/v1/block/snapshot HTTP/1.1
Date: Wed, 05 Mar 2025 06:26:39 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

```
Connection: keep-alive
Content-Length: 157

{
    "snapshotName": "snapshot-lun01a-2",
    "lunName": "lun01a",
    "reclaimPolicy": "Delete",
    "description": "The second snapshot of lun01a."
}
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 1657c5585b25408f883cb76e5d3ad7ef
Date: Wed, 05 Mar 2025 06:26:39 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 64
Server: HBlock

{
    "data": {
        "snapshotName": "snapshot-lun01a-2",
        "lunName": "lun01a"
    }
}
```

4.4.2 Modify a Snapshot

This operation is used to modify the snapshot information, including single-LUN snapshot in a consistency snapshot.

Request Syntax

```
PUT /rest/v1/block/snapshot/snapshotName HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "newSnapshotName": newSnapshotName,
    "reclaimPolicy": reclaimPolicy,
    "description": description
}
```

Request Parameters

Parameter	Type	Description	Required
snapshotName	String	Specifies the snapshot name to be modified. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit.	Yes
newSnapshotName	String	Specifies a new name for the snapshot name. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit. **Note**: Snapshot names, consistency snapshot names, and names of single-LUN snapshots in a consistency snapshot must be unique and not duplicated across each other.	No
reclaimPolicy	String	Modifies the snapshot reclaim policy. Value: ● Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other	No

		snapshots depend on it or current write operations aren't based on it). ● Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node.	
description	String	Modifies the description of the snapshot. Value: The value is a string of 1 to 256 characters.	No

Sample Request

Modify the name, reclaim policy, and description information of the snapshot snapshot-lun02-2.

```
PUT /rest/v1/block/snapshot/snapshot-lun02-2 HTTP/1.1
Date: Wed, 05 Mar 2025 08:17:48 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
Content-Length: 131

{
    "newSnapshotName": "snapshot-lun02-3",
    "reclaimPolicy": "Retain",
    "description": "The third snapshot of lun02."
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 2bd30e44011d412ea3182d8e39b3b76b
Date: Wed, 05 Mar 2025 08:17:48 GMT
Connection: keep-alive
Server: HBlock
```

4.4.3 Roll Back a Snapshot

This operation is used to roll back the snapshot, including single-LUN snapshot in a consistency snapshot.

Prerequisite: Both the snapshot to be rolled back and the source LUN must be in Normal status.

Note:

- This operation overwrites the source LUN's data with the snapshot's data. It is recommended to create a new snapshot of the source LUN to back up the data.
- If the source LUN of the snapshot is a clone LUN and is flattening operation, rollback using any snapshot of this clone LUN is not allowed.
- If the source LUN has a snapshot being created, you cannot perform the rollback operation.
- If the source LUN is mounted by a client, unmount it before rollback and remount it afterward:
  - For Linux clients:
    1. Before rollback, run the command on the client: **umount** *DIRECTORY_NAME_OR_PATH*
    2. After rollback, run the command on the client: **mount** */dev/sdx* *DIRECTORY_NAME_OR_PATH*
  - For Windows clients:
    1. Before rollback, take the corresponding disk offline on the client.
    2. After rollback, bring the corresponding disk back online on the client.

For a LUN in rollback status:

- Read and write operations are not allowed.
- No new snapshots can be created.
- No further rollback operations are allowed.
- You cannot delete the snapshot being rolled back.
- The snapshot cannot be modified.
- The LUN cannot be modified.
- The LUN cannot be expanded.
- If it is a clone LUN, no relationship chain break operation can be performed.

Request Syntax

```
PUT /rest/v1/block/snapshot/snapshotName/rollback HTTP/1.1
Date:date
Content-Length: length
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
snapshotName	String	Specifies the snapshot name to be rolled back. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit.	Yes

Sample Request

Roll back snapshot snapshot-lun02-3.

```
PUT /rest/v1/block/snapshot/snapshot-lun02-3/rollback HTTP/1.1
Date: Wed, 05 Mar 2025 08:37:48 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
Content-Length: 0
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: ea5952634d5a4054b62fa73354216237
Date: Wed, 05 Mar 2025 08:37:48 GMT
Connection: keep-alive
Content-Length: 0
Server: HBlock
```

4.4.4 Delete a Snapshot

This operation is used to delete a snapshot, including single-LUN snapshot in a consistency snapshot.

Note:

- If a snapshot has clone LUNs that are still associated, it cannot be deleted.
- If a snapshot has two or more child nodes (indicating other snapshots depend on it or current writes are based on it), it cannot be deleted.
- When a snapshot is in the process of being deleted, only queries and re-deletion of the snapshot are allowed.

Request Syntax

```
DELETE /rest/v1/block/snapshot/snapshotNam HTTP/1.1
Date:date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
snapshotName	String	Specifies the snapshot name to be deleted. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit.	Yes

Sample Request

Delete snapshot snapshot-lun01-1.

```
DELETE /rest/v1/block/snapshot/snapshot-lun01-1 HTTP/1.1
Date: Wed, 05 Mar 2025 09:33:42 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 659acfea0d49484a89078cbec4b6f2aa
Date: Wed, 05 Mar 2025 09:33:42 GMT
Connection: keep-alive
Content-Length: 0
Server: HBlock
```

4.4.5 Query Snapshots in Batches

This operation is used to query snapshots in batches.

Request Syntax

```
GET /rest/v1/block/snapshot?filter=filter&range=i-j HTTP/1.1
Date:date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● snapshotName: Snapshot name. ● lunName: the source LUN for the snapshot. ● status: The status of the snapshot.	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the snapshot names and returns the i-th to j-th snapshots. If the range exceeds the total number of snapshots, the returned result is empty. If the range is not specified, all snapshots that meet the conditions are returned.	No

Response Elements

Name	Type	Description
snapshots	Array of snapshot	A collection of snapshot information, see **Table 1 Parameter description of snapshot** for details.

Table 1 Parameter description of snapshot

Name	Type	Description
snapshotName	String	The snapshot name.

description	String	Snapshot description.
lunName	String	The source LUN name.
lunCapacity	Integer	Source LUN capacity at snapshot creation.
consistencySnapshotName	String	The name of the consistency snapshot it belongs to. **Note**: Shown only for single-LUN snapshot in a consistency snapshot.
status	String	Snapshot status: ● Normal. ● Error. ● Pending: The snapshot is being created. ● Deleting.
reclaimPolicy	String	Snapshot reclaim policy: ● Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other snapshots depend on it or current write operations aren't based on it). ● Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node.
createTime	Long	The creation time of the snapshot.
cloneNumbers	Integer	The number of clone LUNs associated with the snapshot.
snapshotSize	Long	Snapshot size, representing the actual amount of data recorded in the snapshot. The unit is bytes. **Note**: Snapshot size may vary due to LUN issues or parent snapshot deletion.

Sample Request

Query snapshot information that meets the following criteria: the source LUN name contains "lun", the snapshot name contains "luna1", and output the display information of entries 1 - 3.

```
GET /rest/v1/block/snapshot?filter= lunName:lun and snapshotName:luna1&range=1-3 HTTP/1.1
Date: Mon, 28 Jul 2025 08:24:31 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
Connection: keep-alive
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: c3a93a73e6844b159f369659b9c841aa
```

```
Date: Mon, 28 Jul 2025 08:24:31 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 602
Server: HBlock

{
    "data": {
        "snapshots": [
            {
                "snapshotName": "luna1-clone-snap20250728153126",
                "lunName": "luna1-clone",
                "lunCapacity": 100,
                "consistencySnapshotName": "consnap2",
                "status": "Normal",
                "reclaimPolicy": "Retain",
                "createTime": 1753687886870,
                "cloneNumbers": 0,
                "snapshotSize": 4096
            },
            {
                "snapshotName": "luna1-snap3",
                "lunName": "luna1",
                "lunCapacity": 100,
                "status": "Normal",
                "reclaimPolicy": "Retain",
                "createTime": 1753687901979,
                "cloneNumbers": 1,
                "snapshotSize": 0
            },
            {
                "snapshotName": "luna1-snap4",
                "lunName": "luna1",
                "lunCapacity": 100,
                "status": "Normal",
                "reclaimPolicy": "Retain",
                "createTime": 1753687946159,
                "cloneNumbers": 1,
                "snapshotSize": 0
            }
        ]
```

```
    }
}
```

4.4.6 Query a Specified Snapshot

This operation is used to query a specified snapshot.

Request Syntax

```
GET /rest/v1/block/snapshot/snapshotName HTTP/1.1
Date:date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
snapshotName	String	Specifies the snapshot name to be queried.	Yes

Response Elements

Name	Type	Description
snapshotName	String	The snapshot name.
description	String	Snapshot description.
lunName	String	The source LUN name.
lunCapacity	Integer	Source LUN capacity at snapshot creation.
consistencySnapshotName	String	The name of the consistency snapshot it belongs to. **Note**: Shown only for single-LUN snapshot in a consistency snapshot.
status	String	Snapshot status: ● Normal. ● Error. ● Pending: The snapshot is being created. Deleting.
reclaimPolicy	String	Snapshot reclaim policy: ● Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other snapshots depend on it or current write operations aren't based on it). ● Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node.
createTime	Long	The creation time of the snapshot.
clones	Array of clone	A collection of clone LUN information, see **Table 1 Parameter description of clone** for details.

snapshotSize	Long	Snapshot size, representing the actual amount of data recorded in the snapshot. The unit is bytes. **Note**: Snapshot size may vary due to LUN issues or parent snapshot deletion.

Table 1 Parameter description of clone

Name	Type	Description
lunName	String	The clone LUN name.
capacity	Integer	The clone LUN capacity, in GiB.
status	String	The clone LUN status: ● Normal. ● Deleting: The clone LUN is being deleting. ● DeleteFailed: The LUN deletion failed. ● Rollbacking: The LUN is rollbacking. ● Flattening: The chain-breaking process between the clone LUN and the snapshot is underway. The clone LUN is copying data from the source LUN. After the copy is complete, it becomes an independent LUN that no longer depends on the snapshot or source LUN. ● Importing: The LUN is being imported with backup data. ● Wiping: The LUN is being wiped. ● WipeFailed: The LUN data wiping failed.

Sample Request 1

Query the information of snapshot luna1-snap20250728153126.

```
GET /rest/v1/block/snapshot/luna1-snap20250728153126 HTTP/1.1
Date: Mon, 28 Jul 2025 08:42:00 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
Connection: keep-alive
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 213f54cf9c1b4c4d993dee36f3c36664
Date: Mon, 28 Jul 2025 08:42:00 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 333
Server: HBlock
```

```
{
    "data": {
        "snapshotName": "luna1-snap20250728153126",
        "description": "This is the snapshot of luna1.",
        "lunName": "luna1",
        "lunCapacity": 100,
        "consistencySnapshotName": "consnap2",
        "status": "Normal",
        "reclaimPolicy": "Retain",
        "createTime": 1753687886869,
        "clones": [
            {
                "lunName": "clone-1",
                "capacity": 100,
                "status": "Normal"
            }
        ],
        "snapshotSize": 401063936
    }
}
```

Sample Request 2

Query the information of snapshot luna1-snap6.

```
GET /rest/v1/block/snapshot/luna1-snap6 HTTP/1.1
Date: Mon, 28 Jul 2025 09:03:56 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
Connection: keep-alive
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: aa3de918f8c447d6b45565bf4fb0af00
Date: Mon, 28 Jul 2025 09:03:56 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 271
Server: HBlock

{
    "data": {
        "snapshotName": "luna1-snap6",
```

```
        "description": "The snapshot of luna1.",
        "lunName": "luna1",
        "lunCapacity": 100,
        "status": "Normal",
        "reclaimPolicy": "Retain",
        "createTime": 1753692886817,
        "clones": [
            {
                "lunName": "clone-6",
                "capacity": 100,
                "status": "Normal"
            }
        ],
        "snapshotSize": 98304
    }
}
```

4.4.7 Error Code List

HTTP status	Error Code	Error Message
400	ExceedThreshold	The *item* of *operation* cannot exceed *value*.
400	InvalidArgumentLength	Value *value* at '*argument*' failed to satisfy constraint: Argument must not exceed *value* characters.
400	InvalidFilter	Value *value* at 'filter' failed to satisfy constraint: Argument must use a single colon (':' means fuzzy match) or two colons ('::' means exact match) to separate the attribute key and value. If you query multiple attributes, you can use 'and' or 'or' keywords to separate them, and there must be spaces before and after 'and' or 'or'.
400	InvalidFilterEnum	Value *value* at 'filter' failed to satisfy constraint: Argument can only contain: [snapshotName, runningStatus， lunName].
400	InvalidRange	Value *value* at 'range' failed to satisfy constraint: Argument must satisfy pattern 'i-j', where i, j are positive integers, i is less than j, and j-i<1000.
400	InvalidSnapshotName	Value *value* at 'snapshot name' failed to satisfy constraint: Argument can contain letters, digits, underscores (_) or hyphens (-), and the length is no more than 256, must begin with a letter or digit.
400	MissingArgument	Value null at '*argument*' failed to satisfy constraint: Argument must not be null.
400	SnapshotReferenced	The snapshot snapshotname cannot be deleted because it is the basis of multiple snapshots *XX*[, *XX*].
404	NoSuchLUN	The LUN with name *lunName* does not exist.
404	NoSuchSnapshot	The snapshot with name *SnapshotName* does not exist.
409	CloneLUNExist	There are clone LUNs referencing *Name*. Please delete or flatten all these clone LUNs and try again.
409	InvalidLUNMode	The storage mode of LUN *lunName* is *storageMode*, cannot *operate*.
409	InvalidLUNStatus	The status of LUN '*lunname*' is '*status*', the request is invalid.
409	InvalidSnapshotStatus	The status of snapshot *name* is '*status*', the request is invalid.
409	LUNRollbacking	The LUN *lunname* is using snapshot *snapshotname* for rollback, the request is invalid.
409	SnapshotAlreadyExists	The snapshot with name *snapshotName* already exists.
500	InternalError	HBlock encountered an internal error. Please try again or

		contact the software vendor.

4.5 Consistency Snapshot Management

4.5.1 Create a Consistency Snapshot

This operation is used to create a consistency snapshot.
A consistency snapshot involves creating snapshots for all selected LUNs simultaneously at a specific moment, ensuring the snapshots reflect the data status of the same point in time.
LUN snapshots created via a consistency snapshot are by default named: *LUNName*-snap-*timestamp* (in seconds), e.g., lun01-snap20240601120000. You can't customize the name at creation but can rename the snapshot, for detail, see **Modify a Snapshot**.
Usage restrictions: Maximum number of LUNs for a consistency snapshot: 512.
Note:

- Before performing this operation, ensure all data on the source LUN is persistent. If the source LUN is mounted by a client, make sure the client's data has been synchronized to the LUN. Before creating a consistency snapshot:
  - For Linux clients: If the client supports `sync -f` (check with `sync --help`), run `sync -f`; otherwise, run `sync`.
  - For Windows clients: Take the disk corresponding to the source LUN offline on the client before the snapshot, and bring it back online afterward.
- The source LUNs need to be in Normal status.

Request Syntax

```
POST /rest/v1/block/conssnap HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "luns": [
        {
            "lunName": lunName1,
            "description": description
        },
        {
            "lunName": lunName2,
            "description": description
        },
        ......
```

```
    ],
    "consistencySnapshotName": consistencySnapshotName,
    "reclaimPolicy": reclaimPolicy,
    "description": description
}
```

Request Parameters

Parameter	Type	Description	Required
luns	Array of lun	Information about the source LUNs of the consistency snapshot, see **Table 1 Parameter description of lun** for details. **Note**: Maximum number of LUNs for a consistency snapshot: 512.	Yes
consistencySnapshotName	String	Specifies the consistency snapshot name. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit. **Note**: Snapshot names, consistency snapshot names, and names of single-LUN snapshots in a consistency snapshot must be unique and not duplicated across each other.	Yes
reclaimPolicy	String	Specifies reclaim policy for single-LUN snapshots in the consistency snapshot. Value: ● Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other snapshots depend on it or current write operations aren't based on it). ● Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node. The default value is Retain.	No
description	String	The description for the consistency snapshot. Value: The value is a string of 1 to 256 characters.	No

Table 1 Parameter description of lun

Parameter	Type	Description	Required
lunName	String	Specifies source LUNs for the consistency snapshot. **Note**: ● Consistency snapshot can only be created for local LUNs. ● Maximum number of LUNs for a consistency snapshot: 512.	Yes
description	String	Specifies description for single-LUN snapshots in the consistency snapshot. Value: The value is a string of 1 to 256 characters.	No

Response Elements

Name	Type	Description
consistencySnapshotName	String	The consistency snapshot name.
lunSnapshots	Array of lunSnapshot	A collection of information for single-LUN snapshots in the consistency snapshot, see **Table 2 Parameter description of lunSnapshot** for details.

Table 2 Parameter description of lunSnapshot

Name	Type	Description
snapshotName	String	Single-LUN snapshot.
lunName	String	The source LUN name.

Sample Request

Create a consistency snapshot named consistencysnapshot3 for LUNs lun001 and lun01a.

```
POST /rest/v1/block/conssnap HTTP/1.1
Date: Wed, 26 Mar 2025 05:35:41 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
Content-Length: 429

{
    "luns": [
        {
            "lunName": "lun001",
```

```
            "description": "The consistency snapshot of lun001."
        },
        {
            "lunName": "lun01a",
            "description": "The consistency snapshot of lun01a."
        }
    ],
    "consistencySnapshotName": "consistencysnapshot3",
    "reclaimPolicy": "Retain",
    "description": "The consistency snapshot of lun001 and lun01a."
}
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: f53ec5817a1a48a2bf25fc5ed3546784
Date: Wed, 26 Mar 2025 05:35:41 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 204
Server: HBlock

{
    "data": {
        "consistencySnapshotName": "consistencysnapshot3",
        "lunSnapshots": [
            {
                "snapshotName": "lun001-snap20250326133541",
                "lunName": "lun001"
            },
            {
                "snapshotName": "lun01a-snap20250326133541",
                "lunName": "lun01a"
            }
        ]
    }
}
```

4.5.2 Modify a Consistency Snapshot

This operation is used to modify the consistency snapshot information.

Request Syntax

```
PUT /rest/v1/block/conssnap/consistencySnapshotName HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "newSnapshotName": newSnapshotName,
    "reclaimPolicy": reclaimPolicy,
    "description": description
}
```

Request Parameters

Parameter	Type	Description	Required
consistencySnapshotName	String	Specifies the consistency snapshot name to be modified. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit.	Yes
newSnapshotName	String	Specifies a new name for the consistency snapshot name. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores (_). Only supports starting with a letter or a digit. **Note**: Snapshot names, consistency snapshot names, and names of single-LUN snapshots in a consistency snapshot must be unique and not duplicated across each other.	No
reclaimPolicy	String	Modifies reclaim policy for single-LUN snapshots in the consistency snapshot. Value:	No

		• Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other snapshots depend on it or current write operations aren't based on it). • Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node.	
description	String	Modifies the description of the consistency snapshot. Value: The value is a string of 1 to 256 characters.	No

Sample Request

Modify the consistency snapshot consistencysnapshot2 as follows: rename it to consistencysnapshot-lun001-lun01a, set the reclamation policy to Retain, and update the description to "The consistency snapshot of lun001 and lun01a.".

```
PUT /rest/v1/block/conssnap/consistencysnapshot2 HTTP/1.1
Date: Thu, 06 Mar 2025 10:10:36 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
Content-Length: 166

{
    "newSnapshotName": "consistencysnapshot-lun001-lun01a",
    "reclaimPolicy": "Retain",
    "description": "The consistency snapshot of lun001 and lun01a."
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: f9372193ce35405fb7ff0a7b78e47907
Date: Thu, 06 Mar 2025 10:10:36 GMT
Connection: keep-alive
Server: HBlock
```

4.5.3 Roll Back a Consistency Snapshot

This operation is used to roll back the consistency snapshot.

Prerequisite: Both the consistency snapshot to be rolled back and source LUNs must be in Normal status.

Note:

- This operation overwrites the source LUN's data with the consistency snapshot's data. It is recommended to create a new snapshot or consistency snapshot of source LUNs to back up the data.
- If the source LUN is mounted by a client, unmount it before rollback and remount it afterward:
  - For Linux clients:
    1. Before rollback, run the command on the client: **umount** *DIRECTORY_NAME_OR_PATH*
    2. After rollback, run the command on the client: **mount** */dev/sdx* *DIRECTORY_NAME_OR_PATH*
  - For Windows clients:
    1. Before rollback, take the corresponding disk offline on the client.
    2. After rollback, bring the corresponding disk back online on the client.
- If the source LUN of the consistency snapshot is a clone LUN and is flattening operation, rollback using any snapshot of this clone LUN is not allowed.

If a single-LUN snapshot in a consistency snapshot is in the deletion process, you can still roll back other snapshots in normal status within the same consistency snapshot. The snapshot in the deletion status won't be rolled back.

Request Syntax

```
PUT /rest/v1/block/conssnap/consistencySnapshotName/rollback HTTP/1.1
Date:date
Content-Length: length
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
consistencySnapshotName	String	Specifies consistency snapshot name to be rolled back. Value: The value is a string of 1 to 256 case-sensitive characters. It can contain letters, digits, hyphens (-), or underscores	Yes

		(_). Only supports starting with a letter or a digit.	

Response Elements

Name	Type	Description
lunList	Array of LUN	List of LUNs being rolled back.

Sample Request

Roll back consistency snapshot consistencysnapshot4.

```
PUT /rest/v1/block/conssnap/consistencysnapshot4/rollback HTTP/1.1
Date: Mon, 28 Jul 2025 03:01:21 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
Content-Length: 0
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 1fe1d1894e9d47e0acc2b3590c6c885c
Date: Mon, 28 Jul 2025 03:01:21 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 58
Server: HBlock

{
    "data": {
        "lunList": [
            "lun01a",
            "lun01b",
            "lun01c",
            "lun02a"
        ]
    }
}
```

4.5.4 Delete a Consistency Snapshot

This operation is used to delete a consistency snapshot.

Note:

- If a single-LUN snapshot in a consistency snapshot has clone LUNs that are still associated, the consistency snapshot cannot be deleted.
- Deleting a consistency snapshot will delete all single-LUN snapshots under it.
- When a consistency snapshot is in the process of being deleted, only query is allowed.

Request Syntax

```
DELETE /rest/v1/block/conssnap/consistencySnapshotName HTTP/1.1
Date:date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
consistencySnapshotName	String	Specifies the consistency snapshot name to be deleted.	Yes

Sample Request

Delete consistency snapshot consistencysnapshot-lun001-lun01a.

```
DELETE /rest/v1/block/conssnap/consistencysnapshot-lun001-lun01a HTTP/1.1
Date: Fri, 07 Mar 2025 01:45:41 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: da16dc4a8eb2421d8c7af6c04bc919a5
Date: Fri, 07 Mar 2025 01:45:41 GMT
Connection: keep-alive
Content-Length: 0
Server: HBlock
```

4.5.5 Query Consistency Snapshot in Batches

This operation is used to query consistency snapshots in batches.

Request Syntax

```
GET /rest/v1/block/conssnap?filter=filter&range=i-j HTTP/1.1
Date:date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● consistencySnapshotName: Consistency snapshot name.	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the consistency snapshot names and returns the i-th to j-th consistency snapshots. If the range exceeds the total number of consistency snapshots, the returned result is empty. If the range is not specified, all consistency snapshots that meet the conditions are returned.	No

Response Elements

Name	Type	Description
consistencySnapshot	Array of consistencySnapshot	A collection of consistency snapshot information, see **Table 1 Parameter description of consistencySnapshot** for details.

Table 1 Parameter description of consistencySnapshot

Name	Type	Description
consistencySnapshotName	String	The consistency snapshot name.
description	String	Consistency snapshot description.
lunSnapshotNumbers	Integer	Number of single-LUN snapshots in the consistency snapshot.
status	String	Consistency snapshot status: ● Normal. ● Error. ● Pending: The consistency snapshot is being created. ● Deleting.
createTime	Long	The creation time of the consistency snapshot.
lunSnapshots	Array of lunSnapshot	Collection of single-LUN snapshot information in a consistency snapshot., see **Table 2 Parameter description of lunSnapshot** for details.

Table 2 Parameter description of lunSnapshot

Name	Type	Description
snapshotName	String	The single-LUN snapshot name.
cloneNumbers	Integer	The number of clone LUNs.

Sample Request

Bulk query of consistency snapshot information: Consistency snapshot names contain "consistencysnapshot".

```
GET /rest/v1/block/conssnap?filter=consistencySnapshotName:consistencysnapshot HTTP/1.1
Date: Tue, 11 Mar 2025 02:22:20 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
Connection: keep-alive
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: fcd556c82e19480ab050c200c631e89f
Date: Tue, 11 Mar 2025 02:22:20 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 719
Server: HBlock

{
```

```
    "data": {
        "consistencySnapshot": [
            {
                "consistencySnapshotName": "consistencysnapshot1",
                "description": "consistency snapshot",
                "lunSnapshotNumbers": 1,
                "status": "Normal",
                "createTime": 1741076297083,
                "lunSnapshots": [
                    {
                        "snapshotName": "lun01a-snap20250304161817",
                        "cloneNumbers": 1
                    }
                ]
            },
            {
                "consistencySnapshotName": "consistencysnapshot4",
                "description": "The consistencysnapshot of lun01,lun01a,lun02,lun03.",
                "lunSnapshotNumbers": 4,
                "status": "Normal",
                "createTime": 1741079382519,
                "lunSnapshots": [
                    {
                        "snapshotName": "lun01-snap20250304170942",
                        "cloneNumbers": 1
                    },
                    {
                        "snapshotName": "lun02-snap20250304170942",
                        "cloneNumbers": 0
                    },
                    {
                        "snapshotName": "lun01a-snap20250304170942",
                        "cloneNumbers": 2
                    },
                    {
                        "snapshotName": "lun03-snap20250304170942",
                        "cloneNumbers": 0
                    }
                ]
            }
        ]
```

```
    }
}
```

4.5.6 Query a Specified Consistency Snapshot

This operation is used to query a specified consistency snapshot.

Request Syntax

```
GET /rest/v1/block/conssnap/consistencySnapshotName HTTP/1.1
Date:date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
consistencySnapshotName	String	Specifies the consistency snapshot name to be queried.	Yes

Response Elements

Name	Type	Description
consistencySnapshotName	String	The consistency snapshot name.
description	String	Consistency snapshot description.
status	String	Number of single-LUN snapshots in the consistency snapshot.
createTime	Long	Consistency snapshot status: ● Normal. ● Error. ● Pending: The consistency snapshot is being created. ● Deleting.
lunSnapshotNumbers	Integer	The creation time of the consistency snapshot.
lunSnapshots	Array of lunSnapshot	Collection of single-LUN snapshot information in a consistency snapshot., see **Table 1 Parameter description of lunSnapshot** for details.

Table 1 Parameter description of lunSnapshot

Response Elements

Name	Type	Description
snapshotName	String	The single-LUN snapshot name
description	String	Single-LUN snapshot description.
lunName	String	The source LUN name.
lunCapacity	Integer	Source LUN capacity at snapshot creation.
status	String	Single-LUN Snapshot status: ● Normal.

		• Error. • Pending. • Deleting.
cloneNumbers	Integer	The number of clone LUNs.
reclaimPolicy	String	Single-LUN Snapshot reclaim policy: • Delete: Automatically deleted when the snapshot has no associated clone LUNs and has at most one child node (indicating no other snapshots depend on it or current write operations aren't based on it). • Retain: Retained when the snapshot has no associated clone LUNs and has at most one child node.

Sample Request

Query the consistency snapshot "consistencysnapshot4".

```
GET /rest/v1/block/conssnap/consistencysnapshot4 HTTP/1.1
Date: Thu, 21 Aug 2025 05:46:01 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
Connection: keep-alive
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: d43aa43c9efe42b2b3f943569e255658
Date: Thu, 21 Aug 2025 05:46:01 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 789
Server: HBlock

{
    "data": {
        "consistencySnapshotName": "consistencysnapshot4",
        "description": "There are 4 luns.",
        "status": "Normal",
        "createTime": 1755755068817,
        "lunSnapshotNumbers": 4,
        "lunSnapshots": [
```

```
            {
                "snapshotName": "lun001-c001-snap20250821134428",
                "lunName": "lun001-c001",
                "lunCapacity": 101,
                "status": "Normal",
                "cloneNumbers": 0,
                "reclaimPolicy": "Retain"
            },
            {
                "snapshotName": "lun001-snap20250821134428",
                "lunName": "lun001",
                "lunCapacity": 101,
                "status": "Normal",
                "cloneNumbers": 0,
                "reclaimPolicy": "Retain"
            },
            {
                "snapshotName": "lun01a-snap20250821134428",
                "description": "lun01a's snapshot.",
                "lunName": "lun01a",
                "lunCapacity": 200,
                "status": "Normal",
                "cloneNumbers": 0,
                "reclaimPolicy": "Retain"
            },
            {
                "snapshotName": "lun04-snap20250821134428",
                "lunName": "lun04",
                "lunCapacity": 404,
                "status": "Normal",
                "cloneNumbers": 0,
                "reclaimPolicy": "Retain"
            }
        ]
    }
}
```

4.5.7 Error Code List

HTTP status	Error Code	Error Message
400	ExceedThreshold	The number of *operation* cannot exceed value.
400	InvalidArgumentLength	Value *value* at '*argument*' failed to satisfy constraint: Argument must not exceed *value* characters.
400	InvalidFilter	Value *value* at 'filter' failed to satisfy constraint: Argument must use a single colon (':' means fuzzy match) or two colons ('::' means exact match) to separate the attribute key and value. If you query multiple attributes, you can use 'and' or 'or' keywords to separate them, and there must be spaces before and after 'and' or 'or'.
400	InvalidFilterEnum	Value *value* at 'filter' failed to satisfy constraint: Argument can only contain: [snapshotName, runningStatus，lunName].
400	InvalidRange	Value *value* at 'range' failed to satisfy constraint: Argument must satisfy pattern 'i-j', where i, j are positive integers, i is less than j, and j-i<1000.
400	InvalidSnapshotName	Value *value* at 'consistency snapshot name' failed to satisfy constraint: Argument can contain letters, digits, underscores (_) or hyphens (-), and the length is no more than 256, must begin with a letter or digit.
400	MissingArgument	Value null at '*argument*' failed to satisfy constraint: Argument must not be null.
404	NoSuchLUN	The LUN with name *lunName* does not exist.
404	NoSuchConsistencySnapshot	The consistency snapshot with name *ConsistencySnapshotName* does not exist.
409	CloneLUNExist	There are clone LUNs referencing *Name*. Please delete or flatten all these clone LUNs and try again.
409	ConsistencySnapshotAlreadyExists	The consistency snapshot with name *consistencysnapshotName* already exists.
409	InvalidConsistencySnapshotStatus	The status of consistency snapshot *snapshotname* is '*status*', the request is invalid.
409	InvalidLUNMode	The storage mode of LUN *lunName* is

		storageMode, cannot *operate*.
409	InvalidLUNStatus	The status of LUN '*lunname*' is '*status*', the request is invalid.
409	InvalidSnapshotStatus	The status of snapshot *name* is '*status*', the request is invalid.
409	LUNRollbacking	The LUN *lunname* is using snapshot *snapshotname* for rollback, the request is invalid.
500	InternalError	HBlock encountered an internal error. Please try again or contact the software vendor.

4.6 Backup Management (Local LUN)

4.6.1 Export Backup File

This operation is used to export backup file.
Backups are divided into full backups and incremental backups:

- Full backup: Exports all data from the LUN's creation up to the selected snapshot into a backup file.
- Incremental backup: Exports only the changed data between two snapshots into a backup file. For example, creating an incremental backup from snap1 to snap2 exports the LUN's data between the time of snap1 and the time of snap2.

Note:

- Backups can only be exported when all snapshots are in Normal status.
- Backups can only be exported when the LUN is in Normal, Flattening, or Rollbacking status.
- When exporting a backup, the associated snapshots and LUN must not be deleted.
- Each server can export a maximum of 4 backups simultaneously. The server here refers to the server where the snapshot source LUN's Active IQN resides.

Request Syntax 1

```
POST /rest/v1/block/backup/export HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "snapshot": snapshot,
    "fromSnap": snapshot,
    "breakpoint": breakpoint,
    "compression": compression
}
```

Request Syntax 2

```
GET
/rest/v1/block/backup/export?snapshot=snapshotName&checkFlag=checkFlag&fromSnap=snapshotName
&breakpoint=breakpoint&compression=compression HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
```

```
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
snapshot	String	Snapshot name, indicating that the data captured at the snapshot point will be exported.	Yes
fromSnap	String	Snapshot name, indicating that data created after this snapshot point will be exported. **Note**: This parameter must be provided for an incremental backup, where it serves as the starting snapshot. If omitted, the backup starts from the beginning of the LUN.	No
breakpoint	Long	Breakpoint position: the starting offset for this export task. If the previous export was interrupted, the task must resume from this offset. Value: The value must be a multiple of 268,435,456, the unit is bytes. Omitting the parameter or supplying 0 means exporting the entire data set. If the supplied value exceeds the backup-file size, an empty backup file is produced. **Note**: For non-compressed backups the file is made up of fixed-size chunks (256 MiB). When calculating the breakpoint of an export task, use the size of the already-exported backup file and the fixed chunk size to determine the size of the successfully exported chunks—this size is the breakpoint. **For example**: 1. After the first interruption, 257 MiB have been written, rounded down to 256 MiB. Breakpoint = 268,435,456 bytes (one complete 256 MiB chunk). 2. After the second interruption, the cumulative amount written is 256 MiB + 530 MiB = 786 MiB, rounded down to 768 MiB (three complete 256 MiB chunks). Breakpoint = 805,306,368 bytes. The same rule applies to any subsequent breakpoints.	No
compression	String	Whether to compress the backup file. Value: ● Enabled: Compress the backup. ● Disabled: Do not compress.	No

		Defaults: ● If breakpoint ≠ 0, the default is Disabled. ● If breakpoint = 0 or is omitted, the default is Enabled. **Note**: Enabled compression and a non-zero breakpoint cannot be used together.	
checkFlag	Boolean	Specifies whether to validate parameters only. Value: ● true: Validate parameters only. Returns 200 if all parameters are valid; returns the specific error otherwise. ● false: Validate parameters and return the file stream. Returns the file stream if parameters are valid; returns the specific error otherwise. The default value is false.	No

Sample Request

Export a full backup file.

```
POST /rest/v1/block/backup/export HTTP/1.1
Date: Wed, 30 Jul 2025 06:51:04 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
Connection: keep-alive
Content-Length: 35

{
    "snapshot": "luna1-snap1"
}
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 7548f1bb2ae048c59925ab8f15c8dcc5
Date: Wed, 05 Mar 2025 06:26:39 GMT
Connection: keep-alive
Content-Type: application/octet-stream;charset=utf-8
Server: HBlock
Content-Disposition: attachment;filename=[luna1]_[luna1-snap1]_20250730145104
```

Sample Request 2

Export an incremental backup file.

```
GET /rest/v1/block/backup/export?snapshot=luna1-snap3&checkFlag=false&fromSnap=luna1-
snap1 HTTP/1.1
Date: Wed, 30 Jul 2025 07:07:55
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
Connection: keep-alive
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-idss: d16ed90970f3443daab104b6b9cd5441
Date: Wed, 30 Jul 2025 07:07:57
Connection: keep-alive
Content-Type: application/octet-stream;charset=utf-8
Server: HBlock
Content-Disposition: attachment;filename=[luna1]_[luna1-snap1]_[luna1-snap3]_20250730150757
```

4.6.2 Import Backup File

This operation is used to import a backup file.
When importing a full backup, it is recommended to use a new LUN, or ensure that the existing data on the LUN has been wiped. The LUN data can be wiped using the wipe LUN function; decide whether to retain the LUN's snapshot data based on actual requirements.
Note:

- Only one backup file can be imported at a time. If multiple backup files are involved, import them in the exact order of their snapshot creation.
- The target LUN must be free of any read or write operations while the backup is being imported.
- While importing backup files—especially when dealing with multiple full and incremental backups—do not mount the target LUN to any client until all required backups have been fully imported. Premature mounting may cause file-system corruption.
  Only mount the LUN after every planned backup has been imported, and do not import any additional backups once the LUN is mounted.
  If the LUN is already mounted, unmount it first, wipe the LUN, and then proceed with the backup import.
- If the user splits the full backup file into multiple segments on their own before performing the import, they must ensure that there is data overlap between the previous segment and the next one, and that the starting position of each segment is a multiple of 256 MiB. For example, the first segment is 0–515 MiB, and the second segment is 512 MiB–1024 MiB.

Request Syntax

```
PUT /rest/v1/block/backup/importfile/lunName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

backupFileContent
```

Request Parameters

Parameter	Type	Description	Required
lunName	String	Name of the LUN into which the backup will be imported. **Note**: The LUN must be larger than the source LUN's size at the moment the snapshot was taken.	Yes
backupFileContent	NA	The backup file to be imported.	Yes

Sample Request

Import the backup file into LUN c1.

```
PUT /rest/v1/block/backup/importfile/lunc1 HTTP/1.1
Date: Wed, 30 Jul 2025 08:48:10 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
Connection: keep-alive
Content-Length: 300190151

file
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: e89fd1bc1a264baaa26e4c7e50c63585
Date: Wed, 30 Jul 2025 08:48:10 GMT
Connection: keep-alive
Server: HBlock
```

4.6.3 Error Code List

HTTP status	Error Code	Error Message
400	BackupFailed	Failed to execute backup task. Reason: *reason*
400	InvalidBackupFile	Invalid or conflicting data in backup file. Please get the correct file.
400	InvalidLong	Value *value* at '*argument*' failed to satisfy constraint: Argument must be of type long.
400	InvalidMultipleValue	Value *value* at '*argument*' failed to satisfy constraint: Argument must be the multiples of *value2*.
400	InvalidSnapBranch	*fromsnapshotA* and *tosnapshotB* must be in the same branch.
400	InvalidSnapSequence	Snapshot sequence error: Operation requires from *fromsnapshotA* to *tosnapshotB*.
400	InsufficientLUNCapacity	The capacity of LUN lunname needs to be extended to *XXX* GiB.
400	LUNNotMatch	*snapshotA* and *snapshotB* do not belong to the same LUN.
400	SameSnapshot	Cannot use the same snapshot *snapshotName*.
409	BackupExist	The backup is in progress. Please wait for it to finish and try again.
409	InvalidLUNMode	The storage mode of LUN *lunName* is *storageMode*, cannot operate.
409	InvalidLUNStatus	The status of LUN '*lunname*' is '*status*', the request is invalid.

4.7 iSCSI Target Management

4.7.1 Create an iSCSI Target

This operation is used to create an iSCSI target.
Note: HBlock supports a maximum of 32766 target IQNs. A target can be associated with up to 256 LUNs, but each LUN can only be associated with one target.

Request Syntax

- Standalone Mode

```
POST /rest/v1/block/target HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "targetName": targetName,
    "maxSessions": value,
    "reclaimPolicy": reclaimPolicy,
    "chap":{
        "name": name,
        "password": password,
        "status": status
    },
    "allowlist": {
        "initiator": [
            {
                "IPs": [ip,ip,...],
                "names": [name,name,...]
            },
            {
                "IPs": [ip,ip,...],
                "names": [name,name,...]
            },
            ......
        ],
        "target": [
            {
                "IPs": [ip,ip,...],
```

```
                "NICs": [NIC,NIC,...]
            },
            {
                "IPs": [ip,ip,...],
                "NICs": [NIC,NIC,...]
            },
            ......
        ]
    }
}
```

- Cluster Mode

```
POST /rest/v1/block/target HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "targetName": targetName,
    "maxSessions": value,
    "reclaimPolicy": reclaimPolicy,
    "chap":{
        "name": name,
        "password": password,
        "status": status
    },
    "serverNumbers": value,
    "server":["server_ID",…],
    "allowlist": {
        "initiator": [
            {
                "IPs": [ip,ip,...],
                "names": [name,name,...]
            },
            {
                "IPs": [ip,ip,...],
                "names": [name,name,...]
            },
```

```
            ......
        ],
        "target": [
            {
                "IPs": [ip,ip,...],
                "NICs": [NIC,NIC,...]
            },
            {
                "IPs": [ip,ip,...],
                "NICs": [NIC,NIC,...]
            },
            ......
        ]
    }
}
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
maxSessions	Integer	The maximum number of sessions allowed to be established per IQN under the iSCSI target. Value: The value is an integer that ranges from 0 to 1024, the default value is 1. 0 means the client cannot discover the target. **Note**: If multiple clients are connected to the same target IQN, they can read at the same time, but cannot write at the same time.	No
reclaimPolicy	String	Specifies the reclaim policy of the iSCSI target. Value： ● Delete: The iSCSI target is automatically deleted when all associated LUNs are deleted. ● Retain: The iSCSI target remains retained when all associated LUNs are deleted. The default value is Retain. **Note**: If you specify a non-existent iSCSI target when creating a LUN, the reclaim policy for creating a new	No

		iSCSI target will default to Delete.	
chap.name	String	Specifies the CHAP authentication name. Value: The value is a string of 3 to 64 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), underscores (_), or colons (:). Only supports starting with a letter or a digit.	No
chap.password	String	Specifies the client CHAP authentication password. Value: The value is a string of 12 to 16 case-sensitive characters. It must contain at least two of the following: lowercase letters, uppercase letters, digits, or underscores (_).	No
chap.status	String	Specifies the status of CHAP authentication. Value: ● Enabled: Enable CHAP authentication. ● Disabled: Disable CHAP authentication. **Note**: If CHAP authentication is enabled, name and password must be set.	Yes
serverNumbers	Integer	Specifies the number of servers where target is located, only supported by cluster mode. Value: The value is an integer that ranges from 1 to n, n is the number of servers in the cluster, the default value is 2.	No
server	Array of string	Specifies the server ID where target is located, only supported by cluster mode. You can specify up to *n* server IDs, separated by commas. *n* is the number of servers in the cluster.	No
allowlist.initiator	Array of initiator	Set the iSCSI initiator allowlist for every IQN under the target. You can define several allowlists, the relationship among them is logical **OR**. Within one allowlist you may simultaneously specify both IP address and initiator name; these two conditions are combined with logical **AND**. See **Table 1 Parameter description of initiator** for details. **Note**: If no allowlist is configured, all accesses are permitted.	No
allowlist.target	Array of target	Set the target allowlist for every IQN under the target. You can define several allowlists, the relationship among them is logical **OR**.	No

		Within one allowlist you may simultaneously specify both IP address and NIC name; these two conditions are combined with logical **AND**. See **Table 2 Parameter description of target** for details. **Note**: If no allowlist is configured, all accesses are permitted.	

Table 1 Parameter description of initiator

Parameter	Type	Description	Required
IPs	Array of ip	Set the allowlist for iSCSI initiators based on their IP addresses. Value: IPv4, IPv6, or CIDR subnets. Multiple entries can be configured and must be separated by commas. If `"IPs":[]` is specified, all initiator access is denied. **Note**: 'localhost' addresses are not permitted.	No
names	Array of name	Set the allowlist for iSCSI initiators based on their names. Value: The value is a string of 1 to 223 case-sensitive characters. It can only contain letters, digits, dots (.), colons (:), or hyphens (-). Wildcards * and ? are supported. Multiple entries can be configured and must be separated by commas. If `"names":[]` is specified, all initiator access is denied.	No

Table 2 Parameter description of target

Parameter	Type	Description	Required
IPs	Array of ip	Set the allowlist for targets based on their IP addresses. Value: IPv4, IPv6, or CIDR subnets. Multiple entries can be configured and must be separated by commas. If `"IPs":[]` is specified, all target access is denied. **Note**: 'localhost' addresses are not permitted.	No
NICs	Array of NIC	Set the allowlist for targets based on their NICs. Value: The value is a string of 1 to 100 characters. It can contain letters, digits, dots (.), hyphens (-), or underscores (_). Wildcards * and ? are supported. Multiple entries can be configured and must be separated by commas. If `"NICs":[]` is specified, all target access is denied.	No

Response Elements

Name	Type	Description
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties, see **Table 3 Parameter description of iSCSITarget** for details.

Table 3 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	iSCSI target IQN.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 4 Parameter description of ip** for details.
allowlist.initiator	Array of initiator	The iSCSI initiator allowlist. See **Table 5 Parameter description of initiator** for details.
allowlist.target	Array of target	The target allowlist. See **Table 6 Parameter description of target** for details.

Table 4 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Table 5 Parameter description of initiator

Parameter	Type	Description
IPs	Array of ip	The allowlist for iSCSI initiators based on their IP addresses.
names	Array of name	The allowlist for iSCSI initiators based on their names.

Table 6 Parameter description of target

Parameter	Type	Description
IPs	Array of ip	The allowlist for targets based on their IP addresses.
NICs	Array of NIC	The allowlist for targets based on their NICs.

Sample Request 1

Standalone Mode: Create a target named targete.

```
POST /rest/v1/block/target HTTP/1.1
Date: Tue, 14 Feb 2023 07:58:44 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 155
Host: 192.168.0.32:1443
```

```
{
    "targetName": "targete",
    "chap":{
        "name":"test",
        "password":"123456789012",
        "status":"Enabled"
        }
}
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 8c2a6566e6d84b5e82ac26387c6a50ac
Connection: keep-alive
Content-Length: 217
Date: Tue, 14 Feb 2023 07:58:44 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targete.6",
                "ips": [
                    {
                        "ip": "192.168.0.32",
                        "port": 3260
                    }
                ]
            }
        ]
    }
}
```

Sample Request 2

Standalone Mode: Create a target named targetf.

```
POST /rest/v1/block/target HTTP/1.1
Date: Mon, 18 Aug 2025 02:25:34 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
```

```
Content-Length: 571
Host: 192.168.0.66:1443

{
    "targetName": "targetf",
    "allowlist": {
        "initiator": [
            {
                "IPs": [
                    "192.168.0.70"
                ],
                "names": [
                    "iqn.1991-05.com.microsoft:songt-0001"
                ]
            },
            {
                "IPs": [
                    "192.168.0.67"
                ]
            }
        ],
        "target": [
            {
                "IPs": [
                    "192.168.0.66"
                ]
            }
        ]
    }
}
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: ca3aa28f0807489fa4af85833c4de8a7
Connection: keep-alive
Content-Length: 280
Date: Mon, 18 Aug 2025 02:25:34 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
```

```
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targetf.4",
                "ips": [
                    {
                        "ip": "192.168.0.66",
                        "port": 3260
                    }
                ],
                "allowlist": {
                    "initiator": [
                        {
                            "names": [
                                "iqn.1991-05.com.microsoft:songt-0001"
                            ],
                            "IPs": [
                                "192.168.0.70"
                            ]
                        },
                        {
                            "IPs": [
                                "192.168.0.67"
                            ]
                        }
                    ],
                    "target": [
                        {
                            "IPs": [
                                "192.168.0.66"
                            ]
                        }
                    ]
                }
            }
        ]
    }
}
```


Sample Request 3

Cluster Mode: Create a target named target09.

```
POST /rest/v1/block/target HTTP/1.1
Date: Mon, 18 Aug 2025 02:19:06 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 910
Host: 192.168.0.64:1443

{
    "targetName": "target09",
    "maxSessions": 6,
    "serverNumbers": 3,
    "server": [
        "hblock_1",
        "hblock_3"
    ],
    "allowlist": {
        "initiator": [
            {
                "IPs": [
                    "192.168.0.70"
                ],
                "names": [
                    "iqn.1991-05.com.microsoft:songt-0001"
                ]
            },
            {
                "IPs": [
                    "192.168.0.66"
                ]
            }
        ],
        "target": [
            {
                "IPs": [
                    "192.168.0.64",
                    "192.168.0.67"
                ]
            },
            {
                "IPs": [
                    "192.168.0.65"
```

```
                ],
                "NICs": [
                    "eth0"
                ]
            }
        ]
    }
}
```

Sample Response 3

```
HTTP/1.1 200 OK
x-hblock-request-id: 1f7fe9f8cd054d629a88f618fac0a878
Connection: keep-alive
Content-Length: 960
Date: Mon, 18 Aug 2025 02:19:06 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "iSCSITargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target09.17",
                "ips": [
                    {
                        "ip": "192.168.0.64",
                        "port": 3260
                    }
                ],
                "allowlist": {
                    "initiator": [
                        {
                            "names": [
                                "iqn.1991-05.com.microsoft:songt-0001"
                            ],
                            "IPs": [
                                "192.168.0.70"
                            ]
                        },
                        {
                            "IPs": [
```

```
                            "192.168.0.66"
                        ]
                    }
                ],
                "target": [
                    {
                        "IPs": [
                            "192.168.0.64",
                            "192.168.0.67"
                        ]
                    },
                    {
                        "IPs": [
                            "192.168.0.65"
                        ],
                        "NICs": [
                            "eth0"
                        ]
                    }
                ]
            }
        },
        {
            "iqn": "iqn.2012-08.cn.ctyunapi.oos:target09.18",
            "ips": [
                {
                    "ip": "192.168.0.65",
                    "port": 3260
                }
            ],
            "allowlist": {
                "initiator": [
                    {
                        "names": [
                            "iqn.1991-05.com.microsoft:songt-0001"
                        ],
                        "IPs": [
                            "192.168.0.70"
                        ]
                    },
                    {
```

```
                        "IPs": [
                            "192.168.0.66"
                        ]
                    }
                ],
                "target": [
                    {
                        "IPs": [
                            "192.168.0.64",
                            "192.168.0.67"
                        ]
                    },
                    {
                        "IPs": [
                            "192.168.0.65"
                        ],
                        "NICs": [
                            "eth0"
                        ]
                    }
                ]
            }
        },
        {
            "iqn": "iqn.2012-08.cn.ctyunapi.oos:target09.19",
            "ips": [
                {
                    "ip": "192.168.0.67",
                    "port": 3260
                }
            ],
            "allowlist": {
                "initiator": [
                    {
                        "names": [
                            "iqn.1991-05.com.microsoft:songt-0001"
                        ],
                        "IPs": [
                            "192.168.0.70"
                        ]
                    },
```

```
                        {
                            "IPs": [
                                "192.168.0.66"
                            ]
                        }
                    ],
                    "target": [
                        {
                            "IPs": [
                                "192.168.0.64",
                                "192.168.0.67"
                            ]
                        },
                        {
                            "IPs": [
                                "192.168.0.65"
                            ],
                            "NICs": [
                                "eth0"
                            ]
                        }
                    ]
                }
            }
        ]
    }
}
```

4.7.2 Set CHAP Authentication of the iSCSI Target

This operation is used to set CHAP authentication of the iSCSI target.

Request Syntax

```
PUT /rest/v1/block/target/targetName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "chap":{
        "name": name,
        "password": password,
        "status": status
    }
}
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
chap.name	String	Specifies the CHAP authentication name. Value: The value is a string of 3 to 64 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), underscores (_), or colons (:). Only supports starting with a letter or a digit.	No
chap.password	String	Specifies the client CHAP authentication password. Value: The value is a string of 12 to 16 case-sensitive characters. It must contain at least two of the following: lowercase letters, uppercase letters, digits, or underscores (_).	No
chap.status	String	Enable CHAP authentication or not. Value: ● Enabled: Enable CHAP authentication.	Yes

		● Disabled: Disable CHAP authentication. **Note**: If CHAP authentication is enabled for the first time, name and password must be set.	

Sample Request 1

Set CHAP authentication of target2: enable CHAP authentication and set the name and password for CHAP authentication.

```
PUT /rest/v1/block/target/target2 HTTP/1.1
Date: Fri, 29 Jul 2022 06:17:27 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 85
Host: 192.168.0.121:1443

{
    "chap":{
        "name":"test",
        "password":"*********",
        "status":"Enabled"
        }
}
```

Sample Response 1

```
HTTP/1.1 204 No Content
x-hblock-request-id: b18c4215a42a460789fb54879acfa3e3
Connection: keep-alive
Date: Fri, 29 Jul 2022 06:17:27 GMT
Server: HBlock
```

Sample Request 2

Set CHAP authentication of target2: Disable CHAP authentication, but do not delete name and password of the previous CHAP authentication.

```
PUT /rest/v1/block/target/target2 HTTP/1.1
Date: Fri, 29 Jul 2022 06:17:53 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 60
Host: 192.168.0.121:1443
{
"chap":{
```

```
  "status":"Disabled"
  }
}
```

Sample Response 2

```
HTTP/1.1 204 No Content
x-hblock-request-id: 850b187b2d844b928998a190b8a034f3
Connection: keep-alive
Date: Fri, 29 Jul 2022 06:17:53 GMT
Server: HBlock
```

4.7.3 Migrate an iSCSI Target (Cluster Mode)

This operation is used to migrate iSCSI target from one server to the other server.
You can migrate only one server which the target located one time.
Note:

- Before migrating iSCSI target, ensure that the cluster is in working status and the destination server is properly connected.
- Currently, you can only forcibly migrate iSCSI target, which may cause data loss.
- If iSCSI target to migrate has been connected to a LUN and the LUN has been mounted to a client, disconnect the client from the original iSCSI target IQN before migrating iSCSI target. After the migration, ensure that the original iSCSI target IQN cannot be discovered, and reconnect the client to the migrated iSCSI target IQN.
- After the migration is complete, please check and adjust the target's allowlist to ensure it meets the access-control requirements.

Request Syntax

```
PUT /rest/v1/block/target/targetName/migrate?force=force HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
"server": [
    {
      "source": source_server_ID,
      "dest": dest_server_ID
    }
   ]
}
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a	Yes

		letter or a digit.	
force	Boolean	Whether to force migrating iSCSI target. **Note**: Currently, you can only forcibly migrate iSCSI target, which may cause data loss. Value: true.	Yes
server	Array of server	A collection of source and destination servers for migration, see **Table 1 Parameter description of server** for details.	Yes

Table 1 Parameter description of server

Parameter	Type	Description	Required
source	String	Specifies the source ID of the server on which the iSCSI target is located.	Yes
dest	String	The destination server ID of the iSCSI target.	Yes

Response Elements

Name	Description
luns	A collection of LUN properties, see **Table 2 Parameter description of lun** for details.

Table 2 Parameter description of lun

Name	Type	Description
lunName	String	The name of the associated LUN.
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties, see **Table 3 Parameter description of iSCSITarget** for details.

Table 3 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	iSCSI target IQN.
status	String	The status of the iSCSI target corresponding to the LUN: ● Active: Active target. ● Standby: Hot standby target. ● Offline: offline target. ● Unavailable: Cold standby target.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 4 Parameter description of ip** for details.
targetPortalIP	Object	A collection of portal attributes of an iSCSI target, see **Table 5 Parameter description of targetPortalIP** for details.

Table 4 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Table 5 Parameter description of targetPortalIP

Name	Type	Description
ips	Array of ip	iSCSI target portal IP, see **Table 6 Parameter description of targetPortalIP.ip** for details.
targetPortalIP.status	String	Status of the iSCSI target portal: ● Enabled. ● Disabled.

Table 6 Parameter description of targetPortalIP.ip

Name	Type	Description
ip	String	iSCSI target portal IP.
port	Integer	iSCSI target portal port.

Sample Request

Migrate target01.

```
PUT /rest/v1/block/target/target01/migrate?force=true HTTP/1.1
Date: Thu, 4 Jul 2024 03:23:39 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 95
Host: 192.168.0.192:1443

{
"server": [
    {
      "source": "hblock_1",
      "dest": "hblock_2"
    }
    ]
}
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 4e88a225b1114c4ca3f2611e336ac431
Connection: keep-alive
Content-Type: application/json; charset=utf-8
Content-Length: 282
Date: Thu, 4 Jul 2024 03:23:39 GMT
Server: HBlock

{
    "data": {
        "luns": [
            {
                "lunName": "lun01a",
                "iSCSITargets": [
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.1",
                        "status": "Active",
                        "ips": [
                            {
                                "ip": "192.168.0.102",
                                "port": 3260
                            }
                        ]
                    },
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.2",
                        "status": "Unavailable",
                        "ips": [
                            {
                                "ip": "192.168.0.192",
                                "port": 3260
                            }
                        ]
                    }
                ]
            }
        ]
    }
```

Note: LUN associated iSCSI target in the Unavailable status, which means that the iSCSI target

is being migrated from one server to other servers in the cluster. During the migration process, the iSCSI target is in the Unavailable status. After the migration is completed, iSCSI target will change to Active or Standby status.

4.7.4 Edit Maximum Sessions Number Per IQN Under iSCSI Target

This operation is used to edit the maximum number of sessions allowed to be established for each IQN under the iSCSI target.

Request Syntax

```
PUT /rest/v1/block/target/targetName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
   "maxSessions": value
}
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
maxSessions	Integer	The maximum number of sessions allowed to be established per IQN under the iSCSI target. Value: The value is an integer that ranges from 0 to 1024, the default value is 1. 0 means the client cannot discover the target. **Note**: ● It is recommended to change it to a number larger than the number of existing sessions, because if it is changed to a number smaller than the number of existing sessions, it may cause the existing client connection to be disconnected and the connection cannot be established again. ● If multiple clients are connected to the same target IQN, they can read at the same time, but cannot write at the same time.	No

Sample Request

Edit the maximum number of sessions allowed for each IQN under target06 to 11.

```
PUT /rest/v1/block/target/target06 HTTP/1.1
Date: Thu, 28 Sep 2023 07:53:46 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 28
Host: 192.168.0.117:1443

{
   "maxSessions": 11
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: a0a69bafb19a4371a978fc4bcfee48ac
Connection: keep-alive
Date: Thu, 28 Sep 2023 07:53:46 GMT
Server: HBlock
```

4.7.5 Modify the Remain Policy of the iSCSI Target

This operation is used to modify the remain policy of the iSCSI target.

Request Syntax

```
PUT /rest/v1/block/target/targetName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
  "reclaimPolicy": reclaimPolicy
}
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
reclaimPolicy	String	Specifies the remain policy of the iSCSI target. Value: ● Delete: The iSCSI target is automatically deleted when all associated LUNs are deleted. ● Retain: The iSCSI target remains retained when all associated LUNs are deleted.	No

Sample Request

Modify the remain policy of target01 to Delete.

```
PUT /rest/v1/block/target/target01 HTTP/1.1
Date: Thu, 28 Nov 2024 09:09:51 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 34
Host: 192.168.0.117:1443

{
```

```
    "reclaimPolicy": "Delete"
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 304414616c994deabd10e3a39cc3802b
Connection: keep-alive
Date: Thu, 28 Nov 2024 09:09:51 GMT
Server: HBlock
```

4.7.6 Set iSCSI Target AllowList

This operation is used to set iSCSI target allowlist.
Note: Only iSCSI targets that are not associated with any LUNs can be deleted.

Request Syntax

```
PUT /rest/v1/block/target/targetName/allowlist HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "iqns": [iqn,iqn,...],
    "action": action,
    "initiator": [
        {
            "IPs": [ip,ip,...],
            "names": [name,name,...]
        },
        {
            "IPs": [ip,ip,...],
            "names": [name,name,...]
        },
        ......
    ],
    "target": [
            {
            "IPs": [ip,ip,...],
            "NICs": [NIC,NIC,...]
        },
        {
            "IPs": [ip,ip,...],
            "NICs": [NIC,NIC,...]
        },
        ......
    ]
}
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
iqn	Array of string	Specifies the target IQN name. If an IQN is specified, the access rule applies only to that IQN; if omitted, the rule is applied to every IQN under the target.	No
action	String	Set access permissions for the iSCSI target. Value: ● add: Add to the allowlist. ● delete: Delete the allowlist. ● replace: Replace the existing allowlist.	Yes
initiator	Array of initiator	Set the iSCSI initiator allowlist for every IQN under the target. You can define several allowlists, the relationship among them is logical **OR**. Within one allowlist you may simultaneously specify both IP address and initiator name; these two conditions are combined with logical **AND**. See **Table 1 Parameter description of initiator** for details. **Note**: ● Setting `"initiator":[ ]` prevents the target from being discovered by any client. ● At least one entry must be provided for either `initiator` or `target`.	No
target	Array of target	Set the target allowlist for every IQN under the target. You can define several allowlists, the relationship among them is logical **OR**. Within one allowlist you may simultaneously specify both IP address and NIC name; these two conditions are combined with logical **AND**. See **Table 2 Parameter description of target** for details. **Note**: ● Setting `"target":[ ]` prevents the target from being discovered by any client. ● At least one entry must be provided for either	No

		`initiator` or `target`.	

Table 1 Parameter description of initiator

Parameter	Type	Description	Required
IPs	Array of ip	Set the allowlist for iSCSI initiators based on their IP addresses. Value: IPv4, IPv6, or CIDR subnets. Multiple entries can be configured and must be separated by commas. If `"IPs":[]` is specified, all initiator access is denied. **Note**: 'localhost' addresses are not permitted.	No
names	Array of name	Set the allowlist for iSCSI initiators based on their names. Value: The value is a string of 1 to 223 case-sensitive characters. It can only contain letters, digits, dots (.), colons (:), or hyphens (-). Wildcards * and ? are supported. Multiple entries can be configured and must be separated by commas. If `"names":[]` is specified, all initiator access is denied.	No

Table 2 Parameter description of target

Parameter	Type	Description	Required
IPs	Array of ip	Set the allowlist for targets based on their IP addresses. Value: IPv4, IPv6, or CIDR subnets. Multiple entries can be configured and must be separated by commas. If `"IPs":[]` is specified, all target access is denied. **Note**: 'localhost' addresses are not permitted.	No
NICs	Array of NIC	Set the allowlist for targets based on their NICs. Value: The value is a string of 1 to 100 characters. It can contain letters, digits, dots (.), hyphens (-), or underscores (_). Wildcards * and ? are supported. Multiple entries can be configured and must be separated by commas. If `"NICs":[]` is specified, all target access is denied.	No

Sample Request

Add an allowlist for target07.

```
PUT /rest/v1/block/target/target07/allowlist HTTP/1.1
Date: Mon, 18 Aug 2025 03:03:52 GMT
```

```
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 636
Host: 192.168.0.64:1443

{
    "action": "add",
    "initiator": [
        {
            "IPs": [
                "192.168.0.70"
            ],
            "names": [
                "iqn.1991-05.com.microsoft:songt-0001"
            ]
        },
        {
            "IPs": [
                "192.168.0.66"
            ]
        }
    ],
    "target": [
        {
            "IPs": [
                "192.168.0.64",
                "192.168.0.67"
            ]
        },
        {
            "IPs": [
                "192.168.0.65"
            ],
            "NICs": [
                "eth0"
            ]
        }
    ]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: db9d71cdd4c342ea895cd71efe66482a
Connection: keep-alive
Date: Mon, 18 Aug 2025 03:03:52 GMT
Server: HBlock
```

4.7.7 Delete an iSCSI Target Allowlist

This operation is used to delete the iSCSI target allowlist.

Request Syntax

```
DELETE /rest/v1/block/target/targetName/allowlist HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "iqns": [iqn,iqn,...]
}
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
iqn	Array of string	Specifies the target IQN name. If a target IQN is specified, the allowlist for that IQN is deleted; if no IQN is specified, the allowlists for all IQNs under the target are deleted.	No

Sample Request

Delete the allowlist for iqn.2012-08.cn.ctyunapi.oos:target07.13 under target07.

```
DELETE /rest/v1/block/target/target07/allowlist HTTP/1.1
Date: Thu, 24 Jul 2025 08:09:58 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 77
Host: 192.168.0.64:1443
{
    "iqns": [
        "iqn.2012-08.cn.ctyunapi.oos:target07.13"
```

```
    ]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 273048935a3e4f10a1a3a07a1e54bbdb
Connection: keep-alive
Date: Thu, 24 Jul 2025 08:09:58 GMT
Server: HBlock
```

4.7.8 Delete an iSCSI Target

This operation is used to delete the specified iSCSI target.

Note: Only iSCSI targets that are not associated with any LUNs can be deleted.

Request Syntax

```
DELETE /rest/v1/block/target/targetName HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes

Sample Request

Delete the target named target2.

```
DELETE /rest/v1/block/target/target2 HTTP/1.1
Date: Wed, 16 Mar 2022 01:40:22 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: c9ca51dddbbd4cafa077fa86180a8e51
Connection: keep-alive
Date: Wed, 16 Mar 2022 01:40:22 GMT
Server: HBlock
```

4.7.9 Delete CHAP

This operation is used to delete the CHAP name and password.

Request Syntax

```
DELETE /rest/v1/block/target/targetName/chap HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	iSCSI target name. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes

Sample Request

Delete the CHAP name and password for target2.

```
DELETE /rest/v1/block/target/target2/chap HTTP/1.1
Date: Wed, 16 Mar 2022 01:25:42 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: aa3fa33cdeba42ffa888392f92500772
Connection: keep-alive
Date: Wed, 16 Mar 2022 01:25:43 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

4.7.10 Query iSCSI Targets in Batches

This operation is used to query iSCSI targets in batches.

Request Syntax

```
GET /rest/v1/block/target?filter=filter&range=i-j HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● lunName: The LUN name associated with the iSCSI target. ● targetName: iSCSI target name. ● iqn: iSCSI target IQN.	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the target names and returns the i-th to j-th targets. If the range exceeds the total number of targets, the returned result is empty. If the range is not specified, all targets that meet the conditions are returned.	No

Response Elements

Name	Type	Description
targets	Array of target	A collection of target information, see **Table 1 Parameter description of target** for details.

Table 1 Parameter description of target

Name	Type	Description
targetName	String	iSCSI target name.
maxSessions	Integer	The maximum number of sessions allowed to be established per IQN under the iSCSI target.
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties, see **Table 2 Parameter description of iSCSITarget** for details.
chap.name	String	CHAP authentication name.
chap.status	String	CHAP authentication status: ● Enabled. ● Disabled.
createTime	Long	The creation time of the iSCSI target. Unix timestamp (UTC), accurate to milliseconds.
serverIds	Array of string	The server ID corresponding to the iSCSI target (only supported by cluster mode).
num	Integer	The number of servers where target is located (only supported by the Cluster Mode).
reclaimPolicy	String	The reclaim policy of the iSCSI target: ● Delete: The iSCSI target is automatically deleted when all associated LUNs are deleted. ● Retain: The iSCSI target remains retained when all associated LUNs are deleted.
status	String	The status of the iSCSI target: ● Deleting: The iSCSI target is being deleted. This item is returned only when the iSCSI target is in the process of being deleted.

Table 2 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	iSCSI target IQN.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 3 Parameter description of ip** for details.
targetPortalIP	Object	A collection of portal attributes of an iSCSI target, see **Table 4 Parameter description of targetPortalIP** for details.
serverId	String	Server ID corresponding to the iSCSI target IQN.
allowlist.initiator	Array of initiator	The iSCSI initiator allowlist. See **Table 6 Parameter description of initiator** for details.
allowlist.target	Array of target	The target allowlist. See **Table 7 Parameter description of target** for details.

Table 3 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Table 4 Parameter description of targetPortalIP

Name	Type	Description
ips	Array of ip	A collection of portal attributes of an iSCSI target, see **Table 5 Parameter description of targetPortalIP.ip** for details.
status	String	Status of the iSCSI target portal: ● Enabled. ● Disabled. If not configured, this item will not be returned.

Table 5 Parameter description of targetPortalIP.ip

Name	Type	Description
ip	String	iSCSI target portal IP.
port	Integer	iSCSI target portal port.

Table 6 Parameter description of initiator

Parameter	Type	Description
IPs	Array of ip	The allowlist for iSCSI initiators based on their IP addresses.
names	Array of name	The allowlist for iSCSI initiators based on their names.

Table 7 Parameter description of target

Parameter	Type	Description
IPs	Array of ip	The allowlist for targets based on their IP addresses.
NICs	Array of NIC	The allowlist for targets based on their NICs.

Sample Request 1

Standalone Mode: Query the iSCSI target whose iSCSI target name contains target and the associated LUN name contains lun, and only the query results from 1 to 3 are listed.

```
GET /rest/v1/block/target?filter=targetName:target and lunName:lun&range=1-3 HTTP/1.1
Date: Thu, 24 Jul 2025 08:16:12 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
```

```
x-hblock-request-id: c5271562a56f4805a9ce2f39214953ab
Connection: keep-alive
Content-Length: 874
Date: Thu, 24 Jul 2025 08:16:12 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "targets": [
            {
                "targetName": "targeta",
                "maxSessions": 3,
                "iSCSItargets": [
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.1",
                        "ips": [
                            {
                                "ip": "192.168.0.66",
                                "port": 3260
                            }
                        ],
                        "serverId": "hblock_1",
                        "allowlist": {
                            "initiator": [
                                {
                                    "IPs": [
                                        "192.168.0.68"
                                    ]
                                },
                                {
                                    "IPs": [
                                        "192.168.0.70"
                                    ]
                                }
                            ],
                            "target": [
                                {
                                    "IPs": [
                                        "192.168.0.66"
                                    ]
```

```
                        }
                    ]
                }
            }
        ],
        "chap": {
            "name": "chanptest",
            "status": "Disabled"
        },
        "createTime": 1753172337443,
        "num": 1,
        "reclaimPolicy": "Delete"
    },
    {
        "targetName": "targetb",
        "maxSessions": 1,
        "iSCSItargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targetb.2",
                "ips": [
                    {
                        "ip": "192.168.0.66",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1"
            }
        ],
        "createTime": 1753237554317,
        "num": 1,
        "reclaimPolicy": "Delete"
    },
    {
        "targetName": "targete",
        "maxSessions": 1,
        "iSCSItargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targete.3",
                "ips": [
                    {
                        "ip": "192.168.0.66",
```

```
                                "port": 3260
                            }
                        ],
                        "serverId": "hblock_1"
                    }
                ],
                "createTime": 1753324422341,
                "num": 1,
                "reclaimPolicy": "Retain"
            }
        ]
    }
}
```

Sample Request 2

Cluster Mode: Query the iSCSI target whose iSCSI target name contains target0 and the associated LUN name contains lun0, and only the query results from 1 to 3 are listed.

```
GET /rest/v1/block/target?filter=targetName:target0 and lunName:lun0&range=1-3 HTTP/1.1
Date: Thu, 24 Jul 2025 08:24:26 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: d820500731e04a03a2477fb09e2fd3fe
Connection: keep-alive
Content-Length: 1942
Date: Thu, 24 Jul 2025 08:24:26 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "targets": [
            {
                "targetName": "target0",
                "maxSessions": 1,
                "iSCSItargets": [
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target0.1",
```

```
                    "ips": [
                        {
                            "ip": "192.168.0.67",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_3",
                    "allowlist": {
                        "initiator": [
                            {
                                "IPs": [
                                    "1.1.1.1"
                                ]
                            }
                        ]
                    }
                },
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target0.2",
                    "ips": [
                        {
                            "ip": "192.168.0.64",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_2",
                    "allowlist": {
                        "initiator": [
                            {
                                "IPs": [
                                    "1.1.1.1"
                                ]
                            }
                        ]
                    }
                }
            ],
            "createTime": 1752111608672,
            "serverIds": [
                "hblock_2",
                "hblock_3"
```

```
            ],
            "num": 2,
            "reclaimPolicy": "Delete"
        },
        {
            "targetName": "target01",
            "maxSessions": 1,
            "iSCSItargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.3",
                    "ips": [
                        {
                            "ip": "192.168.0.65",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_1"
                },
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.4",
                    "ips": [
                        {
                            "ip": "192.168.0.67",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_3",
                    "allowlist": {
                        "target": [
                            {
                                "IPs": [
                                    "192.168.0.67"
                                ]
                            }
                        ]
                    }
                }
            ],
            "createTime": 1752111636790,
            "serverIds": [
                "hblock_1",
```

```
                "hblock_3"
            ],
            "num": 2,
            "reclaimPolicy": "Delete"
        },
        {
            "targetName": "target03",
            "maxSessions": 2,
            "iSCSItargets": [
                {
                    "iqn": "iqn.2012-08.cn.ctyunapi.oos:target03.5",
                    "ips": [
                        {
                            "ip": "192.168.0.67",
                            "port": 3260
                        }
                    ],
                    "serverId": "hblock_3",
                    "allowlist": {
                        "initiator": [
                            {
                                "names": [
                                    "iqn.1991-05.com.microsoft:songt-0001"
                                ],
                                "IPs": [
                                    "192.168.0.70"
                                ]
                            },
                            {
                                "IPs": [
                                    "192.168.0.66"
                                ]
                            }
                        ],
                        "target": [
                            {
                                "IPs": [
                                    "192.168.0.64"
                                ]
                            },
                            {
```

```
                        "IPs": [
                            "192.168.0.65"
                        ]
                    },
                    {
                        "IPs": [
                            "192.168.0.67"
                        ]
                    },
                    {
                        "IPs": [
                            "192.168.0.64",
                            "192.168.0.65",
                            "192.168.0.67"
                        ]
                    },
                    {
                        "IPs": [
                            "192.168.0.71"
                        ]
                    }
                ]
            }
        },
        {
            "iqn": "iqn.2012-08.cn.ctyunapi.oos:target03.6",
            "ips": [
                {
                    "ip": "192.168.0.65",
                    "port": 3260
                }
            ],
            "serverId": "hblock_1",
            "allowlist": {
                "initiator": [
                    {
                        "names": [
                            "iqn.1991-05.com.microsoft:songt-0001"
                        ],
                        "IPs": [
                            "192.168.0.70"
```

```
                                ]
                            },
                            {
                                "IPs": [
                                    "192.168.0.66"
                                ]
                            }
                        ],
                        "target": [
                            {
                                "IPs": [
                                    "192.168.0.64"
                                ]
                            },
                            {
                                "IPs": [
                                    "192.168.0.65"
                                ]
                            },
                            {
                                "IPs": [
                                    "192.168.0.67"
                                ]
                            },
                            {
                                "IPs": [
                                    "192.168.0.64",
                                    "192.168.0.65",
                                    "192.168.0.67"
                                ]
                            },
                            {
                                "IPs": [
                                    "192.168.0.71"
                                ]
                            }
                        ]
                    }
                }
            ],
            "chap": {
```

```
                    "name": "chap-test",
                    "status": "Disabled"
                },
                "createTime": 1752111720420,
                "serverIds": [
                    "hblock_1",
                    "hblock_3"
                ],
                "num": 2,
                "reclaimPolicy": "Delete"
            }
        ]
    }
}
```

4.7.11 Query a Specified iSCSI Target

This operation is used to query a Specified iSCSI target.

Request Syntax

```
GET /rest/v1/block/target/targetName HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	Specifies the iSCSI target name. **Note**: If this item is not filled in, all target information will be returned. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	No

Response Elements

Name	Type	Description
targetName	String	iSCSI target name.
maxSessions	Integer	The maximum number of sessions allowed to be established per IQN under the iSCSI target.
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties, see **Table 1 Parameter description of iSCSITarget** for details.
luns	Array of lun	A collection of properties of the associated LUN, see **Table 7 Parameter description of lun** for details.
chap.name	String	The client CHAP authentication name.
chap.status	String	CHAP authentication status: ● Enabled. ● Disabled.
createTime	Long	The creation time of the iSCSI target. Unix timestamp (UTC), accurate to milliseconds.
serverIds	Array of string	Server ID corresponding to the iSCSI target, only supported by cluster mode.
num	Integer	The number of servers where target is located, only supported by cluster mode.
reclaimPolicy	String	The reclaim policy of the iSCSI target:

		● Delete: The iSCSI target is automatically deleted when all associated LUNs are deleted. ● Retain: The iSCSI target remains retained when all associated LUNs are deleted.
status	String	The status of the iSCSI target: ● Deleting: The iSCSI target is being deleted. This item is returned only when the iSCSI target is in the process of being deleted.

Table 1 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	iSCSI target IQN.
ips	Array of ip	A collection of IP attributes of an iSCSI target, see **Table 2 Parameter description of ip** for details.
targetPortalIP	Object	A collection of portal attributes of an iSCSI target, see **Table 3 Parameter description of targetPortalIP** for details.
serverId	String	Server ID corresponding to the iSCSI target IQN.
allowlist.initiator	Array of initiator	The iSCSI initiator allowlist. See **Table 5 Parameter description of initiator** for details.
allowlist.target	Array of target	The target allowlist. See **Table 6 Parameter description of target** for details.

Table 2 Parameter description of ip

Name	Type	Description
ip	String	iSCSI target IP.
port	Integer	iSCSI target port.

Table 3 Parameter description of targetPortalIP

Name	Type	Description
ips	Array of ip	A collection of portal attributes of an iSCSI target, see **Table 4 Parameter description of targetPortalIP.ip** for details.
status	String	Status of the iSCSI target portal: ● Enabled. ● Disabled. If not configured, this item will not be returned.

Table 4 Parameter description of targetPortalIP.ip

Name	Type	Description
ip	String	iSCSI target portal IP.

port	Integer	iSCSI target portal port.

Table 5 Parameter description of initiator

Parameter	Type	Description
IPs	Array of ip	The allowlist for iSCSI initiators based on their IP addresses.
names	Array of name	The allowlist for iSCSI initiators based on their names.

Table 6 Parameter description of target

Parameter	Type	Description
IPs	Array of ip	The allowlist for targets based on their IP addresses.
NICs	Array of NIC	The allowlist for targets based on their NICs.

Table 7 Parameter description of lun

Name	Type	Description
lunName	String	LUN name.
number	Integer	LUN number.

Sample Request 1

Standalone Mode: Query information about the iSCSI target named targeta.

```
GET /rest/v1/block/target/targeta HTTP/1.1
Date: Mon, 08 Sep 2025 01:29:15 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.32:1443
Connection: keep-alive
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: e66f2a16825240009d3de70b158ad161
Connection: keep-alive
Content-Length: 478
Date: Mon, 08 Sep 2025 01:29:15 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "targetName": "targeta",
        "maxSessions": 3,
        "iSCSITargets": [
            {
```

```
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:targeta.1",
                "ips": [
                    {
                        "ip": "192.168.0.66",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_1",
                "allowlist": {
                    "initiator": [
                        {
                            "names": [
                                "iqn.1994-05.com.redhat:c73bf5e45bd4"
                            ],
                            "IPs": [
                                "192.168.0.68"
                            ]
                        },
                        {
                            "IPs": [
                                "192.168.0.70"
                            ]
                        }
                    ],
                    "target": [
                        {
                            "IPs": [
                                "192.168.0.66"
                            ]
                        }
                    ]
                }
            }
        ],
        "luns": [
            {
                "lunName": "luna1",
                "number": 0
            },
            {
                "lunName": "luna1-clone1",
```

```
                "number": 1
            }
        ],
        "createTime": 1754375366254,
        "num": 1,
        "reclaimPolicy": "Delete"
    }
}
```

Sample Request 2

Cluster Mode: Query information about the iSCSI target named target03.

```
GET /rest/v1/block/target/target03 HTTP/1.1
Date: Thu, 24 Jul 2025 08:36:15 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
Connection: keep-alive
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: b859187a66164328b538bc421c2861da
Connection: keep-alive
Content-Length: 1096
Date: Thu, 24 Jul 2025 08:36:15 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "targetName": "target03",
        "maxSessions": 2,
        "iSCSItargets": [
            {
                "iqn": "iqn.2012-08.cn.ctyunapi.oos:target03.5",
                "ips": [
                    {
                        "ip": "192.168.0.67",
                        "port": 3260
                    }
                ],
                "serverId": "hblock_3",
```

```
                "allowlist": {
                    "initiator": [
                        {
                            "names": [
                                "iqn.1991-05.com.microsoft:songt-0001"
                            ],
                            "IPs": [
                                "192.168.0.70"
                            ]
                        },
                        {
                            "IPs": [
                                "192.168.0.66"
                            ]
                        }
                    ],
                    "target": [
                        {
                            "IPs": [
                                "192.168.0.64"
                            ]
                        },
                        {
                            "IPs": [
                                "192.168.0.65"
                            ]
                        },
                        {
                            "IPs": [
                                "192.168.0.67"
                            ]
                        },
                        {
                            "IPs": [
                                "192.168.0.64",
                                "192.168.0.65",
                                "192.168.0.67"
                            ]
                        },
                        {
                            "IPs": [
```

```
                        "192.168.0.71"
                    ]
                }
            ]
        }
    },
    {
        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target03.6",
        "ips": [
            {
                "ip": "192.168.0.65",
                "port": 3260
            }
        ],
        "serverId": "hblock_1",
        "allowlist": {
            "initiator": [
                {
                    "names": [
                        "iqn.1991-05.com.microsoft:songt-0001"
                    ],
                    "IPs": [
                        "192.168.0.70"
                    ]
                },
                {
                    "IPs": [
                        "192.168.0.66"
                    ]
                }
            ],
            "target": [
                {
                    "IPs": [
                        "192.168.0.64"
                    ]
                },
                {
                    "IPs": [
                        "192.168.0.65"
                    ]
```

```
                    },
                    {
                        "IPs": [
                            "192.168.0.67"
                        ]
                    },
                    {
                        "IPs": [
                            "192.168.0.64",
                            "192.168.0.65",
                            "192.168.0.67"
                        ]
                    },
                    {
                        "IPs": [
                            "192.168.0.71"
                        ]
                    }
                ]
            }
        }
    ],
    "luns": [
        {
            "lunName": "lun03a",
            "number": 0
        },
        {
            "lunName": "lun03b",
            "number": 1
        }
    ],
    "chap": {
        "name": "chap-test",
        "status": "Disabled"
    },
    "createTime": 1752111720420,
    "serverIds": [
        "hblock_1",
        "hblock_3"
    ],
```

```
        "num": 2,
        "reclaimPolicy": "Delete"
    }
}
```

4.7.12 Query iSCSI Target Connection

This operation is used to query the connection information of iSCSI target.

Request Syntax

```
GET /rest/v1/block/connection/?filter=filter&range=i-j HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● targetName: iSCSI target name.	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the target names and returns the i-th to j-th target connections. If the range exceeds the total number of target connections, the returned result is empty. If the range is not specified, all target connections that meet the conditions are returned.	No

Response Elements

Name	Type	Description
connections	Array of connection	A collection of connection information, see **Table 1 Parameter description of connection** for details.

Table 1 Parameter description of connection

Name	Type	Description
targetName	String	iSCSI target name.
targetConnections	Array of	A collection of iSCSI target connection information, ,

	targetConnection	see **Table 2 Parameter description of targetConnection** for details.

Table 2 Parameter description of targetConnection

Name	Type	Description
iqn	String	iSCSI target IQN.
targetIP	String	Server IP.
establishedSessions	Integer	Number of sessions.
sessionDetails	Array of sessionDetail	A collection of session information, see **Table 3 Parameter description of sessionDetail** for details.

Table 3 Parameter description of sessionDetail

Name	Type	Description
sessionId	String	Session ID.
clientIP	String	The Client's IP.
clientPort	Integer	The Client's port number.
initiatorName	String	The name of the initiator to which the connection belongs.

Sample Request

Query the connection to the iSCSI target named "target01".

```
GET /rest/v1/block/connection/?filter=targetName::target01 HTTP/1.1
Date: Fri, 27 Mar 2026 08:57:09 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host:192.168.0.65:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 631a52fa43544b2bbdbba088f9d5f645
Connection: keep-alive
Content-Length: 678
Date: Fri, 27 Mar 2026 08:57:09 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "connections": [
            {
```

```
                "targetName": "target01",
                "targetConnections": [
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.5",
                        "targetIP": "192.168.0.65",
                        "establishedSessions": 1,
                        "sessionDetails": [
                            {
                                "sessionId": "0xf159",
                                "clientIP": "192.168.0.69",
                                "clientPort": 59169,
                                "initiatorName": "iqn.1991-05.com.microsoft:songt-0008"
                            }
                        ]
                    },
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target01.6",
                        "targetIP": "192.168.0.64",
                        "establishedSessions": 2,
                        "sessionDetails": [
                            {
                                "sessionId": "0x12f",
                                "clientIP": "192.168.0.70",
                                "clientPort": 54870,
                                "initiatorName": "iqn.1991-05.com.microsoft:songt-0001"
                            },
                            {
                                "sessionId": "0xffe9",
                                "clientIP": "192.168.0.69",
                                "clientPort": 59170,
                                "initiatorName": "iqn.1991-05.com.microsoft:songt-0008"
                            }
                        ]
                    }
                ]
            }
        ]
    }
}
```

4.7.13 Delete iSCSI Target Connection

This operation is used to delete the iSCSI target connection.

Request Syntax

```
DELETE /rest/v1/block/connection/targetName?initiatorName=initiatorName&targetIP=targetIP
HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
targetName	String	The name of the iSCSI target to which the deleted connection belongs. Value: The value is a string of 1 to 16 case-sensitive characters. It can only contain lowercase letters, dots (.), digits, or hyphens (-). Only supports starting with a letter or a digit.	Yes
initiatorName	String	The name of the initiator to which the deleted connection belongs. Value: ● If the client is Windows operating system, *ISCSI_INITIATOR_NAME* is the "Initiator Name" in `Configuration of iSCSI Initiator Properties`. ● If the client is Linux operating system, *ISCSI_INITIATOR_NAME* is the "InitiatorName" acquired by running command **`cat /etc/iscsi/initiatorname.iscsi`**.	No
targetIP	String	The iSCSI target IP corresponding to the connection is to be deleted.	No

Sample Request

Delete the connection whose iSCSI target name is target02, initiator name is iqn.1991-05.com.microsoft:ecs-28f3, and targetIP is 192.168.0.72.

```
DELETE /rest/v1/block/connection/target02?initiatorName=iqn.1991-05.com.microsoft:ecs-
28f3&targetIP=192.168.0.72 HTTP/1.1
Date: Wed, 16 Mar 2022 03:24:59 GMT
Host: 192.168.0.121:1443
```

```
Authorization: HBlock userName:signature
```

Sample Response

```
HTTP/1.1 204 No Content
Date: Wed, 16 Mar 2022 03:24:59 GMT
Connection: keep-alive
Content-Type: application/json; charset=utf-8
x-hblock-request-id: acec0eaf2909485992e90032ce587604
Server: HBlock
```

4.7.14 Error Code List

HTTP status	Error Code	Error Message
400	CanNotMigrateTarget	The target is not available to migrate.
400	ExceedThreshold	The number of *operation* cannot exceed *value*.
400	InsufficientServers	This method is not allowed because the number of available servers in the cluster is not enough.
400	InvalidArgumentConsist	Value *value* at *argument* failed to satisfy the constraint: Argument must contain *Format*.
400	InvalidArgumentFormat	Value *value* at '*argument*' failed to satisfy constraint: Argument must conform to *Format* format.
400	InvalidCHAPName	Value *value* at 'chap name' failed to satisfy constraint: Argument can contain letters, digits, dots (.), colons (:), underscores (_) or hyphens (-), and the length is between 3 and 64, must begin with a letter or digit.
400	InvalidCHAPPassword	Value *value* at 'password' failed to satisfy constraint: Argument must contain at least 2 of the following: uppercase letters, lowercase letters, digits, underscores (_), and the length is between 12 and 16.
400	InvalidFile	Failed to parse file *filename*.
400	InvalidString	Value '' at '*argument*' failed to satisfy constraint: Argument must not be an empty string.
400	InvalidTargetDest	Invalid target destination server *server_ID*.
400	InvalidTargetName	Value *value* at 'target name' failed to satisfy constraint: Argument must contain only lowercase letters, digits, dots (.) or hyphens (-), and does not exceed 16 characters, must begin with a letter or digit.
400	InvalidTargetSource	Invalid target source server *server_ID*.
400	LessThanMinValue	Value *value* at 'number' failed to satisfy constraint: Argument must be greater than or equal to *value*.
400	MigrateTargetForcibly	Force migrate should be used when migrating a target. When using this option, there may be a risk of data loss.
400	MissingAtLeastOneArgument	Missing argument, at least one argument in '*argument1*, *argument2*, *argument3* ...' is needed.
400	MissingCHAPName	Value null at 'chap name' failed to satisfy constraint: Argument must not be null when CHAP is enabled.
400	MissingCHAPPassword	Value null at 'password' failed to satisfy constraint: Argument must not be null when CHAP is enabled.
400	MissingTargetSourceOrDest	Target source and destination server ID must not be null.

400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
400	TooManyServers	The number of servers cannot exceed *value*.
400	TooManyTargets	The number of target IQNs cannot exceed 32766.
400	TooManyTargets	The number of target IQNs cannot exceed 1.
404	NoSuchCHAP	The target with name *name* has no CHAP.
404	NoSuchConnection	The connection does not exist.
404	NoSuchIQN	The IQN with name *IQNName* does not exist.
404	NoSuchTarget	The target with name *targetName* does not exist.
404	NoSuchTargetIP	The target with IP *targetIP* does not exist.
409	ConflictWithTargetMigrating	Failed to *operation* because the target *targetName* is migrating.
409	ConnectionExists	There are connections on target *targetName*. Please disconnect the connections and try again.
409	InvalidServerStatus	The server *serverId* status is '*status*', the request is invalid.
409	InvalidStorStatus	The HBlock status is '*status*', the request is invalid.
409	InvalidTargetStatus	The target status is '*status*', the request is invalid.
409	LUNExists	There are LUNs in this target. Please delete all LUNs and try again.
409	TargetAlreadyExists	The target with name *targetName* already exists.

4.8 Storage Pool (Cluster Mode)

4.8.1 Create a Storage Pool

This operation is used to create a non-base storage pool.

Note: A maximum of 32768 storage pools can be created in an HBlock cluster.

Request Syntax

```
POST /rest/v1/system/storagepool HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "poolName": poolName,
    "faultDomain": faultDomain,
    "description": description,
    "qosPolicy": {
        "qosName": qosName,
        "IOPS": IOPS,
        "readIOPS": readIOPS,
        "writeIOPS": writeIOPS,
        "Bps": Bps,
        "readBps": readBps,
        "writeBps": writeBps,
        "IOPSBurst": IOPSBurst,
        "readIOPSBurst": readIOPSBurst,
        "writeIOPSBurst": writeIOPSBurst,
        "BpsBurst": BpsBurst,
        "readBpsBurst": readBpsBurst,
        "writeBpsBurst": writeBpsBurst,
        "IOPSBurstSecs": IOPSBurstSecs,
        "readIOPSBurstSecs": readIOPSBurstSecs,
        "writeIOPSBurstSecs": writeIOPSBurstSecs,
        "BpsBurstSecs": BpsBurstSecs,
        "readBpsBurstSecs": readBpsBurstSecs,
        "writeBpsBurstSecs": writeBpsBurstSecs
```

```
    }
}
```

Request Parameters

Parameter	Type	Description	Required
poolName	String	Specifies the name of a storage pool. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes
faultDomain	String	Specifies the fault domain level of the storage pool. Value: ● path: disk path level. ● server: server level. ● rack: rack level. ● room: room level. The default value is server.	No
description	String	The description for the storage pool. Value: The value is a string of 1 to 50 characters.	No
qosPolicy	Object	QoS policy information associated with the LUN , see **Table 1 Parameter description of qosPolicy** for details.	

Table 1 Parameter description of qosPolicy

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy. **Note**: If the specified QoS policy name does not exist when creating a storage pool, the QoS policy will be created at the same time, the reclaim policy of the QoS policy is Delete. Value: The value is a string of 1 to 64 case-sensitive characters. It can contain letters, digits, and hyphens (-). Only supports starting with a letter or a digit. **Note**: ● If `qosName` is not specified but any IOPS/Bps parameter is set, a new QoS policy is automatically created based on the specified IOPS/Bps. The system assigns the policy name in the format: pool-*poolname*-qos-*timestamp*.	No

		• If qosName is specified and any IOPS/Bps parameter is set, qosName must be unique and cannot match any existing QoS policy. • If qosName is specified and no IOPS/Bps parameter is set, qosName must be the name of an existing QoS policy.	
IOPS	Long	Specifies the limit of I/O operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
readIOPS	Long	Specifies the limit of read operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
writeIOPS	Long	Specifies the limit of write operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
Bps	Long	Specifies the limit of I/O throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
readBps	Long	Specifies the limit of read throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
writeBps	Long	Specifies the limit of write throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
IOPSBurst	Long	Specifies the burst limit of I/O operations per second. Value: This setting only takes effect when IOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*IOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
readIOPSBurst	Long	Specifies the burst limit of read operations per second. Value: This setting only takes effect when	No

		readIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readIOPS*, 999,999,999]. The default value is –1, indicating no limit.	
writeIOPSBurst	Long	Specifies the burst limit of write operations per second. Value: This setting only takes effect when writeIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeIOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
BpsBurst	Long	Specifies the burst limit of I/O throughput per second. Value: This setting only takes effect when Bps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*Bps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
readBpsBurst	Long	Specifies the burst limit of read throughput per second. Value: This setting only takes effect when readBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
writeBpsBurst	Long	Specifies the burst limit of write throughput per second. Value: This setting only takes effect when writeBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
IOPSBurstSecs	Long	Specifies the duration of I/O operations with burst limit. **Note**: This setting is only effective when the IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readIOPSBurstSecs	Long	Specifies the duration of read operations with	No

		burst limit. **Note**: This setting is only effective when the read IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	
writeIOPSBurstSecs	Long	Specifies the duration of write operations with burst limit. **Note**: This setting is only effective when the write IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
BpsBurstSecs	Long	Specifies the duration of I/O throughput with burst limit. **Note**: This setting is only effective when the Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readBpsBurstSecs	Long	Specifies the duration of read throughput with burst limit. **Note**: This setting is only effective when the read Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeBpsBurstSecs	Long	Specifies the duration of write throughput with burst limit. **Note**: This setting is only effective when the write Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No

Sample Request

Create a storage pool named pool4.

```
POST /rest/v1/system/storagepool HTTP/1.1
Date: Thu, 21 Aug 2025 01:53:15 GMT
Content-Type: application/json; charset=utf-8
```

```
Authorization: HBlock userName:signature
Content-Length: 159
Host: 192.168.0.65:1443

{
    "poolName": "pool4",
    "faultDomain": "path",
    "description": "The pool is path level.",
    "qosPolicy": {
        "qosName": "QoS6"
    }
}
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 2a6ccdba8d284dbd8d8aa7aaadc3f050
Connection: keep-alive
Content-Length: 0
Date: Thu, 21 Aug 2025 01:53:15 GMT
Server: HBlock
```

4.8.2 Add Nodes to the Storage Pool

This operation is used to add nodes to a storage pool.

All disk path nodes added during initialization belong to nodes of the base storage pool. If it is necessary to add nodes from the base storage pool to other storage pool, they need to be removed from the base storage pool first.

Note:

- The nodes to add must belong to the cluster topology, and each cluster topology node can be added to only one storage pool.
- When a node at the path level is added, the disk path cannot belong to another storage pool or in removed status. The server to which the disk path belongs cannot be in removed status.
- If the type of the node to add is lower than the level of the fault domain of the storage pool, the ancestor nodes of the node must have a mapping node of the same level as the fault domain of the storage pool. Otherwise, an error message is reported. For example, if the fault domain of the storage pool is rack, for node root:room1:server1, an error occurs when server1 is added to the storage pool.
- If the type of the node to add is higher than the level of the fault domain of the storage pool, the child nodes of the node must have a mapping node of the same level as the fault domain of the storage pool. Otherwise, an error message is reported. For example, if the fault domain of a storage pool is rack and topology node root:room1:server1:path1 exists, an error occurs when room1 is added to the storage pool.

Request Syntax

```
PUT /rest/v1/system/storagepool/poolName/node HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "nodes": [
        node1,
        node2,
        ...
    ]
}
```

Request Parameters

Parameter	Type	Description	Required
poolName	String	Specifies the name of a storage pool. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes
node	Array of String	Specifies the node to be added to the storage pool. The node must belong to the cluster topology. Note: ● If the node to be added has child nodes, any child nodes not yet assigned to a storage pool will be added to the storage pool in a unified manner. ● The node name can be specified using the full path in the cluster topology, in the format of *name*:*name*:*name*, starting from the root node and specifying each level. Alternatively, a partial path can be used, but it must be unique within the cluster topology. For example, if the full path is default:room4:hblock_4, and the node name is unique within the cluster topology, then any of the paths such as default:room4:hblock_4, room4:hblock_4, or hblock_4 can be used to refer to the same node.	Yes

Sample Request

Add node to storage pool named pool4.

```
PUT /rest/v1/system/storagepool/pool4/node HTTP/1.1
Date: Tue, 18 Jun 2024 10:06:09 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 104
Host: 192.168.0.110:1443

{
    "nodes": [
        "hblock_1:/mnt/storage01",
        "rack1:hblock_2:/mnt/storage01"
    ]
```

```
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: bcdb355abb8d481fb17bd2c40affb5bc
Connection: keep-alive
Date: Tue, 18 Jun 2024 08:41:36 GMT
Server: HBlock
```

4.8.3 Modify a Storage Pool

This operation is used to modify the information about a storage pool.

Request Syntax

```
PUT /rest/v1/system/storagepool/poolName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "newName": poolName,
    "description": description
}
```

Request Parameters

Parameter	Type	Description	Required
poolName	String	Specifies the name of a storage pool.	Yes
newName	String	Specifies a new name for the storage pool. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	No
description	String	The description for the storage pool. Value: The value is a string of 1 to 50 characters.	No

Sample Request

Modify the name of storage pool from pool4 to storagepool-4, and modify the description.

```
PUT /rest/v1/system/storagepool/pool4 HTTP/1.1
Date: Wed, 19 Jun 2024 06:02:44 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 90
Host: 192.168.0.110:1443

{
    "newName": "storagepool-4",
    "description": "The storage pool level is path"
```

```
}
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 2a6ccdba8d284dbd8d8aa7aaadc3f050
Connection: keep-alive
Date: Wed, 19 Jun 2024 06:02:44 GMT
Server: HBlock
```

4.8.4 Remove a Node from a Storage Pool

This operation is used to remove a node from a storage pool.

Note:

- If only one fault domain is available in the base storage pool, you cannot remove any node from the fault domain.
- A node involving multiple fault domains of the base storage pool cannot be removed.

Request Syntax

```
DELETE /rest/v1/system/storagepool/poolName/node HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "nodes": [
        node1,
        node2,
        ...
      ] ,
    "force": force,
    "deleteLocalData": deleteLocalData
}
```

Request Parameters

Parameter	Type	Description	Required
poolName	String	Specifies the name of the storage pool from which you want to remove a node. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes
node	String	Specifies the node to be removed from the storage pool. **Note**: You can remove multiple nodes in the same fault domain at a time. Nodes in multiple fault domains cannot be removed at a time.	Yes
force	Boolean	Whether to force removing the node from the storage pool.	No

		Note: Forcibly removing the node from the storage pool may cause data loss. Value: ● true: Force removing the node from the storage pool. ● false: Do not force removing the node from the storage pool. The default value is false.	
deleteLocalData	Boolean	Whether to delete the HBlock data on the node when the node is removing from the storage pool. Value: ● true: Delete the HBlock data on the node when the node is removing from the storage pool. ● false: Do not delete the HBlock data on the node when the node is removing from the storage pool. The default value is false.	No

Sample Request

Remove nodes from storage pool named storagepool-4.

```
DELETE /rest/v1/system/storagepool/storagepool-4/node HTTP/1.1
Date: Wed, 19 Jun 2024 08:06:59 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 111
Host: 192.168.0.110:1443

{
    "nodes": [
        "default:hblock_3:/mnt/stor",
        "default:hblock_3:/mnt/storage01"
    ]
}
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 81f0984208a54271a4a5fdfeed0091e0
Connection: keep-alive
Content-Length: 0
Date: Wed, 19 Jun 2024 08:06:59 GMT
Server: HBlock
```

4.8.5 Delete a Non-base Storage Pool

This operation is used to delete a non-base storage pool.

Note:

- You cannot delete a base storage pool.
- A storage pool containing LUNs cannot be deleted.
- After a storage pool is deleted, the topology nodes in the storage pool do not belong to any storage pool, but remain in the cluster topology.

Request Syntax

```
DELETE /rest/v1/system/storagepool/poolName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
poolName	String	Specifies the name of the storage pool to be deleted. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes

Sample Request

Delete storage pool named storagepool-4.

```
DELETE /rest/v1/system/storagepool/storagepool-4 HTTP/1.1
Date: Wed, 19 Jun 2024 08:23:16 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.110:1443
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: Wed, 19 Jun 2024 08:23:16 GMT
Connection: keep-alive
Content-Length: 0
Date: Wed, 19 Jun 2024 08:23:16 GMT
```

```
Server: HBlock
```

4.8.6 Query Storage Pools in Batches

This operation is used to query storage pools in batches.

Request Syntax

```
GET /rest/v1/system/storagepool?filter=filter HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● poolName: Storage pool name.	No

Response Elements

Name	Type	Description
storagePool	Array of storagePool	A collection of connection information, see **Table 1 Parameter description of storagePool** for details.

Table 1 Parameter description of storagePool

Name	Type	Description
name	String	The name of the storage pool.
id	Short	The number of the storage pool.
isBasePool	Boolean	Whether it is a base storage pool: ● true: It is a base storage pool. ● false: It is not a base storage pool.
status	String	Status of the storage pool: ● Normal.

		• Deleting.
faultDomain	String	Fault domain level of the storage pool: • path. • server. • rack. • room.
description	String	Description of the storage pool.
totalCapacity	Long	Total capacity of the storage pool, in bytes.
usedCapacity		Used capacity of the storage pool, in bytes.
usedCapacityQuota	Long	Used capacity quota of the storage pool, in bytes.
capacityQuota	Long	Storage pool capacity quota, in bytes.
createTime	Long	Time when the storage pool is created.
luns.lunNamesForCachePool	Array of lunNamesForCachePool	List of LUNs using this storage pool as a cache storage pool.
luns.lunNamesForPool	Array of lunNamesForPool	List of LUNs using this storage pool as the final storage pool.
luns.status	Object	The LUN status information, see **Table 2 Parameter description of luns.status** for details.
topology	Array of topology	A collection of storage pool topology information, see **Table 3 Parameter description of topology/childNode** for details.
qosPolicy.qosName	String	Name of the QoS policy associated with the storage pool.
qosPolicyforLUN.qosName	String	Name of the default QoS policy for LUNs within the storage pool.
dataHealth.normal	Double	The percentage of normal data for all LUNs in this storage pool.
dataHealth.lowRedundancy	Double	The percentage of low redundancy data for all LUNs in this storage pool.
dataHealth.error	Double	The percentage of erroneous

		data for all LUNs in this storage pool.
dataHealth.reconstructionProgress	Double	The percentage of data reconstruction progress when low redundancy data exists on LUNs in this storage pool.
dataHealth.ETR	Long	The estimated remaining reconstruction time when low redundancy data exists on LUNs in this storage pool, in seconds. If the return value is negative, the data cannot be reconstructed and the user needs to repair it as soon as possible.

Table 2 Parameter description of luns.status

Name	Type	Description
number	Integer	The number of LUNs using this storage pool as the final storage pool.
cacheNumber	Integer	The number of cache mode LUNs.
storageNumber	Integer	The number of storage mode LUNs.
localNumber	Integer	The number of local mode LUNs.
cacheCapacity	Long	The capacity of cache mode LUNs, in bytes.
storageCapacity	Long	The capacity of storage mode LUNs, in bytes.
localCapacity	Long	The capacity of local mode LUNs, in bytes.

Table 3 Parameter description of topology/childNode

Name	Type	Description
name	String	Topology node or child node name.
fullname	String	The full path name of the topology node or child node.
type	String	The type of the topology node or child node: ● room ● rack ● server ● path
description	String	Description information of the topology node or child node. If no description information is added, or if the

			node type is path, do not return this item.
healthStatus		String	Health status of the fault domain: ● Healthy: A node is healthy and can be read and written normally. ● Warning: A node is in warning status and can be read. ● Error: A node is in error status and cannot be accessed.
childNodes		Array of childNode	Child nodes in the topology diagram. childNode and topology are essentially the same, but they have different types and contain different content. For details, refer to other fields in this table.
If the type of topology node or child node is server.	clusterAddress	String	Cluster network IP of the topology diagram.
	publicAddress	String	Public network IP of the topology diagram.
	allDiskPaths.usedCapacity	Long	The used capacity of all disks where disk paths are located in topology.
	allDiskPaths.totalCapacity	Long	The total capacity of all disks where disk paths are located in topology.
	serverStatus	String	The status of the server: ● Connected. ● Disconnected. ● Removing.
	serverId	String	The server ID.
	childNodes	Array of childNode	Child nodes in the topology diagram. childNodes and topology are essentially the same, but they have different types and contain different content. For details, refer to other fields in this table.
If the type of topology node or child node is path.	usedCapacity	Long	The used capacity of the disk where the disk path resides, in bytes.
	totalCapacity	Long	The total capacity of the disk where the disk path resides, in bytes.
	usedCapacityQuota	Long	The total amount of data that has be written to the disk path by HBlock, in bytes.
	capacityQuota	Long	The capacity quota of the disk path in bytes, that is, for each disk path, the total amount of data that can be written by HBlock. Once the space used by HBlock reaches the quota, data writing will be blocked immediately, and

			space exceeding the quota is not allowed to be used.
	managementStatus	String	The management status of the disk path: ● Added. ● Removing.
	healthStatus	String	The health status of the disk path: ● Healthy: The disk path is in a healthy status and can be read and written normally, and the disk usage of the disk path does not exceed the threshold (the system default value is 95%). ● Warning: The disk path is warning and is readable, but one or more of the following situations exist: slow disk, the utilization rate of the disk where the disk path resides exceeds the threshold (the system default value is 95%), the remaining disk space is less than 1GiB, HBlock stops writing to this path, the capacity quota usage of the disk path exceeds the threshold (the system default value is 95%), or the capacity quota of the disk path is set to 0. ● Error: The disk path is in an error status and cannot be accessed. The reasons may be that an I/O error occurs on the disk, resulting in the inability to read or write, or the disk path is not mounted correctly, etc.
	healthDetail	Array of string	The health details of the disk path. ● If the health status is Heathy, this item is empty. ● If the health status is Warning or Error, detailed information about the warning or error is displayed.
	serverId	String	The server ID to which the disk path belongs.

Sample Request

Query storage pools whose names contain the string `pool`.

```
GET /rest/v1/system/storagepool?filter=poolName:pool HTTP/1.1
```

```
Date: Wed, 31 Dec 2025 09:23:34 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: e35107c99bf0466eb46362c4858cbc3b
Connection: keep-alive
Content-Length: 2727
Date: Wed, 31 Dec 2025 09:23:34 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "storagePool": [
            {
                "name": "pool1",
                "id": 0,
                "isBasePool": true,
                "status": "Normal",
                "faultDomain": "server",
                "totalCapacity": 299111325696,
                "usedCapacity": 4151316480,
                "usedCapacityQuota": 3298676875,
                "capacityQuota": 299111325696,
                "createTime": 1766021671041,
                "luns": {
                    "lunNamesForCachePool": [],
                    "lunNamesForPool": [
                        "lun04c",
                        "lun01a-C1",
                        "lun03a",
                        "lun040012",
                        "lun04a",
                        "luncloud",
                        "lun01a",
                        "lun01b"
                    ],
```

```
                "status": {
                    "number": 8,
                    "cacheNumber": 1,
                    "storageNumber": 3,
                    "localNumber": 4,
                    "cacheCapacity": 515396075520,
                    "storageCapacity": 784905273344,
                    "localCapacity": 505732399104
                }
            },
            "topology": [
                {
                    "name": "hblock_1",
                    "fullname": "default:hblock_1",
                    "type": "server",
                    "healthStatus": "Healthy",
                    "clusterAddress": "192.168.0.65",
                    "publicAddress": "192.168.0.65",
                    "allDiskPaths": {
                        "usedCapacity": 1815838720,
                        "totalCapacity": 99703775232
                    },
                    "serverStatus": "Connected",
                    "serverId": "hblock_1",
                    "childNodes": [
                        {
                            "name": "/mnt/stor01",
                            "fullname": "default:hblock_1:/mnt/stor01",
                            "type": "path",
                            "usedCapacity": 1815838720,
                            "totalCapacity": 99703775232,
                            "usedCapacityQuota": 1100965008,
                            "capacityQuota": 99703775232,
                            "managementStatus": "Added",
                            "healthStatus": "Healthy",
                            "healthDetail": [],
                            "serverId": "hblock_1"
                        }
                    ]
                },
                {
```

```
                "name": "hblock_2",
                "fullname": "default:hblock_2",
                "type": "server",
                "healthStatus": "Healthy",
                "clusterAddress": "192.168.0.64",
                "publicAddress": "192.168.0.64",
                "allDiskPaths": {
                    "usedCapacity": 1134886912,
                    "totalCapacity": 99703775232
                },
                "serverStatus": "Connected",
                "serverId": "hblock_2",
                "childNodes": [
                    {
                        "name": "/mnt/stor02",
                        "fullname": "default:hblock_2:/mnt/stor02",
                        "type": "path",
                        "usedCapacity": 1134886912,
                        "totalCapacity": 99703775232,
                        "usedCapacityQuota": 1100928144,
                        "capacityQuota": 99703775232,
                        "managementStatus": "Added",
                        "healthStatus": "Healthy",
                        "healthDetail": [],
                        "serverId": "hblock_2"
                    }
                ]
            },
            {
                "name": "hblock_3",
                "fullname": "default:hblock_3",
                "type": "server",
                "healthStatus": "Healthy",
                "clusterAddress": "192.168.0.67",
                "publicAddress": "192.168.0.67",
                "allDiskPaths": {
                    "usedCapacity": 1200590848,
                    "totalCapacity": 99703775232
                },
                "serverStatus": "Connected",
                "serverId": "hblock_3",
```

```
                    "childNodes": [
                        {
                            "name": "/mnt/stor01",
                            "fullname": "default:hblock_3:/mnt/stor01",
                            "type": "path",
                            "usedCapacity": 1200590848,
                            "totalCapacity": 99703775232,
                            "usedCapacityQuota": 1096783723,
                            "capacityQuota": 99703775232,
                            "managementStatus": "Added",
                            "healthStatus": "Healthy",
                            "healthDetail": [],
                            "serverId": "hblock_3"
                        }
                    ]
                }
            ],
            "qosPolicy": {
                "qosName": "QoS1"
            },
            "qosPolicyforLUN": {
                "qosName": "QoS1"
            },
            "dataHealth": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            }
        },
        {
            "name": "pool2",
            "id": 1,
            "isBasePool": false,
            "status": "Normal",
            "faultDomain": "server",
            "totalCapacity": 0,
            "usedCapacity": 0,
            "usedCapacityQuota": 0,
            "capacityQuota": 0,
            "createTime": 1766384595246,
            "luns": {
```

```
                    "lunNamesForCachePool": [],
                    "lunNamesForPool": [],
                    "status": {}
                },
                "topology": [],
                "dataHealth": {
                    "normal": 100,
                    "lowRedundancy": 0,
                    "error": 0
                }
            }
        ]
    }
}
```

4.8.7 Query a Specified Storage Pool

This operation is used to query a specified storage pool.

Request Syntax

```
GET /rest/v1/system/storagepool/poolName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
poolName	String	Specifies the name of a storage pool to be queried. Value: The value is a string of 1 to 16 case-sensitive characters. It can contain letters, digits, hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes

Response Elements

Name	Type	Description
name	String	The name of the storage pool.
id	Shot	The number of the storage pool.
isBasePool	Boolean	Whether it is a base storage pool: ● true: It is a base storage pool. ● false: It is not a base storage pool.
status	String	Status of the storage pool: ● Normal. ● Deleting.
faultDomain	String	Fault domain level of the storage pool: ● path. ● server. ● rack. ● room.
description	String	Description of the storage pool.
totalCapacity	Long	Total capacity of the storage pool, in bytes.

usedCapacity	Long	Used capacity of the storage pool, in bytes.
usedCapacityQuota	Long	Used capacity quota of the storage pool, in bytes.
capacityQuota	Long	Storage pool capacity quota, in bytes.
createTime	Long	Time when the storage pool is created.
luns.lunNamesForCachePool	Array of lunNamesForCachePool	List of LUNs using this storage pool as a cache storage pool.
luns.lunNamesForPool	Array of lunNamesForPool	List of LUNs using this storage pool as the final storage pool.
luns.status	Object	The LUN status information, see **Table 1 Parameter description of luns.status** for details.
topology	Array of topology	A collection of storage pool topology information, see **Table 2 Parameter description of topology/childNode** for details.
qosPolicy.qosName	String	Name of the QoS policy associated with the storage pool.
qosPolicyforLUN.qosName	String	Name of the default QoS policy for LUNs within the storage pool.
dataHealth.normal	Double	The percentage of normal data for all LUNs in this storage pool.
dataHealth.lowRedundancy	Double	The percentage of low redundancy data for all LUNs in this storage pool.
dataHealth.error	Double	The percentage of erroneous data for all LUNs in this storage pool.
dataHealth.reconstructionProgress	Double	The percentage of data reconstruction progress when low redundancy data exists on LUNs in this storage pool.
dataHealth.ETR	Long	The estimated remaining

		reconstruction time when low redundancy data exists on LUNs in this storage pool, in seconds. If the return value is negative, the data cannot be reconstructed and the user needs to repair it as soon as possible.

Table 1 Parameter description of luns.status

Name	Type	Description
number	Integer	The number of LUNs using this storage pool as the final storage pool.
cacheNumber	Integer	The number of cache mode LUNs.
storageNumber	Integer	The number of storage mode LUNs.
localNumber	Integer	The number of local mode LUNs.
cacheCapacity	Long	The capacity of cache mode LUNs, in bytes.
storageCapacity	Long	The capacity of storage mode LUNs, in bytes.
localCapacity	Long	The capacity of local mode LUNs, in bytes.

Table 2 Parameter description of topology/childNode

Name	Type	Description
name	String	Topology node or child node name.
fullname	String	The full path name of the topology node or child node.
type	String	The type of the topology node or child node: ● room ● rack ● server ● path
description	String	Description information of the topology node or child node. If no description information is added, or if the node type is path, do not return this item.
healthStatus	String	Health status of the fault domain: ● Healthy: A node is healthy and can be read and written normally. ● Warning: A node is in warning status and can be read. ● Error: A node is in error status and cannot

			be accessed.
childNodes		Array of childNode	Child nodes in the topology diagram. childNode and topology are essentially the same, but they have different types and contain different content. For details, refer to other fields in this table.
If the type of topology node or child node is server.	clusterAddress	String	Cluster network IP of the topology diagram.
	publicAddress	String	Public network IP of the topology diagram.
	allDiskPaths.usedCapacity	Long	The used capacity of all disks where disk paths are located in topology.
	allDiskPaths.totalCapacity	Long	The total capacity of all disks where disk paths are located in topology.
	serverStatus	String	The status of the server: ● Connected. ● Disconnected. ● Removing.
	serverId	String	The server ID.
	childNodes	Array of childNode	Child nodes in the topology diagram. childNodes and topology are essentially the same, but they have different types and contain different content. For details, refer to other fields in this table.
If the type of topology node or child node is path.	usedCapacity	Long	The used capacity of the disk where the disk path resides, in bytes.
	totalCapacity	Long	The total capacity of the disk where the disk path resides, in bytes.
	usedCapacityQuota	Long	The total amount of data that has be written to the disk path by HBlock, in bytes.
	capacityQuota	Long	The capacity quota of the disk path in bytes, that is, for each disk path, the total amount of data that can be written by HBlock. Once the space used by HBlock reaches the quota, data writing will be blocked immediately, and space exceeding the quota is not allowed to be used.
	managementStatus	String	The management status of the disk path: ● Added. ● Removing.
	healthStatus	String	The health status of the disk path: ● Healthy: The disk path is in a healthy

			status and can be read and written normally, and the disk usage of the disk path does not exceed the threshold (the system default value is 95%). ● Warning: The disk path is warning and is readable, but one or more of the following situations exist: slow disk, the utilization rate of the disk where the disk path resides exceeds the threshold (the system default value is 95%), the remaining disk space is less than 1GiB, HBlock stops writing to this path, the capacity quota usage of the disk path exceeds the threshold (the system default value is 95%), or the capacity quota of the disk path is set to 0. ● Error: The disk path is in an error status and cannot be accessed. The reasons may be that an I/O error occurs on the disk, resulting in the inability to read or write, or the disk path is not mounted correctly, etc.
	healthDetail	Array of string	The health details of the disk path. ● If the health status is Heathy, this item is empty. ● If the health status is Warning or Error, detailed information about the warning or error is displayed.
	serverId	String	The server ID to which the disk path belongs.

Sample Request

Query the storage pool named pool1.

```
GET /rest/v1/system/storagepool/pool1 HTTP/1.1
Date: Wed, 31 Dec 2025 09:26:21 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response


```
HTTP/1.1 200 OK
x-hblock-request-id: c68b4918d8814c908c6a5e10c25c163d
Connection: keep-alive
Content-Length: 2385
Date: Wed, 31 Dec 2025 09:26:21 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "name": "pool1",
        "id": 0,
        "isBasePool": true,
        "status": "Normal",
        "faultDomain": "server",
        "totalCapacity": 299111325696,
        "usedCapacity": 4151316480,
        "usedCapacityQuota": 3298676875,
        "capacityQuota": 299111325696,
        "createTime": 1766021671041,
        "luns": {
            "lunNamesForCachePool": [],
            "lunNamesForPool": [
                "lun04c",
                "lun01a-C1",
                "lun03a",
                "lun040012",
                "lun04a",
                "luncloud",
                "lun01a",
                "lun01b"
            ],
            "status": {
                "number": 8,
                "cacheNumber": 1,
                "storageNumber": 3,
                "localNumber": 4,
                "cacheCapacity": 515396075520,
                "storageCapacity": 784905273344,
                "localCapacity": 505732399104
```

```
            }
        },
        "topology": [
            {
                "name": "hblock_1",
                "fullname": "default:hblock_1",
                "type": "server",
                "healthStatus": "Healthy",
                "clusterAddress": "192.168.0.65",
                "publicAddress": "192.168.0.65",
                "allDiskPaths": {
                    "usedCapacity": 1815838720,
                    "totalCapacity": 99703775232
                },
                "serverStatus": "Connected",
                "serverId": "hblock_1",
                "childNodes": [
                    {
                        "name": "/mnt/stor01",
                        "fullname": "default:hblock_1:/mnt/stor01",
                        "type": "path",
                        "usedCapacity": 1815838720,
                        "totalCapacity": 99703775232,
                        "usedCapacityQuota": 1100965008,
                        "capacityQuota": 99703775232,
                        "managementStatus": "Added",
                        "healthStatus": "Healthy",
                        "healthDetail": [],
                        "serverId": "hblock_1"
                    }
                ]
            },
            {
                "name": "hblock_2",
                "fullname": "default:hblock_2",
                "type": "server",
                "healthStatus": "Healthy",
                "clusterAddress": "192.168.0.64",
                "publicAddress": "192.168.0.64",
                "allDiskPaths": {
                    "usedCapacity": 1134886912,
```

```
                "totalCapacity": 99703775232
            },
            "serverStatus": "Connected",
            "serverId": "hblock_2",
            "childNodes": [
                {
                    "name": "/mnt/stor02",
                    "fullname": "default:hblock_2:/mnt/stor02",
                    "type": "path",
                    "usedCapacity": 1134886912,
                    "totalCapacity": 99703775232,
                    "usedCapacityQuota": 1100928144,
                    "capacityQuota": 99703775232,
                    "managementStatus": "Added",
                    "healthStatus": "Healthy",
                    "healthDetail": [],
                    "serverId": "hblock_2"
                }
            ]
        },
        {
            "name": "hblock_3",
            "fullname": "default:hblock_3",
            "type": "server",
            "healthStatus": "Healthy",
            "clusterAddress": "192.168.0.67",
            "publicAddress": "192.168.0.67",
            "allDiskPaths": {
                "usedCapacity": 1200590848,
                "totalCapacity": 99703775232
            },
            "serverStatus": "Connected",
            "serverId": "hblock_3",
            "childNodes": [
                {
                    "name": "/mnt/stor01",
                    "fullname": "default:hblock_3:/mnt/stor01",
                    "type": "path",
                    "usedCapacity": 1200590848,
                    "totalCapacity": 99703775232,
                    "usedCapacityQuota": 1096783723,
```

```
                        "capacityQuota": 99703775232,
                        "managementStatus": "Added",
                        "healthStatus": "Healthy",
                        "healthDetail": [],
                        "serverId": "hblock_3"
                    }
                ]
            }
        ],
        "qosPolicy": {
            "qosName": "QoS1"
        },
        "qosPolicyforLUN": {
            "qosName": "QoS1"
        },
        "dataHealth": {
            "normal": 100,
            "lowRedundancy": 0,
            "error": 0
        }
    }
}
```

4.8.8 Query the QoS Policy Associated with the Storage Pool

This operation is used to query the QoS policy associated with the storage pool.

Request Syntax

```
GET /rest/v1/system/storagepool/poolName/qos HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
poolName	String	Specifies the name of a storage pool to be queried.	Yes

Response Elements

Name	Type	Description
qosPolicy	Array of qosPolicy	A collection of Qos policy properties, see **Table 1 Parameter description of qosPolicy/qosPolicyforLUN** for details.
qosPolicyforLUN	Array of qosPolicyforLUN	A collection of the default Qos policy properties for LUN in the pool, see **Table 1 Parameter description of qosPolicy/qosPolicyforLUN** for details.

Table 1 Parameter description of qosPolicy/qosPolicyforLUN

Name	Type	Description
qosName	String	QoS policy name.
IOPS	Long	The limit of I/O operations per second. **Note**: -1 indicates no limit.
readIOPS	Long	The limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPS	Long	The limit of write operations per second. **Note**: -1 indicates no limit.
Bps	Long	The limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBps	Long	The limit of read throughput in bytes per second. **Note**: -1 indicates no limit.
writeBps	Long	The limit of write throughput in bytes per second.

		Note: -1 indicates no limit.
IOPSBurst	Long	The burst limit of I/O operations per second. **Note**: -1 indicates no limit.
readIOPSBurst	Long	The burst limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPSBurst	Long	The burst limit of write operations per second. **Note**: -1 indicates no limit.
BpsBurst	Long	The burst limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBpsBurst	Long	The burst limit of read throughput in bytes per second. **Note**: -1 indicates no limit.
writeBpsBurst	Long	The burst limit of write throughput in bytes per second. **Note**: -1 indicates no limit.
IOPSBurstSecs	Long	The duration in seconds of I/O operations with burst limit
readIOPSBurstSecs	Long	The duration in seconds of read operations with burst limit.
writeIOPSBurstSecs	Long	The duration in seconds of write operations with burst limit.
BpsBurstSecs	Long	The duration in seconds of I/O throughput with burst limit.
readBpsBurstSecs	Long	The duration in seconds of read throughput with burst limit.
writeBpsBurstSecs	Long	The duration in seconds of write throughput with burst limit.
createTime	Long	The creation time of the QoS policy.
reclaimPolicy	String	QoS policy reclaim policy: ● `Delete`: When all objects associated with the QoS policy are disassociated or deleted, the system will automatically remove the QoS policy. ● `Retain`: When all objects associated with the QoS policy are disassociated or deleted, the QoS policy itself remains and is not deleted.
description	String	The description of the QoS policy.

Sample Request

Query the QoS policy of storage pool defaultpool.

```
GET /rest/v1/system/storagepool/defaultpool/qos HTTP/1.1
Date: Thu, 21 Aug 2025 03:36:22 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 8fda965846fa4ce4b0e1e96e40494786
Connection: keep-alive
Content-Length: 728
Date: Thu, 21 Aug 2025 03:36:22 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "qosPolicy": {
            "qosName": "QoS6",
            "readIOPS": 600,
            "writeIOPS": 440,
            "readBps": 1048576000,
            "writeBps": 1572864000,
            "readIOPSBurst": 6000,
            "writeIOPSBurst": 4000,
            "readBpsBurst": 2097152000,
            "writeBpsBurst": 2097152000,
            "readIOPSBurstSecs": 1,
            "writeIOPSBurstSecs": 1,
            "readBpsBurstSecs": 1,
            "writeBpsBurstSecs": 1,
            "createTime": 1753950531353,
            "reclaimPolicy": "Retain",
            "description": "It is QoS6.",
            "IOPS": 1000,
            "Bps": 2097152000,
            "IOPSBurst": 10000,
            "BpsBurst": 2202009600,
```

```
            "IOPSBurstSecs": 1,
            "BpsBurstSecs": 1
        },
        "qosPolicyforLUN": {
            "qosName": "QoS-Test",
            "readIOPSBurstSecs": 1,
            "writeIOPSBurstSecs": 1,
            "readBpsBurstSecs": 1,
            "writeBpsBurstSecs": 1,
            "createTime": 1754470952232,
            "reclaimPolicy": "Retain",
            "IOPS": 8000,
            "Bps": 8388608000,
            "IOPSBurstSecs": 1,
            "BpsBurstSecs": 1
        }
    }
}
```

4.8.9 Error Code List

HTTP status	Error Code	Error Message
400	CanNotAddNodeToPool	The node *nodeName* has no available paths added to storage pool *poolname*.
400	CanNotDeleteBasePool	The storage pool with name *poolName* can not be deleted. It is a base pool.
400	CanNotDeleteNode	The node *nodeName* can not be deleted. Please remove its child nodes and try again.
400	CanNotDeleteRootNode	The type of node *nodeName* is root, it cannot be deleted.
400	CanNotMoveNode	The node *nodeName* can not be moved. Please make sure the node type is not lower than the fault domain level of storage pool which its leaf node belongs to.
400	DuplicatedNode	The node with name *nodeName* is not unique in the topology.
400	ExceedThreshold	The number of *operation* cannot exceed *value*.
400	InvalidEnumValue	Value *value* at 'node type' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...]
400	InvalidFile	Failed to parse file *filename*.
400	InvalidNodeName	Value *value* at 'node name' failed to satisfy constraint: Argument must contain only letters, digits, dots (.), underscores (_) or hyphens (-), and does not exceed 63 characters, must begin with a letter or digit.
400	InvalidNodeType	Value *value* at 'node type' failed to satisfy constraint: the first node type must be root.
400	InvalidNodeType	Value *value* at 'node type' failed to satisfy constraint: childNodes of room are limited to [rack, server], childNodes of rack to [server], childNodes of server to [path] only.
400	InvalidPathStatus	The path *path* status is '*status*', the request is invalid.
400	InvalidPoolName	Value *value* at 'pool name' failed to satisfy constraint: Argument must contain only letters, digits, underscores (_) or hyphens (-), and does not exceed 16 characters, must begin with a letter or digit.
400	InvalidTopology	Failed to parse topology.
400	InvalidTopologyContent	The content of the topology is not compliant.
400	InsufficientPath	The base storage pool must have at least one disk

		path.
400	LUNCorruptedRisk	There is a LUN with redundancy mode, which has the minimum requirement for the number of fault domains. LUN: *lunName1*[, *lunName2*....] Removing the node may cause data loss. You can use force remove. When using this option, there may be a risk of data loss.
400	LUNExists	There are LUNs in this storage pool Please delete all LUNs and try again.
400	MissingRequiredAncestorNode	The node *nodeName* has no ancestor node with type *nodetype*.
400	MissingRequiredDescendantNode	The node *nodeName* has no descendant node with type *nodetype*.
400	NodeAlreadyExists	The node with name *nodeName* has already exists in the topology.
400	NodeNotAllowed	The type of node *nodeName* is *type*, the request is invalid.
400	NoSuchFile	The file with name *filename* does not exist.
400	NoSuchNode	The node with name *nodeName* does not exist.
400	NoSuchStoragePool	The storage pool with name *poolName* does not exist.
400	NodeTypeNotMatch	Node type does not match. Please check parent node type.
400	PathConflict	Can not use path *pathName* because it belongs to another storage pool.
400	PermissionDenied	Failed to *action* because user has no permission.
400	PoolAlreadyExists	The storage pool with name *poolName* already exists.
400	RemoveFaultDomainRisk	Can not remove multiple fault domains at the same time. You can use force remove. When using this option, there may be a risk of data loss.
400	RemoveNodeRisk	The node *nodeName* or its child nodes are being used by a storage pool. Removing the node may cause data loss. You can use force remove. When using this option, there may be a risk of data loss.
400	SamePool	Cannot use the same storage pool poolName.
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.

400	SystemCrashRisk	The node *nodename* can not be removed because there is only one available fault domain left in the base storage pool, or the node is related to multiple fault domains in the base pool, removing node may result in a system crash.
409	InvalidPoolStatus	The status of storage pool *poolName* is '*status*', the request is invalid.

4.9 QoS Policy

4.9.1 Create a QoS Policy

This operation is used to create a QoS policy.

Request Syntax

```
POST /rest/v1/system/qos HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "qosName": qosName,
    "IOPS": IOPS,
    "readIOPS": readIOPS,
    "writeIOPS": writeIOPS,
    "Bps": Bps,
    "readBps": readBps,
    "writeBps": writeBps,
    "IOPSBurst": IOPSBurst,
    "readIOPSBurst": readIOPSBurst,
    "writeIOPSBurst": writeIOPSBurst,
    "BpsBurst": BpsBurst,
    "readBpsBurst": readBpsBurst,
    "writeBpsBurst": writeBpsBurst,
    "IOPSBurstSecs": IOPSBurstSecs,
    "readIOPSBurstSecs": readIOPSBurstSecs,
    "writeIOPSBurstSecs": writeIOPSBurstSecs,
    "BpsBurstSecs": BpsBurstSecs,
    "readBpsBurstSecs": readBpsBurstSecs,
    "writeBpsBurstSecs": writeBpsBurstSecs,
    "reclaimPolicy": reclaimPolicy,
    "description": description
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy. Value: The value is a string of 1 to 64 case-sensitive characters. It can contain letters, digits, and hyphens (-). Only supports starting with a letter or a digit.	Yes
IOPS	Long	Specifies the limit of I/O operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
readIOPS	Long	Specifies the limit of read operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
writeIOPS	Long	Specifies the limit of write operations per second. Value: The value is an integer that ranges from -1 to 999,999,999, the default value is -1. -1 indicates no limit.	No
Bps	Long	Specifies the limit of I/O throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
readBps	Long	Specifies the limit of read throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
writeBps	Long	Specifies the limit of write throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the default value is -1. The unit is B/s. -1 indicates no limit.	No
IOPSBurst	Long	Specifies the burst limit of I/O operations per second. Value: This setting only takes effect when IOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*IOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
readIOPSBurst	Long	Specifies the burst limit of read operations per second.	No

		Value: This setting only takes effect when readIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readIOPS*, 999,999,999]. The default value is –1, indicating no limit.	
writeIOPSBurst	Long	Specifies the burst limit of write operations per second. Value: This setting only takes effect when writeIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeIOPS*, 999,999,999]. The default value is –1, indicating no limit.	No
BpsBurst	Long	Specifies the burst limit of I/O throughput per second. Value: This setting only takes effect when Bps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*Bps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
readBpsBurst	Long	Specifies the burst limit of read throughput per second. Value: This setting only takes effect when readBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
writeBpsBurst	Long	Specifies the burst limit of write throughput per second. Value: This setting only takes effect when writeBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeBps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
IOPSBurstSecs	Long	Specifies the duration of I/O operations with burst limit. **Note**: This setting is only effective when the IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No

readIOPSBurstSecs	Long	Specifies the duration of read operations with burst limit. **Note**: This setting is only effective when the read IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeIOPSBurstSecs	Long	Specifies the duration of write operations with burst limit. **Note**: This setting is only effective when the write IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
BpsBurstSecs	Long	Specifies the duration of I/O throughput with burst limit. **Note**: This setting is only effective when the Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
readBpsBurstSecs	Long	Specifies the duration of read throughput with burst limit. **Note**: This setting is only effective when the read Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
writeBpsBurstSecs	Long	Specifies the duration of write throughput with burst limit. **Note**: This setting is only effective when the write Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the default value is 1. The unit is seconds.	No
reclaimPolicy	String	Specifies the QoS policy reclaim policy. Value: ● `Delete`: When all objects associated with the QoS policy are disassociated or deleted, the system will automatically remove the QoS policy.	No

		• `Retain`: When all objects associated with the QoS policy are disassociated or deleted, the QoS policy itself remains and is not deleted. The default value is Retain.	
description	String	Specifies the description for the QoS policy. Value: The value is a string of 1 to 256 characters.	No

Sample Request

Create QoS policy named QoStest6.

```
POST /rest/v1/system/qos HTTP/1.1
Date: Tue, 01 Jul 2025 07:57:43 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 650
Host: 192.168.0.64:1443

{
    "qosName": "QoStest6",
    "IOPS": 5000000,
    "readIOPS": 5000000,
    "writeIOPS": 6000000,
    "Bps": 40960000000,
    "readBps": 40960000000,
    "writeBps": 40960000000,
    "IOPSBurst": 999999999,
    "readIOPSBurst": 999999999,
    "writeIOPSBurst": 999999999,
    "BpsBurst":  -1,
    "readBpsBurst":  -1,
    "writeBpsBurst":  -1,
    "IOPSBurstSecs": 999999999,
    "readIOPSBurstSecs": 999999999,
    "writeIOPSBurstSecs": 999999999,
    "BpsBurstSecs": 99999999,
    "readBpsBurstSecs": 99999999,
    "writeBpsBurstSecs": 99999999,
    "reclaimPolicy": "Delete",
    "description": "It is a test Qos policy"
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 9f8da64f4a1947cf837a1eca46ce08da
Connection: keep-alive
Date: Tue, 01 Jul 2025 07:57:43 GMT
Server: HBlock
```

4.9.2 Modify a QoS Policy

This operation is used to modify the QoS policy.

Request Syntax

```
PUT /rest/v1/system/qos/qosName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "newName": qosName,
    "description": description,
    "IOPS": IOPS,
    "readIOPS": readIOPS,
    "writeIOPS": writeIOPS,
    "Bps": Bps,
    "readBps": readBps,
    "writeBps": writeBps,
    "IOPSBurst": IOPSBurst,
    "readIOPSBurst": readIOPSBurst,
    "writeIOPSBurst": writeIOPSBurst,
    "BpsBurst": BpsBurst,
    "readBpsBurst": readBpsBurst,
    "writeBpsBurst": writeBpsBurst,
    "IOPSBurstSecs": IOPSBurstSecs,
    "readIOPSBurstSecs": readIOPSBurstSecs,
    "writeIOPSBurstSecs": writeIOPSBurstSecs,
    "BpsBurstSecs": BpsBurstSecs,
    "readBpsBurstSecs": readBpsBurstSecs,
    "writeBpsBurstSecs": writeBpsBurstSecs,
    "reclaimPolicy": reclaimPolicy
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy to be modified.	Yes
newName	String	Specifies the new name of a QoS policy.	No

		Value: The value is a string of 1 to 64 case-sensitive characters. It can contain letters, digits, and hyphens (-). Only supports starting with a letter or a digit.	
description	String	Specifies the description for the QoS policy. Value: The value is a string of 1 to 256 characters.	No
IOPS	Long	Specifies the limit of I/O operations per second. Value: The value is an integer that ranges from -1 to 999,999,999. -1 indicates no limit.	No
readIOPS	Long	Specifies the limit of read operations per second. Value: The value is an integer that ranges from -1 to 999,999,999. -1 indicates no limit.	No
writeIOPS	Long	Specifies the limit of write operations per second. Value: The value is an integer that ranges from -1 to 999,999,999. -1 indicates no limit.	No
Bps	Long	Specifies the limit of I/O throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the unit is B/s. -1 indicates no limit.	No
readBps	Long	Specifies the limit of read throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the unit is B/s. -1 indicates no limit.	No
writeBps	Long	Specifies the limit of write throughput per second. Value: The value is an integer that ranges from -1 to 4,096,000,000,000, the unit is B/s. -1 indicates no limit.	No
IOPSBurst	Long	Specifies the burst limit of I/O operations per second. Value: This setting only takes effect when IOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*IOPS*, 999,999,999]. -1 indicates no limit.	No
readIOPSBurst	Long	Specifies the burst limit of read operations per second. Value: This setting only takes effect when readIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readIOPS*, 999,999,999]. -1 indicates no limit.	No
writeIOPSBurst	Long	Specifies the burst limit of write operations per	No

		second. Value: This setting only takes effect when writeIOPS is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeIOPS*, 999,999,999]. -1 indicates no limit.	
BpsBurst	Long	Specifies the burst limit of I/O throughput per second. Value: This setting only takes effect when Bps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*Bps*, 4,096,000,000,000], the default value is –1. The unit is B/s. -1 indicates no limit.	No
readBpsBurst	Long	Specifies the burst limit of read throughput per second. Value: This setting only takes effect when readBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*readBps*, 4,096,000,000,000], the unit is B/s. -1 indicates no limit.	No
writeBpsBurst	Long	Specifies the burst limit of write throughput per second. Value: This setting only takes effect when writeBps is greater than or equal to 1. It must be set to –1 or to a positive integer within the range (*writeBps*, 4,096,000,000,000], the unit is B/s. -1 indicates no limit.	No
IOPSBurstSecs	Long	Specifies the duration of I/O operations with burst limit. **Note**: This setting is only effective when the IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the unit is seconds.	No
readIOPSBurstSecs	Long	Specifies the duration of read operations with burst limit. **Note**: This setting is only effective when the read IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the unit is seconds.	No
writeIOPSBurstSecs	Long	Specifies the duration of write operations with burst limit.	No

		Note: This setting is only effective when the write IOPS Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the unit is seconds.	
BpsBurstSecs	Long	Specifies the duration of I/O throughput with burst limit. **Note**: This setting is only effective when the Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the unit is seconds.	No
readBpsBurstSecs	Long	Specifies the duration of read throughput with burst limit. **Note**: This setting is only effective when the read Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the unit is seconds.	No
writeBpsBurstSecs	Long	Specifies the duration of write throughput with burst limit. **Note**: This setting is only effective when the write Bps Burst feature is enabled. Value: The value is an integer that ranges from 1 to 999,999,999, the unit is seconds.	No
reclaimPolicy	String	Specifies the QoS policy reclaim policy. Value: ● `Delete`: When all objects associated with the QoS policy are disassociated or deleted, the system will automatically remove the QoS policy. ● `Retain`: When all objects associated with the QoS policy are disassociated or deleted, the QoS policy itself remains and is not deleted.	No

Sample Request

Modify QoS poliycy QoStest6.

```
PUT /rest/v1/system/qos/QoStest6 HTTP/1.1
Date: Tue, 01 Jul 2025 10:11:31 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 612
Host: 192.168.0.64:1443
```

```
{
    "newName": "QoS6",
    "description": "It is Qos6",
    "IOPS": 5000000,
    "readIOPS": 5000000,
    "writeIOPS": 6000000,
    "Bps": 40960000000,
    "readBps": 40960000000,
    "writeBps": 40960000000,
    "IOPSBurst": -1,
    "readIOPSBurst": -1,
    "writeIOPSBurst": -1,
    "BpsBurst":  -1,
    "readBpsBurst":  -1,
    "writeBpsBurst":  -1,
    "IOPSBurstSecs": 999999999,
    "readIOPSBurstSecs": 999999999,
    "writeIOPSBurstSecs": 999999999,
    "BpsBurstSecs": 99999999,
    "readBpsBurstSecs": 99999999,
    "writeBpsBurstSecs": 99999999,
    "reclaimPolicy": "Delete"
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 5416bb143c504e95986f9489c1d86272
Connection: keep-alive
Date: Tue, 01 Jul 2025 10:11:31 GMT
Server: HBlock
```

4.9.3 Associate the QoS Policy with LUNs

This operation is used to associate the QoS policy with LUNs.

Note:

- The status of the LUN to be associated cannot be Deleting or Deletefailed.
- When multiple QoS policies are associated with the same LUN, the last operation takes precedence.
- For cluster mode, QoS policy enforcement follows these rules:
  - If a LUN has a QoS policy attached, that policy takes precedence.
  - If a LUN has no QoS policy attached:
    - If the LUN has both a `cachePool` and a `pool`, its QoS policy is the default QoS policy for LUNs in the `cachePool`. If the `cachePool` has not defined such a default policy, the LUN has no QoS policy.
    - If the LUN has only a `pool`, its QoS policy is the default QoS policy for LUNs in that `pool`. If the `pool` has not defined such a default policy, the LUN has no QoS policy.

Request Syntax

```
PUT /rest/v1/system/qos/qosName/lun/assoc HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "list": [ lunName1,lunName2… ],
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of the QoS policy.	Yes
list	Array of string	Specifies the name of the LUN to which the QoS policy is to be associated.	Yes

Sample Request

Associate QoS policy QoS6 with LUNs.

```
PUT /rest/v1/system/qos/QoS6/lun/assoc HTTP/1.1
Date: Wed, 02 Jul 2025 03:22:28 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
```

```
Content-Length: 43
Host: 192.168.0.64:1443


{
    "list": ["luna1","lunb1","lunb2"]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 3f0246e386ca42988afe8abc672bb789
Connection: keep-alive
Date: Wed, 02 Jul 2025 03:22:28 GMT
Server: HBlock
```

4.9.4 Disassociate the QoS Policy from LUNs

This operation is used to disassociate the QoS policy from LUNs.

Request Syntax

```
PUT /rest/v1/system/qos/qosName/lun/disass HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "list": [ lunName1,lunName2… ],
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of the QoS policy.	Yes
list	Array of string	Specifies the name of the LUN to which the QoS policy is to be disassociated.	Yes

Sample Request

Disassociate QoS policy QoS6 from LUNs.

```
PUT /rest/v1/system/qos/QoS6/lun/disass HTTP/1.1
Date: Wed, 02 Jul 2025 05:47:59 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 43
Host: 192.168.0.64:1443

{
    "list": ["luna1","lunb1","lunb2"]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 42dbc503bc2548448ad4dcf62b610d95
Connection: keep-alive
Date: Wed, 02 Jul 2025 05:47:59 GMT
```

```
Server: HBlock
```

4.9.5 Associate the QoS Policy with Storage Pools (Cluster Mode)

This operation is used to associate the QoS policy with storage pools.

Note:

- The storage pool to be associated cannot be in Deleting status.
- When multiple QoS policies are associated with the same storage pool, the last operation takes precedence.

Request Syntax

```
PUT /rest/v1/system/qos/qosName/storagepool/assoc HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "list": [ storagepool1,storagepool2… ],
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of the QoS policy.	Yes
list	Array of string	Specifies the name of the storage pool to which the QoS policy is to be associated.	Yes

Sample Request

Associate QoS policy QoS6 with storage pools.

```
PUT /rest/v1/system/qos/QoS6/storagepool/assoc HTTP/1.1
Date: Wed, 02 Jul 2025 03:36:45 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 37
Host: 192.168.0.64:1443

{
    "list": ["default","pool1"]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 8c918e90ad1e4aae982eb19817481a24
Connection: keep-alive
Date: Wed, 02 Jul 2025 03:36:45 GMT
Server: HBlock
```

4.9.6 Disassociate the QoS Policy from Storage Pools (Cluster Mode)

This operation is used to disassociate the QoS policy from storage pools.

Request Syntax

```
PUT /rest/v1/system/qos/qosName/storagepool/disass HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "list": [ storagepool1,storagepool2… ],
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of the QoS policy.	Yes
list	Array of string	Specifies the name of the storage pool to which the QoS policy is to be disassociated.	Yes

Sample Request

Disassociate QoS policy QoS6 from storage pools.

```
PUT /rest/v1/system/qos/QoS6/storagepool/disass HTTP/1.1
Date: Wed, 02 Jul 2025 05:59:09 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 37
Host: 192.168.0.64:1443

{
    "list": ["default","pool1"]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 163fc68155bc4d40bb40f0bb2f6d9a92
Connection: keep-alive
Date: Wed, 02 Jul 2025 05:59:09 GMT
```

```
Server: HBlock
```

4.9.7 Set the Default QoS Policy for LUNs in the Storage Pool (Cluster Mode)

This operation is used to set the default QoS policy for LUNs in the storage pool.

Note:

- The storage pool to be associated cannot be in Deleting status.
- When the default QoS policy for LUNs in the storage pool is set multiple times, the last operation takes precedence.

Request Syntax

```
PUT /rest/v1/system/qos/qosName/storagepoolforlun/assoc HTTP/1.1
Date: date
Content-Type: application/j son; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "list": [ storagepool1,storagepool2… ],
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of the QoS policy.	Yes
list	Array of string	Specifies the storage pool name to set the default QoS policy for LUNs in the pool.	Yes

Sample Request

Set the default QoS policy for LUNs in the storage pool.

```
PUT /rest/v1/system/qos/QoS6/storagepoolforlun/assoc HTTP/1.1
Date: Wed, 02 Jul 2025 04:01:21 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 37
Host: 192.168.0.64:1443

{
    "list": ["default","pool1"]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: e4cec28689ef42bc9cd8caac91134fdc
Connection: keep-alive
Date: Wed, 02 Jul 2025 04:01:21 GMT
Server: HBlock
```

4.9.8 Disassociate the Default QoS Policy for LUNs in the Storage Pool (Cluster Mode)

This operation is used to disassociate the default QoS policy for LUNs in the storage pool.

Request Syntax

```
PUT /rest/v1/system/qos/qosName/storagepoolforlun/disass HTTP/1.1
Date: date
Content-Type: application/j son; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "list": [ storagepool1,storagepool2… ],
}
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of the QoS policy.	Yes
list	Array of string	Specifies the storage pool name to disassociate the default QoS policy for LUNs in the pool.	Yes

Sample Request

Disassociate the default QoS policy for LUNs in the pool.

```
PUT /rest/v1/system/qos/QoS6/storagepoolforlun/disass HTTP/1.1
Date: Wed, 02 Jul 2025 06:32:25 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 37
Host: 192.168.0.64:1443

{
    "list": ["default","pool1"]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 6293d0a0eef54948b6c78705a95fba9b
Connection: keep-alive
```

```
Date: Wed, 02 Jul 2025 06:32:25 GMT
Server: HBlock
```

4.9.9 Delete a QoS Policy

This operation is used to delete the specified QoS policy.

Note: A QoS policy can only be deleted when it is not associated with any objects.

Request Syntax

```
DELETE /rest/v1/system/qos/qosName HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of the QoS policy to be deleted.	Yes

Sample Request

Delete QoS policy qos2.

```
DELETE /rest/v1/system/qos/qos2 HTTP/1.1
Date: Wed, 02 Jul 2025 08:51:22 GMT
Connection: keep-alive
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 7869c880cb014b6f9002e467ec6bf1b5
Connection: keep-alive
Date: Wed, 02 Jul 2025 08:51:22 GMT
Server: HBlock
```

4.9.10 Query QoS Policies in Batches

This operation is used to query QoS policies in batches.

Request Syntax

```
GET /rest/v1/system/qos?filter=filter&range=i-j HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● qosName: The QoS policy name.	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the QoS policy names and returns the i-th to j-th QoS policies. If the range exceeds the total number of QoS policies, the returned result is empty. If the range is not specified, all QoS policies that meet the conditions are returned.	No

Response Elements

Name	Type	Description
qosPolicies	Array of qosPolicy	A collection of QoS policy information, see **Table 1 Parameter description of qosPolicy** for details.

Table 1 Parameter description of qosPolicy

Name	Type	Description
qosName	String	QoS policy name.
IOPS	Long	The limit of I/O operations per second. **Note**: -1 indicates no limit.

readIOPS	Long	The limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPS	Long	The limit of write operations per second. **Note**: -1 indicates no limit.
Bps	Long	The limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBps	Long	The limit of read throughput in bytes per second. **Note**: -1 indicates no limit.
writeBps	Long	The limit of write throughput in bytes per second. **Note**: -1 indicates no limit.
IOPSBurst	Long	The burst limit of I/O operations per second. **Note**: -1 indicates no limit.
readIOPSBurst	Long	The burst limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPSBurst	Long	The burst limit of write operations per second. **Note**: -1 indicates no limit.
BpsBurst	Long	The burst limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBpsBurst	Long	The burst limit of read throughput in bytes per second. **Note**: -1 indicates no limit.
writeBpsBurst	Long	The burst limit of write throughput in bytes per second. **Note**: -1 indicates no limit.
IOPSBurstSecs	Long	The duration in seconds of I/O operations with burst limit
readIOPSBurstSecs	Long	The duration in seconds of read operations with burst limit.
writeIOPSBurstSecs	Long	The duration in seconds of write operations with burst limit.
BpsBurstSecs	Long	The duration in seconds of I/O throughput with burst limit.
readBpsBurstSecs	Long	The duration in seconds of read throughput with burst limit.
writeBpsBurstSecs	Long	The duration in seconds of write throughput with burst limit.
createTime	Long	The creation time of the QoS policy.
reclaimPolicy	String	QoS policy reclaim policy: ● `Delete`: When all objects associated with

		the QoS policy are disassociated or deleted, the system will automatically remove the QoS policy. ● `Retain`: When all objects associated with the QoS policy are disassociated or deleted, the QoS policy itself remains and is not deleted.
description	String	The description of the QoS policy.

Sample Request

Query all QoS policies.

```
GET /rest/v1/system/qos HTTP/1.1
Date: Thu, 03 Jul 2025 08:11:07 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 81a1353ea5da4425b5e27a7d665651e3
Connection: keep-alive
Content-Length: 1586
Date: Thu, 03 Jul 2025 08:11:07 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "qosPolicies": [
            {
                "qosName": "QoS-test1",
                "readIOPSBurstSecs": 1,
                "writeIOPSBurstSecs": 1,
                "readBpsBurstSecs": 1,
                "writeBpsBurstSecs": 1,
                "createTime": 1751275484300,
                "reclaimPolicy": "Retain",
                "IOPS": 0,
                "IOPSBurstSecs": 1,
                "BpsBurstSecs": 1
            },
            {
```

```
            "qosName": "QoS6",
            "readIOPS": 5000000,
            "writeIOPS": 6000000,
            "readBps": 1073741824,
            "writeBps": 1073741824,
            "readIOPSBurst": 5000000,
            "writeIOPSBurst": 5000000,
            "readBpsBurst": 2147483648,
            "writeBpsBurst": 2147483648,
            "readIOPSBurstSecs": 10,
            "writeIOPSBurstSecs": 10,
            "readBpsBurstSecs": 100,
            "writeBpsBurstSecs": 100,
            "createTime": 1751437708609,
            "reclaimPolicy": "Retain",
            "description": "It is Qos6",
            "IOPS": 5000000,
            "Bps": 1073741824,
            "IOPSBurst": 5000000,
            "BpsBurst": 2147483648,
            "IOPSBurstSecs": 10,
            "BpsBurstSecs": 100
        },
        {
            "qosName": "QosPolicy20250701103509",
            "readIOPSBurst": 0,
            "readIOPSBurstSecs": 120,
            "writeIOPSBurstSecs": 1,
            "readBpsBurstSecs": 1,
            "writeBpsBurstSecs": 1,
            "createTime": 1751337350718,
            "reclaimPolicy": "Retain",
            "IOPSBurstSecs": 1,
            "BpsBurstSecs": 1
        },
        {
            "qosName": "qos11",
            "readIOPSBurstSecs": 1,
            "writeIOPSBurstSecs": 1,
            "readBpsBurstSecs": 1,
            "writeBpsBurstSecs": 1,
```

```
                "createTime": 1751443786042,
                "reclaimPolicy": "Retain",
                "IOPSBurstSecs": 1,
                "BpsBurstSecs": 1
            },
            {
                "qosName": "qostest2",
                "readIOPSBurstSecs": 1,
                "writeIOPSBurstSecs": 1,
                "readBpsBurstSecs": 1,
                "writeBpsBurstSecs": 1,
                "createTime": 1751342299027,
                "reclaimPolicy": "Retain",
                "Bps": 4398046511104,
                "IOPSBurstSecs": 1,
                "BpsBurstSecs": 1
            },
            {
                "qosName": "qostest3",
                "readIOPSBurstSecs": 1,
                "writeIOPSBurstSecs": 1,
                "readBpsBurstSecs": 1,
                "writeBpsBurstSecs": 1,
                "createTime": 1751342317324,
                "reclaimPolicy": "Retain",
                "Bps": 5497558138880,
                "IOPSBurstSecs": 1,
                "BpsBurstSecs": 1
            }
        ]
    }
}
```

4.9.11 Query a Specified QoS Policy

This operation is used to query a specified QoS policy.

Request Syntax

```
GET /rest/v1/system/qos/qosName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy to be queried.	Yes

Response Elements

Name	Type	Description
qosName	String	QoS policy name.
IOPS	Long	The limit of I/O operations per second. **Note**: -1 indicates no limit.
readIOPS	Long	The limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPS	Long	The limit of write operations per second. **Note**: -1 indicates no limit.
Bps	Long	The limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBps	Long	The limit of read throughput in bytes per second. **Note**: -1 indicates no limit.
writeBps	Long	The limit of write throughput in bytes per second. **Note**: -1 indicates no limit.
IOPSBurst	Long	The burst limit of I/O operations per second. **Note**: -1 indicates no limit.
readIOPSBurst	Long	The burst limit of read operations per second. **Note**: -1 indicates no limit.
writeIOPSBurst	Long	The burst limit of write operations per second. **Note**: -1 indicates no limit.
BpsBurst	Long	The burst limit of I/O throughput in bytes per second. **Note**: -1 indicates no limit.
readBpsBurst	Long	The burst limit of read throughput in bytes per second.

		Note: -1 indicates no limit.
writeBpsBurst	Long	The burst limit of write throughput in bytes per second. **Note**: -1 indicates no limit.
IOPSBurstSecs	Long	The duration in seconds of I/O operations with burst limit
readIOPSBurstSecs	Long	The duration in seconds of read operations with burst limit.
writeIOPSBurstSecs	Long	The duration in seconds of write operations with burst limit.
BpsBurstSecs	Long	The duration in seconds of I/O throughput with burst limit.
readBpsBurstSecs	Long	The duration in seconds of read throughput with burst limit.
writeBpsBurstSecs	Long	The duration in seconds of write throughput with burst limit.
createTime	Long	The creation time of the QoS policy.
reclaimPolicy	String	QoS policy reclaim policy: ● `Delete`: When all objects associated with the QoS policy are disassociated or deleted, the system will automatically remove the QoS policy. ● `Retain`: When all objects associated with the QoS policy are disassociated or deleted, the QoS policy itself remains and is not deleted.
description	String	The description of the QoS policy.

Sample Request

Query the QoS policy QoS6.

```
GET /rest/v1/system/qos/QoS6 HTTP/1.1
Date: Thu, 03 Jul 2025 08:44:58 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: bc5613e65a3544e996002a403674e331
Connection: keep-alive
Content-Length: 496
```

```
Date: Thu, 03 Jul 2025 08:44:58 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "qosName": "QoS6",
        "readIOPS": 5000000,
        "writeIOPS": 6000000,
        "readBps": 1073741824,
        "writeBps": 1073741824,
        "readIOPSBurst": 5000000,
        "writeIOPSBurst": 5000000,
        "readBpsBurst": 2147483648,
        "writeBpsBurst": 2147483648,
        "readIOPSBurstSecs": 10,
        "writeIOPSBurstSecs": 10,
        "readBpsBurstSecs": 100,
        "writeBpsBurstSecs": 100,
        "createTime": 1751437708609,
        "reclaimPolicy": "Retain",
        "description": "It is Qos6",
        "IOPS": 5000000,
        "Bps": 1073741824,
        "IOPSBurst": 5000000,
        "BpsBurst": 2147483648,
        "IOPSBurstSecs": 10,
        "BpsBurstSecs": 100
    }
}
```

4.9.12 Query Information on Objects Associated or Associable with the QoS Policy

This operation is used to query information on objects associated or associable with the QoS policy.

Request Syntax

```
GET /rest/v1/system/qos/qosName?object=object&status=status HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
qosName	String	Specifies the name of a QoS policy to be queried.	Yes
object	String	Specifies the type of associated object. Value: ● lun: LUN. ● storagepool (only supported by cluster mode): Storage pool. ● storagepoolforlun (only supported by cluster mode): Default QoS policy for LUNs in a storage pool.	Yes
status	String	Specifies the association status between the object and the QoS policy. Value: ● associated: Already associated. ● available: Available for association. The default value is associated.	No

Response Elements

Name	Type	Description
totalNum	Integer	Total number of objects.
luns	Array of lun	A collection of LUN information, see **Table 1 Parameter description of lun** for details. **Note**: This field is returned only when the queried object type is `lun`.
storagepools	Array of lun	A collection of storage pool information, see **Table 2 Parameter description of storagepool** for details. **Note**: This field is returned only when the queried object type is . `storagepool` or `storagepoolforlun`.

Table 1 Parameter description of lun

Name	Type	Description
lunName	Integer	LUN name.
status	String	LUN status: ● Normal: The LUN is normal. ● Deleting: The LUN is being deleted. ● DeleteFailed: The LUN deletion failed. ● Recovering: The LUN is recovering. ● RecoverFailed: The LUN recovered failed. ● Rollbacking: The LUN is rollbacking. ● Flattening: The chain-breaking process between the clone LUN and the snapshot is underway. The clone LUN is copying data from the source LUN. After the copy is complete, it becomes an independent LUN that no longer depends on the snapshot or source LUN. ● Importing: The LUN is being imported with backup data. ● Wiping: The LUN is being wiped. ● WipeFailed: The LUN data wiping failed.
capacity	Integer	The storage capacity of LUN. The unit is GiB.
storageMode	String	The storage mode for the LUN: ● Local: Store all data at local only. ● Cache: Store part of hot data at local and store all data in cloud asynchronously. ● Storage: Store all data at local and asynchronously store it in cloud.
config.localStorageClass	String	LUN redundancy mode (only supported by cluster mode): ● single-copy ● 2-copy ● 3-copy ● EC N+M.
config.ECfragmentSize	Integer	The fragment size of erasure code. This item is returned if the redundancy mode is EC N+M.

Table 2 Parameter description of storagepool

Name	Type	Description
name	String	The name of the storage pool.

isBasePool	Boolean	Whether it is a base storage pool: ● true: It is a base storage pool. ● false: It is not a base storage pool.
status	String	Status of the storage pool: ● Normal. ● Deleting.
faultDomain	String	Fault domain level of the storage pool: ● path. ● server. ● rack. ● room.
totalCapacity	Long	Total capacity of the storage pool, in bytes.
usedCapacity	Long	Used capacity of the storage pool, in bytes.

Sample Request 1

Standalone mode: Query all LUNs associated with the QoS policy QoS1.

```
GET /rest/v1/system/qos/QoS1?object=lun HTTP/1.1
Date: Fri, 15 Aug 2025 07:48:10 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 3be0bb06fb144b25a3d77beba4bf24f7
Connection: keep-alive
Content-Length: 182
Date: Fri, 15 Aug 2025 07:48:10 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "totalNum": 2,
        "luns": [
            {
                "lunName": "luna1",
                "status": "Normal",
                "capacity": 100,
                "storageMode": "Local"
            },
```

```
            {
                "lunName": "lunc3",
                "status": "Normal",
                "capacity": 390,
                "storageMode": "Cache"
            }
        ]
    }
}
```

Sample Request 2

Cluster mode: Query all LUNs associated with QoS policy QoS6.

```
GET /rest/v1/system/qos/QoS6?object=lun HTTP/1.1
Date: Tue, 05 Aug 2025 07:59:50 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 731afda1b93c4b3186ba1c9d5ab181ed
Connection: keep-alive
Content-Length: 447
Date: Tue, 05 Aug 2025 07:59:50 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "totalNum": 3,
        "luns": [
            {
                "lunName": "lun01a",
                "status": "Normal",
                "capacity": 200,
                "storageMode": "Local",
                "config": {
                    "localStorageClass": "EC 2+1",
                    "ECfragmentSize": 16
                }
            },
```

```
            {
                "lunName": "lunn01a-clone1",
                "status": "Normal",
                "capacity": 200,
                "storageMode": "Local",
                "config": {
                    "localStorageClass": "EC 2+1",
                    "ECfragmentSize": 16
                }
            },
            {
                "lunName": "lun04",
                "status": "Normal",
                "capacity": 404,
                "storageMode": "Local",
                "config": {
                    "localStorageClass": "EC 2+1",
                    "ECfragmentSize": 16
                }
            }
        ]
    }
}
```


Sample Request 3

Cluster mode: Query all storage pools associated with QoS policy QoS6.

```
GET /rest/v1/system/qos/QoS6?object=storagepool HTTP/1.1
Date: Fri, 04 Jul 2025 03:27:32 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 3

```
HTTP/1.1 200 OK
x-hblock-request-id: 18732cfc7cb74914a89c79ca1f324316
Connection: keep-alive
Content-Length: 286
Date: Fri, 04 Jul 2025 03:27:32 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

```
{
    "data": {
        "totalNum": 2,
        "storagepools": [
            {
                "name": "default",
                "isBasePool": true,
                "status": "Normal",
                "faultDomain": "server",
                "totalCapacity": 299111325696,
                "usedCapacity": 70197202944
            },
            {
                "name": "pool1",
                "isBasePool": false,
                "status": "Normal",
                "faultDomain": "server",
                "totalCapacity": 0,
                "usedCapacity": 0
            }
        ]
    }
}
```

Sample Request 4

Cluster mode: Query the storage pools whose default QoS policy for LUNs in the pool is set to QoS6.

```
GET /rest/v1/system/qos/QoS6?object=storagepoolforlun HTTP/1.1
Date: Fri, 04 Jul 2025 03:31:06 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.64:1443
```

Sample Response 4

```
HTTP/1.1 200 OK
x-hblock-request-id: e943ad21499844549fd553cc4ef86b57
Connection: keep-alive
Content-Length: 286
Date: Fri, 04 Jul 2025 03:31:06 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

```
{
    "data": {
        "totalNum": 2,
        "storagepools": [
            {
                "name": "pool1",
                "isBasePool": false,
                "status": "Normal",
                "faultDomain": "server",
                "totalCapacity": 0,
                "usedCapacity": 0
            },
            {
                "name": "default",
                "isBasePool": true,
                "status": "Normal",
                "faultDomain": "server",
                "totalCapacity": 299111325696,
                "usedCapacity": 70197215232
            }
        ]
    }
}
```

4.9.13 Error Code List

HTTP status	Error Code	Error Message
400	CanNotDeleteQoS	The QoS policy *Name* cannot be deleted. Please disassociate all the dependencies and try again.
400	InvalidQoSName	Value *value* at 'qos name' failed to satisfy the constraint: Argument must contain only letters, digits, or hyphens (-) and does not exceed 64 characters, must begin with a letter or digit.
400	MissingRelevantArgument	Value null at '*argument1*' failed to satisfy constraint: Argument must not be null when '*argument2*' has value.
404	NoSuchQoS	The QoS policy with name *Name* does not exist.
409	QoSAlreadyExists	The QoS policy with name *Name* already exists.

4.10 Cluster Topology (Cluster Mode)

4.10.1 Create a Topology Node

The operation is used to create a topology node.

Request Syntax

```
POST /rest/v1/system/topology HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "nodeName": nodeName,
    "nodeType": nodeType,
    "description": description,
    "parentName": nodeName
}
```

Request Parameters

Parameter	Type	Description	Required
nodeName	String	Specifies the name of a topology node. Value: The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes
nodeType	String	Specifies the type of a topology node. Value: ● rack: rack type. ● room: room type.	Yes
description	String	The description for the node. Value: The value is a string of 1 to 50 characters.	No
parentName	String	Specifies the name of the parent node. Value: The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit. The root node is used by default.	No

Sample Request

Create a node named rack3.

```
POST /rest/v1/system/topology HTTP/1.1
Date: Mon, 24 Jun 2024 09:34:29 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 119
Host: 192.168.0.110:1443

{
    "nodeName":"rack3",
    "nodeType": "rack",
    "description": "The new rack.",
    "parentName": "room-3"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: e59fb36c5d3e4a72a93d8eb8caa3ee7e
Connection: keep-alive
Content-Length: 0
Date: Mon, 24 Jun 2024 09:34:29 GMT
Server: HBlock
```

4.10.2 Modify Topology Node Information

The operation is used to modify the topology node information.

Note: You cannot modify the topology node information at the path level.

Request Syntax

```
PUT /rest/v1/system/topology/nodeName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "newName": nodeName,
    "description": description,
    "parentName": nodeName
}
```

Request Parameters

Parameter	Type	Description	Required
nodeName	String	Specifies the name of a topology node to be modified. Value: The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes
newName	String	Specifies the new name of a topology node. Value: The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	No
description	String	The description for the node. Value: The value is a string of 1 to 50 characters.	No
parentName	String	Specifies the name of parent node.Value: The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	No

		The root node is used by default.	

Sample Request

Modify the information of the node named rack3.

```
PUT /rest/v1/system/topology/rack3 HTTP/1.1
Date: Mon, 24 Jun 2024 10:10:38 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 94
Host: 192.168.0.110:1443

{
    "newName":"rack-3",
    "description": "The new rack.",
    "parentName": "room-3"
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 9182545a7fb2455da83cebb3177cf8a0
Connection: keep-alive
Date: Mon, 24 Jun 2024 10:10:38 GMT
Server: HBlock
```

4.10.3 Delete a Topology Node

The operation is used to delete a topology node.

Note:

- For a server node, all paths of this node do not belong to any storage pool. You can delete this server from the cluster. Otherwise, you can only forcibly remove this node, which may cause data loss.
- A room or rack node can be deleted from the cluster only if it does not have any child nodes. Otherwise, the node cannot be removed, nor can it be forcibly removed.
- For nodes with the same name, such as room1:rack1 and room2:rack1, *nodeName* can carry the name of the parent node. Otherwise, the node may not be found.
- You cannot use this command to delete the path node. If you want to delete the path node, please refer to Remove a Disk Path.

Request Syntax

```
DELETE /rest/v1/system/topology/nodeName?force=force&deleteLocalData=deleteLocalData HTTP/1.1
Date: date
Connection: keep-alive
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
nodeName	String	Specifies the name of a topology node to be deleted.	Yes
force	Boolean	Whether to force deleting the topology node. This parameter is supported when only server nodes are deleted. **Note**: Forcibly deleting the topology node may cause data loss. Value: ● true: Force deleting the topology node. ● false: Do not force deleting the topology node. The default value is false.	No
deleteLocalData	Boolean	Whether to delete the HBlock data on the disk paths of the server when deleting the server node. This parameter is supported when only server nodes are deleted. Value:	No

		• true: Delete the HBlock data. • false: Do not delete the HBlock data. The default value is false.	

Sample Request

Delete topology node named rack-3.

```
DELETE /rest/v1/system/topology/rack-3 HTTP/1.1
Date: Mon, 24 Jun 2024 10:21:24 GMT
Connection: keep-alive
Authorization: HBlock userName:signature
Host: 192.168.0.110:1443
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: b779af1c40d942b6b2f70819a42c1679
Connection: keep-alive
Content-Length: 0
Date: Mon, 24 Jun 2024 10:21:24 GMT
Server: HBlock
```

4.10.4 Query the Information of a Whole Topology

The operation is used to query the information of a whole topology.

Request Syntax

```
GET /rest/v1/system/topology HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Host: ip:port
Authorization: authorization
```

Response Elements

Name	Type	Description
name	String	The name of the node.
fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name*:*name*:*name* format to uniquely identify the name of the node.
id	String	The topology node ID.
type	String	The type of the topology node: root.
description	String	The description information of the topology node.
childNodes	Array of childNode	A collection of child node information. Different types of child nodes display different information. See **Table 1 Parameter description of ChildNode** for details.

Table 1 Parameter description of ChildNode

Name		Type	Description
The child node type is room.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name*:*name* format to uniquely identify the name of the node.
	id	String	The topology node ID.
	type	String	The type of the topology node.
	description	String	The description information of the topology node.
The child node type is rack.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name*:*name*:*name* format to uniquely identify the name of the node.
	id	String	The topology node ID.

	type	String	The type of the topology node.
	description	String	The description information of the topology node.
The child node type is server.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name:name:name* format to uniquely identify the name of the node.
	id	String	The topology node ID.
	serverId	String	The server ID.
	type	String	The type of the topology node.
	description	String	The description information of the topology node.
	clusterAddress	String	Cluster network IP of the topology diagram.
	publicAddress	String	Public network IP of the topology diagram.
	allDiskPaths.usedCapacity	Long	The used capacity of all disks where disk paths are located in the server, in bytes.
	allDiskPaths.totalCapacity	Long	The total capacity of all disks where the disk paths are located in the server, in bytes.
	serverStatus	String	The status of the server: ● Connected: The server is connected. ● Disconnected: The server is disconnected. ● Removing: The server is removing.
The child node type is path.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name:name:name* format to uniquely identify the name of the node.
	id	String	The topology node ID.
	serverId	String	The server ID to which it belongs.
	type	String	The type of the topology node.
	totalCapacity	Long	The total capacity of the disk where the disk path resides, in bytes.
	usedCapacity	Long	The used capacity of the disk where the disk path resides, in bytes.
	capacityQuota	Long	The capacity quota of the disk path in bytes, that is, for each disk path, the total amount of data that can be written by HBlock. A negative integer means unlimited writing
	usedCapacityQuota	Long	The total amount of data that has be written

			to the disk path by HBlock, in bytes.
	storagePool	String	The storage pool to which it belongs.
	healthStatus	String	The health status of the disk path: ● Healthy: The disk path is in a healthy status and can be read and written normally, and the disk usage of the disk path does not exceed the threshold (the system default value is 95%). ● Warning: The disk path is warning and is readable, but one or more of the following situations exist: slow disk, the utilization rate of the disk where the disk path resides exceeds the threshold (the system default value is 95%), the remaining disk space is less than 1GiB, HBlock stops writing to this path, the capacity quota usage of the disk path exceeds the threshold (the system default value is 95%), or the capacity quota of the disk path is set to 0. ● Error: The disk path is in an error status and cannot be accessed. The reasons may be that an I/O error occurs on the disk, resulting in the inability to read or write, or the disk path is not mounted correctly, etc.
	healthDetail	Array of string	The health details of the disk path. ● If the health status is Heathy, this item is empty. ● If the health status is Warning or Error, detailed information about the warning or error is displayed.

Sample Request

Query the information of the topology.

```
GET /rest/v1/system/topology/room1 HTTP/1.1
Date: Fri, 2 Aug 2024 10:12:05 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.110:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: a04f0b22a3844518afb8ab61e5bc3757
Connection: keep-alive
Content-Length: 2480
Date: Fri, 2 Aug 2024 10:12:05 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "name": "room1",
        "fullname": "default:room1",
        "id": "00457811-af8e-4f39-ba6c-f856cdc173f8",
        "type": "room",
        "childNodes": [
            {
                "name": "rack2",
                "fullname": "default:room1:rack2",
                "id": "3f591741-a387-44d2-8ae8-36c4ba546bd2",
                "type": "rack",
                "childNodes": [
                    {
                        "name": "server1",
                        "fullname": "default:room1:rack2:server1",
                        "id": "36a55e61-47e5-43f0-9d73-357a86d3ff53",
                        "serverId": "hblock_1",
                        "type": "server",
                        "clusterAddress": "192.168.0.192",
                        "publicAddress": "192.168.0.192",
                        "allDiskPaths": {
                            "usedCapacity": 18887569408,
                            "totalCapacity": 136132825088
                        },
                        "serverStatus": "Connected",
                        "childNodes": [
                            {
                                "name": "/mnt/stor",
                                "fullname": "default:room1:rack2:server1:/mnt/stor",
                                "id": "d14f3938-a6de-4950-87bc-e461d743284a",
```

```
                            "serverId": "hblock_1",
                            "type": "path",
                            "totalCapacity": 100169342976,
                            "usedCapacity": 11510775808,
                            "capacityQuota": -1,
                            "usedCapacityQuota": 172032,
                            "storagePool": "default",
                            "healthStatus": "Healthy",
                            "healthDetail": []
                        },
                        {
                            "name": "/mnt/storage01",
                            "fullname": "default:room1:rack2:server1:/mnt/storage01",
                            "id": "9999d96e-1032-404c-85de-4c76f8100e12",
                            "serverId": "hblock_1",
                            "type": "path",
                            "totalCapacity": 35963482112,
                            "usedCapacity": 7376793600,
                            "capacityQuota": -1,
                            "usedCapacityQuota": 106496,
                            "storagePool": "default",
                            "healthStatus": "Healthy",
                            "healthDetail": []
                        }
                    ]
                }
            ]
        },
        {
            "name": "server2",
            "fullname": "default:room1:server2",
            "id": "444dd9a4-88db-4df5-9959-88d7b82edad8",
            "serverId": "hblock_2",
            "type": "server",
            "clusterAddress": "192.168.0.110",
            "publicAddress": "192.168.0.110",
            "allDiskPaths": {
                "usedCapacity": 8582782976,
                "totalCapacity": 100169342976
            },
            "serverStatus": "Connected",
```

```
            "childNodes": [
                {
                    "name": "/mnt/stor",
                    "fullname": "default:room1:server2:/mnt/stor",
                    "id": "1451c75b-2e6f-4cbe-82ab-962019247f35",
                    "serverId": "hblock_2",
                    "type": "path",
                    "totalCapacity": 100169342976,
                    "usedCapacity": 8582782976,
                    "capacityQuota": -1,
                    "usedCapacityQuota": 229376,
                    "storagePool": "default",
                    "healthStatus": "Healthy",
                    "healthDetail": []
                }
            ]
        },
        {
            "name": "server3",
            "fullname": "default:room1:server3",
            "id": "f89a94bc-2cc3-4ac9-b5dc-13d227b40cf4",
            "serverId": "hblock_3",
            "type": "server",
            "clusterAddress": "192.168.0.102",
            "publicAddress": "192.168.0.102",
            "allDiskPaths": {
                "usedCapacity": 11067289600,
                "totalCapacity": 100169342976
            },
            "serverStatus": "Connected",
            "childNodes": [
                {
                    "name": "/mnt/stor",
                    "fullname": "default:room1:server3:/mnt/stor",
                    "id": "effad142-9e34-43f4-8390-ccb5c211f60f",
                    "serverId": "hblock_3",
                    "type": "path",
                    "totalCapacity": 100169342976,
                    "usedCapacity": 11067289600,
                    "capacityQuota": -1,
                    "usedCapacityQuota": 229376,
```

```
                        "storagePool": "default",
                        "healthStatus": "Healthy",
                        "healthDetail": []
                    }
                ]
            }
        ]
    }
}
```

4.10.5 Query the Information of a Specified Topology Node

The operation is used to query the information of a specified topology node.

Request Syntax

```
GET /rest/v1/system/topology/nodeName HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
nodeName	String	Specifies the name of a topology node to be queried. Note: Cannot query node information at the path level.	Yes

Response Elements

Name	Type	Description
name	String	The name of the node.
fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name*:*name*:*name* format to uniquely identify the name of the node.
id	String	The topology node ID.
type	String	The type of the topology node: ● server. ● rack. ● room. ● root.
description	String	The description information of the topology node.
childNodes	Array of childNode	A collection of child node information. Different types of child nodes display different information. See **Table 1 Parameter description of ChildNode** for details.

Table 1 Parameter description of ChildNode

Name		Type	Description
The child node type is room.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name*:*name* format to uniquely identify the name of the node.

	id	String	The topology node ID.
	type	String	The type of the topology node.
	description	String	The description information of the topology node.
The child node type is rack.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name:name:name* format to uniquely identify the name of the node.
	id	String	The topology node ID.
	type	String	The type of the topology node.
	description	String	The description information of the topology node.
The child node type is server.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name:name:name* format to uniquely identify the name of the node.
	id	String	The topology node ID.
	serverId	String	The server ID.
	type	String	The type of the topology node.
	description	String	The description information of the topology node.
	clusterAddress	String	Cluster network IP of the topology diagram.
	publicAddress	String	Public network IP of the topology diagram.
	allDiskPaths.usedCapacity	Long	The used capacity of all disks where disk paths are located in the server, in bytes.
	allDiskPaths.totalCapacity	Long	The total capacity of all disks where the disk paths are located in the server, in bytes.
	serverStatus	String	The status of the server: ● Connected: The server is connected. ● Disconnected: The server is disconnected. ● Removing: The server is removing.
The child node type is path.	name	String	The name of a child node.
	fullname	String	The full path name of a node in the cluster, starting from the root node, using the *name:name:name* format to uniquely identify the name of the node.
	id	String	The topology node ID.
	serverId	String	The server ID to which it belongs.

	type	String	The type of the topology node.
	totalCapacity	Long	The total capacity of the disk where the disk path resides, in bytes.
	usedCapacity	Long	The used capacity of the disk where the disk path resides, in bytes.
	capacityQuota	Long	The capacity quota of the disk path in bytes, that is, for each disk path, the total amount of data that can be written by HBlock. A negative integer means unlimited writing
	usedCapacityQuota	Long	The total amount of data that has be written to the disk path by HBlock, in bytes.
	storagePool	String	The storage pool to which it belongs.
	healthStatus	String	The health status of the disk path: ● Healthy: The disk path is in a healthy status and can be read and written normally, and the disk usage of the disk path does not exceed the threshold (the system default value is 95%). ● Warning: The disk path is warning and is readable, but one or more of the following situations exist: slow disk, the utilization rate of the disk where the disk path resides exceeds the threshold (the system default value is 95%), the remaining disk space is less than 1GiB, HBlock stops writing to this path, the capacity quota usage of the disk path exceeds the threshold (the system default value is 95%), or the capacity quota of the disk path is set to 0. ● Error: The disk path is in an error status and cannot be accessed. The reasons may be that an I/O error occurs on the disk, resulting in the inability to read or write, or the disk path is not mounted correctly, etc.
	healthDetail	Array of string	The health details of the disk path. ● If the health status is Heathy, this item is empty. ● If the health status is Warning or Error,

			detailed information about the warning or error is displayed.

Sample Request

Query the information of node room1.

```
GET /rest/v1/system/topology/room1 HTTP/1.1
Date: Fri, 2 Aug 2024 10:12:05 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.110:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: a04f0b22a3844518afb8ab61e5bc3757
Connection: keep-alive
Content-Length: 2480
Date: Fri, 2 Aug 2024 10:12:05 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "name": "room1",
        "fullname": "default:room1",
        "id": "00457811-af8e-4f39-ba6c-f856cdc173f8",
        "type": "room",
        "childNodes": [
            {
                "name": "rack2",
                "fullname": "default:room1:rack2",
                "id": "3f591741-a387-44d2-8ae8-36c4ba546bd2",
                "type": "rack",
                "childNodes": [
                    {
                        "name": "server1",
                        "fullname": "default:room1:rack2:server1",
                        "id": "36a55e61-47e5-43f0-9d73-357a86d3ff53",
                        "serverId": "hblock_1",
                        "type": "server",
                        "clusterAddress": "192.168.0.192",
```

```
                    "publicAddress": "192.168.0.192",
                    "allDiskPaths": {
                        "usedCapacity": 18887569408,
                        "totalCapacity": 136132825088
                    },
                    "serverStatus": "Connected",
                    "childNodes": [
                        {
                            "name": "/mnt/stor",
                            "fullname": "default:room1:rack2:server1:/mnt/stor",
                            "id": "d14f3938-a6de-4950-87bc-e461d743284a",
                            "serverId": "hblock_1",
                            "type": "path",
                            "totalCapacity": 100169342976,
                            "usedCapacity": 11510775808,
                            "capacityQuota": -1,
                            "usedCapacityQuota": 172032,
                            "storagePool": "default",
                            "healthStatus": "Healthy",
                            "healthDetail": []
                        },
                        {
                            "name": "/mnt/storage01",
                            "fullname": "default:room1:rack2:server1:/mnt/storage01",
                            "id": "9999d96e-1032-404c-85de-4c76f8100e12",
                            "serverId": "hblock_1",
                            "type": "path",
                            "totalCapacity": 35963482112,
                            "usedCapacity": 7376793600,
                            "capacityQuota": -1,
                            "usedCapacityQuota": 106496,
                            "storagePool": "default",
                            "healthStatus": "Healthy",
                            "healthDetail": []
                        }
                    ]
                }
            ]
        },
        {
            "name": "server2",
```

```
            "fullname": "default:room1:server2",
            "id": "444dd9a4-88db-4df5-9959-88d7b82edad8",
            "serverId": "hblock_2",
            "type": "server",
            "clusterAddress": "192.168.0.110",
            "publicAddress": "192.168.0.110",
            "allDiskPaths": {
                "usedCapacity": 8582782976,
                "totalCapacity": 100169342976
            },
            "serverStatus": "Connected",
            "childNodes": [
                {
                    "name": "/mnt/stor",
                    "fullname": "default:room1:server2:/mnt/stor",
                    "id": "1451c75b-2e6f-4cbe-82ab-962019247f35",
                    "serverId": "hblock_2",
                    "type": "path",
                    "totalCapacity": 100169342976,
                    "usedCapacity": 8582782976,
                    "capacityQuota": -1,
                    "usedCapacityQuota": 229376,
                    "storagePool": "default",
                    "healthStatus": "Healthy",
                    "healthDetail": []
                }
            ]
        },
        {
            "name": "server3",
            "fullname": "default:room1:server3",
            "id": "f89a94bc-2cc3-4ac9-b5dc-13d227b40cf4",
            "serverId": "hblock_3",
            "type": "server",
            "clusterAddress": "192.168.0.102",
            "publicAddress": "192.168.0.102",
            "allDiskPaths": {
                "usedCapacity": 11067289600,
                "totalCapacity": 100169342976
            },
            "serverStatus": "Connected",
```

```
                "childNodes": [
                    {
                        "name": "/mnt/stor",
                        "fullname": "default:room1:server3:/mnt/stor",
                        "id": "effad142-9e34-43f4-8390-ccb5c211f60f",
                        "serverId": "hblock_3",
                        "type": "path",
                        "totalCapacity": 100169342976,
                        "usedCapacity": 11067289600,
                        "capacityQuota": -1,
                        "usedCapacityQuota": 229376,
                        "storagePool": "default",
                        "healthStatus": "Healthy",
                        "healthDetail": []
                    }
                ]
            }
        ]
    }
}
```

4.10.6 Error Code List

HTTP status	Error Code	Error Message
400	CanNotDeleteNode	The node *nodeNam*e can not be deleted. Please remove its child nodes and try again.
400	CanNotMoveNode	The node *nodeName* can not be moved. Please make sure the node type is not lower than the fault domain level of storage pool which its leaf node belongs to.
400	DuplicatedNode	The node with name *nodeName* is not unique in the topology.
400	InvalidEnumValue	Value *value* at 'node type' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...]
400	InvalidFile	Failed to parse file *filename*.
400	InvalidNodeName	Value *value* at 'node name' failed to satisfy constraint: Argument must contain only letters, digits, dots (.), underscores (_) or hyphens (-), and does not exceed 63 characters, must begin with a letter or digit.
400	NodeAlreadyExists	The node with name *nodeName* has already exists in the topology.
400	NodeNotAllowed	The type of node *nodeName* is *type*, the request is invalid.
400	NoSuchNode	The node with name *nodeName* does not exist.
400	NodeTypeNotMatch	Node type does not match. Please check parent node type.
400	RemoveNodeRisk	The node *nodeName* or its child nodes are being used by a storage pool. Removing the node may cause data loss. You can use force remove. When using this option, there may be a risk of data loss.
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
400	SystemCrashRisk	The node *nodename* can not be removed because there is only one available fault domain left in the base storage pool, or the node is related to multiple fault domains in the base pool, removing node may result in a system crash.

4.11 Server Management

4.11.1 Add a Server (Cluster Mode)

This operation is used to add a new server to the cluster.
Please perform the following steps on the server to be added first:

1. Copy the installation package to the installation path.
2. Unzip the installation package.
3. Execute **`./stor install`** command to install.

Then perform the add server operation on any of the servers in the cluster.

Note:

- Please ensure that the Linux user has permission for the required ports. By default, Linux systems do not open ports less than 1024 to ordinary users without root privileges.
- When setting the port range (`portRange`), please avoid overlapping with the local temporary port range of the Linux system (`ip_local_port_range`), otherwise the port used by the HBlock service may be occupied. Use the command **`cat /proc/sys/net/ipv4/ip_local_port_range`** to view the local temporary port range.

Request Syntax

```
POST /rest/v1/system/server HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "nodeName": nodeName,
    "parentName": nodeName,
    "description": description,
    "ip": ip,
    "apiPort": apiPort,
    "iSCSIPort": iSCSIPort,
    "portRange": port1-port2,
    "diskPaths": [
          { "path":path,
           "capacityQuota": capacityvalue
```

```
          },
          { "path":path,
           "capacityQuota": capacityvalue
          },
         ……
         ],
    "ports":{
           "dataPort1": dataPort1,
           "managementPort1": managementPort1,
           "managementPort2": managementPort2,
           "managementPort3": managementPort3,
           "managementPort4": managementPort4,
           "managementPort5": managementPort5,
           "managementPort6": managementPort6
        }
}
```

Request Parameters

Parameter	Type	Description	Required
nodeName	String	Specifies the name of a server node. Value: The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit. The server ID is used by default as node name.	No
parentName	String	Specifies a parent node. The root node is used by default.	No
description	String	Specifies the description for the node. Value: The value is a string of 1 to 50 characters.	No
ip	String	Specifies the server IP to be added. IPv4 or IPv6.	Yes
apiPort	Integer	Specifies the API port. Value: The value is an integer that ranges from 1 to 65535, the default value is 1443. It needs to be consistent with the API port number set when installing HBlock on the server.	No
iSCSIPort	Integer	Specifies the iSCSI port.	No

		Value: The value is an integer that ranges from 1 to 65535. The default value is 3260.	
portRange	String	Specifies the port range. Storage services and services without specified ports will automatically be assigned ports from this range. The value is an integer that ranges from 1 to 65535. *PORT1* is the minimum value of the port range, *PORT2* is the maximum value of the port range, and *port1<port2*. The default value of *PORT1* is 20000, and the default value of *PORT2* is 20500. **Note**: It is recommended that the specified port range contains at least 500 ports.	No
diskPaths	Array of diskPath	A collection of disk paths properties. See **Table 1 Parameter description of diskPath** for details.	No
ports.dataPort1	Integer	Specifies the data port 1. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort1	Integer	Specifies the management service port 1. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort2	Integer	Specifies the management service port 2. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort3	Integer	Specifies the management service port 3. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort4	Integer	Specifies the management service port 4. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort5	Integer	Specifies the management service port 5. Value: The value is an integer that ranges from 1 to 65535.	No
ports.managementPort6	Integer	Specifies the management service port 6. Value: The value is an integer that ranges from 1 to 65535.	No

Table 1 Parameter description of diskPath

Parameter	Type	Description	Required
path	String	Specifies the disk path. The disk path is used to store data and it is not recommended to share disks or file systems with the operating system. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :.	No
capacityQuota	Long	Specifies the capacity quota of the disk path, that is, for each disk path added to server, the total amount of data that can be written by HBlock Once the space used by HBlock reaches the quota, data writing is immediately blocked, and no more space is allowed to be used beyond the quota. Value: Less than the total capacity of the disk where the disk path resides, in bytes. A negative integer means unlimited writing and 0 means write inhibit. Writes are not limited by default. **Note**: If the same disk path appears multiple times, the capacity quota of the disk path that appears first shall prevail.	No

Sample Request

Add the server whose IP is 192.168.0.202 to the cluster, and the disk paths are /mnt/storage01 and /mnt/storage02.

```
POST /rest/v1/system/server HTTP/1.1
Date: Mon, 7 Apr 2025 10:07:39 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 180
Host: 192.168.0.110:1443

{
    "ip": "192.168.0.202",
    "diskPaths": [
```

```
        {
            "path": "/mnt/storage01"
        },
        {
            "path": "/mnt/storage02"
        }
    ]
}
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 169b96ef760644759afb69470f903fc0
Connection: keep-alive
Date: Mon, 7 Apr 2025 10:07:39 GMT
Content-Length: 11
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {}
}
```

4.11.2 Set Specific Server Properties

This operation is used to set specific server properties.

Note: When editing the port range (`portRange`), please avoid coinciding with the local temporary port range of the Linux system(`ip_local_port_range`), otherwise the port used by the HBlock service may be occupied. Use the command `cat /proc/sys/net/ipv4/ip_local_port_range` to view the local temporary port range.

Request Syntax

```
PUT /rest/v1/system/server/serverId HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization:authorization

{
    "targetPortalIP": {
        "ips":[
                {
                    "ip": ip,
                    "port": port,
                }
        ],
        "status": status
    },
    "defaultPath": defaultPath,
    "portRange": port1-port2
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the server ID to be modified.	Yes
targetPortalIP.ips	Array of ip	A collection of portal attributes of an iSCSI target. See **Table 1 Parameter description of targetPortalIP.ip** for details. **Note**: ● If the server and client are not in the same network segment (for example, the server is on the intranet and the client is	No

		on the extranet) and are connected through a NAT device (such as a router), you need to add the extranet address and port of the NAT device to the server, so that clients on the extranet can normally establish iSCSI connections with the target of the server. ● When specifying the target portal, it is recommended to specify only one server ID.	
targetPortalIP.status	String	Specifies the iSCSI target port IP status. Value: ● Enabled. ● Disabled.	Yes
defaultPath	String	Specifies the default disk path, only supported by standalone mode. The disk path must have been added to the HBlock system and the state is Normal.	No
portRange	String	Specifies the port range to use for related services. Value: The value is an integer that ranges from 1 to 65535, *port1* is the minimum value of the port range, *port2* is the maximum value of the port range, and *port1< port2.* **Note**: It is recommended that the specified port range contains at least 500 ports.	No

Table 1 Parameter description of targetPortalIP.ip

Parameter	Type	Description	Required
ip	String	Specifies the iSCSI target portal IP. **Note**: ip and port must exist at the same time, or they must not exist at the same time.	No
port	Integer	Specifies the iSCSI target portal port number. **Note**: ip and port must exist at the same time, or they must not exist at the same time. Value: The value is an integer that ranges from 1 to 65535.	No

Sample Request 1

Standalone Mode: Set the iSCSI target portal IP and port of server hblock_1 to 10.1.0.1 and 101, and set the default disk path to /mnt/storage01.

```
PUT /rest/v1/system/server/hblock_1 HTTP/1.1
Date: Fri, 29 Jul 2022 09:12:25 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 270
Host: 192.168.0.69:1443

{
    "targetPortalIP": {
        "ips":[
                {
                  "ip":"10.1.0.1",
                  "port":"101"
                }
              ],
        "status":"Enabled"
       },
    "defaultPath":"/mnt/storage01"
}
```

Sample Response 1

```
HTTP/1.1 204 No Content
x-hblock-request-id: facb844a44034035bd9254c7d901cfac
Connection: keep-alive
Date: Fri, 29 Jul 2022 09:12:25 GMT
Server: HBlock
```

Sample Request 2

Cluster Mode: Set the iSCSI target portal IP and port of server hblock_1 to 10.1.0.1 and 101.

```
PUT /rest/v1/system/server/hblock_1 HTTP/1.1
Date: Fri, 29 Jul 2022 09:00:33 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 221
Host: 192.168.0.121:1443

{
    "targetPortalIP": {
        "ips":[
                {
                  "ip":"10.1.0.1",
```

```
                  "port":"101"
                }
              ],
        "status":"Enabled"
      }
}
```

Sample Response 2

```
HTTP/1.1 204 No Content
x-hblock-request-id: cbe33ebab9ad46df9fe691b71585e230
Connection: keep-alive
Date: Fri, 29 Jul 2022 09:00:33 GMT
Server: HBlock
```

4.11.3 Set Server Properties in Batches

This operation is used to set server properties in batches.
The newly added data service ports will be selected from the modified port range, and the used port values will remain unchanged.
Note:

- When editing the port range (`portRange`), please avoid coinciding with the local temporary port range of the Linux system(`ip_local_port_range`), otherwise the port used by the HBlock service may be occupied. Use the command **`cat /proc/sys/net/ipv4/ip_local_port_range`** to view the local temporary port range.
- If specify the server IDs or all servers, after modifying the HBlock available memory (`maxMemoryRatio` or `maxMemorySize`), you must restart the HBlock services **cs** and **ps** on the corresponding server for the changes to take effect. If the available memory for HBlock is adjusted from less than 8 GiB to greater than or equal to 8 GiB, or vice versa, you must restart the HBlock services **ms** on the corresponding server:
  - Specific server: If you modify the HBlock memory for a specific server, restart the relevant services on the server.
  - `all`: If the target servers for the HBlock memory parameter are set to `default` or `all`, restart the relevant services on all servers.

Request Syntax

```
PUT /rest/v1/system/server HTTP/1.1
Date:date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization:authorization

{
    "action": "setProperties",
    "serverIds": [serverId1, serverId2, … ],
    "targetPortalIP": {
        "ips":[
            {
            "ip": ip,
            "port": port,
```

```
            }
        ],
         "status": status
    },
    "defaultPath": defaultPath,
    "portRange": port1-port2,
    "maxMemoryRatio": maxMemoryRatio,
    "maxMemorySize": maxMemorySize
}
```

Request Parameters

Parameter	Type	Description	Required
action	String	Operation action. Value: ● setProperties: Sets server properties.	Yes
serverIds	Array of string	Specifies the server to be configured. Value: ● SERVER_ID: Specifies the server ID to be modified. ● all: Specifies modifying the configuration of all HBlock servers. ● default: Specifies the default memory usage and port range for HBlock nodes that will join the cluster subsequently. By default, the configuration of all servers is modified. **Note**: Multiple parameters can be specified at a time.	No
targetPortalIP.ips	Array of ip	A collection of portal attributes of an iSCSI target. See **Table 1 Parameter description of targetPortalIP.ip** for details. **Note**: ● If the server and client are not in the same network segment (for example, the server is on the intranet and the client is on the extranet) and are connected through a NAT device (such as a router), you need to add the extranet address and port of the NAT device to the server, so	No

		that clients on the extranet can normally establish iSCSI connections with the target of the server. ● When specifying the target portal, it is recommended to specify only one server ID.	
targetPortalIP.status	String	Specifies the iSCSI target port IP status. Value: ● Enabled. ● Disabled.	Yes
defaultPath	String	Specifies the default disk path, only supported by standalone mode. The disk path must have been added to the HBlock system and the state is Normal.	No
portRange	String	Specifies the port range to use for related services. Value: The value is an integer that ranges from 1 to 65535, *port1* is the minimum value of the port range, *port2* is the maximum value of the port range, and *port1< port2.* **Note**: It is recommended that the specified port range contains at least 500 ports.	No
maxMemoryRatio	Double	Specifies the upper limit of the proportion of system total memory that HBlock can use. Value: The value range is [0.01, 1], supporting up to 2 decimal places. **Note**: ● The actual memory occupied by HBlock is related to the number of disks added to the storage pool and may exceed the set proportion limit. Once exceeded, the system event "InsufficientMemory" will be triggered. ● When both `maxMemoryRatio` and `maxMemorySize` are set, the minimum value of the two is used.	No
maxMemorySize	Long	Specifies the maximum memory available for HBlock. Value: The value is an integer that ranges from 2,147,483,648 to 9,223,372,036,854,775,807. The unit is bytes.	No

		Note: ● The actual memory occupied by HBlock is related to the number of disks added to the storage pool and may exceed the set proportion limit. Once exceeded, the system event "InsufficientMemory" will be triggered. ● When both `maxMemoryRatio` and `maxMemorySize` are set, the minimum value of the two is used.	

Table 1 Parameter description of targetPortalIP.ip

Parameter	Type	Description	Required
ip	String	Specifies the iSCSI target portal IP. **Note**: ip and port must exist at the same time, or they must not exist at the same time.	No
port	Integer	Specifies the iSCSI target portal port number. **Note**: ip and port must exist at the same time, or they must not exist at the same time. Value: The value is an integer that ranges from 1 to 65535.	No

Sample Request 1

Standalone Mode: Set the iSCSI target portal IP and port to 10.1.0.1 and 101, set the default disk path to /mnt/storage01, set the port range to 19500-21500, and set the upper limit of the proportion of system total memory that HBlock can use to 0.8.

```
PUT /rest/v1/system/server HTTP/1.1
Date: Fri, 09 Jan 2026 01:56:58 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Connection: keep-alive
Content-Length: 319
Host: 192.168.0.66:1443

{
    "action": "setProperties",
    "targetPortalIP": {
        "ips": [
            {
```

```
                "ip": "10.1.0.1",
                "port": "101"
            }
        ],
        "status": "Enabled"
    },
    "defaultPath": "/mnt/stor01",
    "portRange": "19500-21500",
    "maxMemoryRatio": 0.8
}
```

Sample Response 1

```
HTTP/1.1 204 No Content
x-hblock-request-id: c1983e31153d4ad6b89ef4d7d3b2b2e3
Connection: keep-alive
Date: Fri, 09 Jan 2026 01:56:58 GMT
Content-Type: application/json; charset=utf-8
Server: HBlock
```

Sample Request 2

Cluster Mode: Set the iSCSI target portal IP and port of server hblock_1 to: 10.1.0.3 and 105, set the port range to 19500-22515, and set upper limit of the proportion of system total memory that HBlock can use to 0.95. Also set the default memory usage limit to 0.95 for HBlock nodes subsequently added to the cluster.

```
PUT /rest/v1/system/server HTTP/1.1
Date: Fri, 09 Jan 2026 03:09:48 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Connection: keep-alive
Content-Length: 353
Host: 192.168.0.65:1443

{
    "action": "setProperties",
    "serverIds": [
        "hblock_1",
        "default"
    ],
    "targetPortalIP": {
```

```
        "ips": [
            {
                "ip": "10.1.0.3",
                "port": "105"
            }
        ],
        "status": "Enabled"
    },
    "portRange": "19500-22515",
    "maxMemoryRatio": 0.95
}
```

Sample Response 2

```
HTTP/1.1 204 No Content
x-hblock-request-id: 4c66e360cee64e4d8bdb33a479e224a0
Connection: keep-alive
Date: Fri, 09 Jan 2026 03:09:48 GMT
Content-Type: application/json; charset=utf-8
Server: HBlock
```

4.11.4 Delete Server Properties

This operation is used to delete the server **targetPortalIP** configuration.

Request Syntax

```
DELETE /rest/v1/system/server/serverId/targetportalIP HTTP/1.1
Date:date
Host: ip:port
Authorization:authorization
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Server ID of the targetPortalIP configuration to be deleted.	Yes

Sample Request

Delete the iSCSI target portal IP of hblock_1.

```
DELETE /rest/v1/system/server/hblock_1/targetportalIP HTTP/1.1
Date: Thu, 17 Mar 2022 01:01:08 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 821c5921163f47d292aa281887c551f3
Connection: keep-alive
Date: Thu, 17 Mar 2022 01:01:09 GMT
Server: HBlock
```

4.11.5 Migrate the Base Services on the Server (Cluster Mode)

This operation is used to migrate base services on the HBlock server, including mdm (metadata management service), ls (log service), and cs (coordination service).

Application scenario: If the server where base services are located is damaged or broken down, you can migrate base services on the server to prevent HBlock service interruption.

You can query the status of base services by querying the specified server. Only one base service can be migrated at a time. If there is an ongoing migration process for a base service, you must wait for it to complete before performing other service migration operations.

Note:

- When migrating the ls service, ensure that the two mdm services and the other two ls services are up and that ms services (management services) on all nodes except the source server are normal. The service status can be obtained by querying the server.
- When migrating the mdm service, ensure that another mdm service is up and that the ps service (protocol resolution service) and ms service (management service) on all nodes except the source server are normal. The service status can be obtained by querying the server.
- When migrating the cs service, ensure that the other two cs services are up and that the ps service (protocol resolution service) and ms service (management service) on all nodes except the source server are normal. The service status can be obtained by querying the server.

Request Syntax

```
PUT /rest/v1/system/server/serverId/migrate HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "destServerId": serverId,
    "service": service,
    "metaDir": path
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the source HBlock server ID.	Yes
destServerId	String	Specifies the destination server ID.	Yes
service	String	Specifies the base services to be migrated.	Yes

		Value: ● mdm: metadata management service. ● ls: log service. ● cs: coordination service.	
metaDir	String	The disk path of the migration service is used to store relevant data information of the basic service. **Note**: In order to improve read-write performance, it is recommended that the disk path of the migration service be independent of the installation disk path and the disk path where data is stored. Value: It can only contain letters, numbers, Chinese characters, or the special characters ~ ! @ $ ( ) _ + - ; . :. The default value is the installation disk path.	No

Sample Request

Migrate the mdm service from server hblock_1 to server hblock_3.

```
PUT /rest/v1/system/server/hblock_1/migrate HTTP/1.1
Date: Thu, 4 Jul 2024 05:50:03 GMT
Content-Type: application/json
Authorization: HBlock userName:signature
Connection: keep-alive
Content-Length: 59
Host: 192.168.0.110:1443

{
    "destServerId": "hblock_3",
    "service": "mdm"
}
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 81b9f9c90114466695f1a114a524c191
Content-Length: 0
Date: Thu, 4 Jul 2024 05:50:03 GMT
Connection: keep-alive
Server: HBlock
```

4.11.6 Remove a Server (Cluster Mode)

This operation is used to remove the server from the HBlock cluster.

Note:

- If there is an iSCSI target on the server to be removed, and the high availability type of the LUN in the iSCSI target is ActiveStandby. When the server is removed, the service will not be interrupted, and the iSCSI target of the LUN on the server will be switched to another server, the client needs to reconnect to the iSCSI target.
- If there is an iSCSI target on the server to be removed, and the high availability type of the LUN in the iSCSI target is Disabled. When the server is removed, the service will be interrupted, and the iSCSI target of the LUN on the server will be switched to another server, the client needs to reconnect to the iSCSI target. When removing the server, there is a risk of data loss.
- If the generated log is saved in the server installation directory after log collection, it will be deleted after the server is removed. If the generated log is saved in the disk path of HBlock and `deleteLocalData` is true, the log will also be deleted.
- While a server is being removed, other servers cannot be removed. If it must be removed, please use force removal, but there is a risk of data loss.
- All disk paths on this node do not belong to any storage pool. Therefore, you can remove this server. Otherwise, the server cannot be removed. If you must remove the server, forcibly remove it, which may cause data loss.
- If a disk path of a server to remove belongs to the base storage pool and is the only node in the available fault domain in the base storage pool, the disk path cannot be removed.

Request Syntax

```
DELETE /rest/v1/system/server/serverId?force=force&deleteLocalData=deleteLocalData
HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies server ID of the server to be removed.	Yes
force	Boolean	Whether to force the server to be removed. **Note**: Forcibly removing the server may cause a risk of data loss. Value: ● true.	No

		● false. The default value is false.	
deleteLocalData	Boolean	Whether to delete the data in the HBlock disk paths of the server when the server is removed Value: ● true: Delete the data in the HBlock disk paths of the server when the server is removed. ● false: Do not delete the data in the HBlock disk paths of the server when the server is removed. The default value is false.	No

Response Elements

Name	Type	Description
luns	Array of lun	A collection of attribute information of the LUN on the removed server, see **Table 1 Parameter description of lun** for details.

Table 1 Parameter description of lun

Name	Type	Description
lunName	String	The LUN name on the removed server.
iSCSITargets	Array of iSCSITarget	A collection of iSCSI target properties corresponding to the LUN on the removed server, see **Table 2 Parameter description of iSCSITarget** for details.

Table 2 Parameter description of iSCSITarget

Name	Type	Description
iqn	String	The new iSCSI target IQN corresponding to the LUN on the removed server.
status	String	The status of the target corresponding to the LUN on the removed server: ● Active: Active target. ● Standby: Hot standby target. ● Offline: offline target. ● Unavailable: Cold standby target.
ips	Array of ip	A collection of IP attributes of an iSCSI target on the removed server, see **Table 3 Parameter description of ip** for details.

Table 3 Parameter description of ip

Name	Type	Description
ip	String	The new iSCSI target IP of the LUN on the removed server.

port	Integer	The new iSCSI target port of the LUN on the removed server.

Sample Request

Remove server hblock_4.

```
DELETE / rest/v1/system/server/hblock_4?force=false&deleteLocalData=false HTTP/1.1
Date: Thu, 17 Mar 2022 02:16:39 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: a1546d76c10a4758ae4b19f7fe140a02
Connection: keep-alive
Content-Length: 276
Date: Thu, 17 Mar 2022 02:16:42 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "luns": [
            {
                "lunName": "lun4",
                "iSCSITargets": [
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target4.15",
                        "status": "Offline",
                        "ips": [
                            {
                                "ip": "192.168.0.72",
                                "port": 3260
                            }
                        ]
                    },
                    {
                        "iqn": "iqn.2012-08.cn.ctyunapi.oos:target4.16",
                        "status": "Standby",
                        "ips": [
                            {
                                "ip": "192.168.0.121",
                                "port": 3260
```

```
                            }
                        ]
                    }
                ]
            }
        ]
    }
}
```

4.11.7 Restart HBlock on the Server

This operation is used to restart HBlock on current server.

Request Syntax

```
PUT /rest/v1/system/server/serverId/restart HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "scope": [service1, service2,……],
    "force": force
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the server ID.	Yes
scope	Array of string	The scope of HBlock services to restart. Multiple services can be specified at one time, separated by comma (,). Value: ● All: Restart all services on the server. ● Min: Restart only the ms and ps services on the server. ● mdm: Metadata management service (only supported by cluster mode). ● fc: Failover control service (only supported by cluster mode). ● ls: Ledger service (only supported by cluster mode). ● ds: Data service (only supported by cluster mode). ● ds-x: Specific data service, manage a particular disk path (only supported by cluster mode). ● cs: Coordination service (only supported by cluster mode). ● ms: Management service. ● ws: Watchdog service. ● ps: Processor service. ● ag: Aggregator service. ● ua: Upgrade agent service. The default value is Min.	No

		Note: For details on the specific functions of each service, see **HBlock Service**.	
force	Boolean	Whether to force restarting HBlock. **Note:** Forcibly restarting HBlock may cause data loss. Value: ● true. ● false. The default value is false.	No

Sample Request

Restart the HBlock ag and ua services on server hblock_3.

```
PUT /rest/v1/system/server/hblock_3/restart HTTP/1.1
Date: Wed, 07 Jan 2026 02:11:33 GMT
Content-Length: 56
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443

{
    "scope": [
        "ag",
        "ua"
    ]
}
```

Sample Response

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 900aef1278ed40429f204f7ff6d052a8
Connection: keep-alive
Date: Wed, 07 Jan 2026 02:11:33 GMT
Content-Length: 0
Server: HBlock
```

4.11.8 Query Servers in Batches

This operation is used to query servers in batches.

Request Syntax

```
GET /rest/v1/system/server?filter=filter&serverId=serverId&detail=Boolean&range=i-j HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● serverName: Server name. ● status: Server status: ■ Connected: The server is connected. ■ Disconnected: The server is disconnected. ■ Removing: The server is removing.	No
serverId	String	Specifies the server to query. Value: ● Specific server ID: Specifies the HBlock server ID(s) for which to query. Multiple server IDs can be specified at once, separated by commas (,). ● all: Specifies to to query all servers. ● default: Specifies to query the default HBlock parameters for nodes subsequently joining the cluster. The default value is all. **Note**: Multiple parameters can be specified simultaneously, separated by commas, e.g., serverId=hblock_1,hblock_2,default.	No
detail	Boolean	Whether to display detailed server information.	No

		Value: ● true: Display detailed server information. ● false: Display basic server information. The default value is false.	
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the server IDs and returns the i-th to j-th servers. If the range exceeds the total number of servers, the returned result is empty. If the range is not specified, all servers that meet the conditions are returned.	No

Response Elements

Name	Type	Description
servers	Array of server	A collection of server properties, see **Table 1 Parameter description of server** for details.
default	List of default	A collection of default HBlock parameters for nodes subsequently joining the cluster, see **Table 7 Parameter description of default** for details.

Table 1 Parameter description of server

Name	Type	Description
serverName	String	Server name.
serverId	String	The server ID.
status	String	Server status: ● Connected: The server is connected. ● Disconnected: The server is disconnected. ● Removing: The server is being removed from the cluster.
version	String	The version of HBlock on the server.
isMasterServer	Boolean	Whether the server is a master server: ● true: The server is a master server. ● false: The server is not a master server.
isBaseServer	Boolean	Whether the server is a base server: ● true: The server is a base server. ● false: The server is not a base server.
publicAddress.ip	String	Public network IP.
publicAddress.port	Integer	Public network port.
clusterAddress.ip	String	Cluster network IP.
clusterAddress.port	Integer	Cluster network port.

allDiskPaths.usedCapacity	Long	The used capacity of all disks where HBlock disk paths are located on the current server, in bytes. **Note**: Displayed when the query parameter detail is set to false.
allDiskPaths.totalCapacity	Long	The total capacity of all disks where HBlock disk paths are located on the current server, in bytes. **Note**: Displayed when the query parameter detail is set to false.
targetPortalIP.ips	Array of targetPortalIP.ip	A collection of portal attributes of an iSCSI target, see **Table 2 Parameter description of targetPortalIP.ip** for details. **Note**: Displayed when the query parameter detail is set to true.
targetPortalIP.status	String	Status of the iSCSI target portal: ● Enabled. ● Disabled. **Note**: Displayed when the query parameter detail is set to true.
diskPaths	Array of diskPath	A collection of disk paths properties, see **Table 3 Parameter description of diskPath** for details. **Note**: Displayed when the query parameter detail is set to true.
defaultPath	String	Default disk path, only supported by standalone mode.
recentStartTime	Long	The last successful startup time of the HBlock service on this node. This item is not returned when the server is not connected.
ports	Array of port	A collection of HBlock ports, see **Table 4 Parameter description of port** for details.
portRange	String	Port range.
iSCSIPort	Integer	iSCSI port.
storagePorts	Array of storagePort	A collection of storage service ports, see **Table 5 Parameter description of storagePort** for details.
nodeName	String	The node name, only supported by cluster mode.
parentName	String	The parent node name, only supported by

		cluster mode.
description	String	The description information of the node., only supported by cluster mode.
baseServices	Array of baseService	A collection of basis service properties, see **Table 6 Parameter description of baseService** for details.
maxMemoryRatio	Double	The upper limit of the proportion of system total memory that HBlock can use.
maxMemorySize	Long	The maximum memory available for HBlock, in bytes.

Table 2 Parameter description of targetPortalIP.ip

Name	Type	Description
ip	String	iSCSI target portal IP.
port	Integer	iSCSI target portal port.

Table 3 Parameter description of diskPath

Name	Type	Description
path	String	HBlock disk path.
storagePool	String	The storage pool to which the disk path belongs.
totalCapacity	Long	The total capacity of the disk where the disk path resides, in bytes.
usedCapacity	Long	The used capacity of the disk where the disk path resides, in bytes.
usedCapacityQuota	Long	The total amount of data that has be written to the disk path by HBlock, in bytes.
capacityQuota	Long	Disk path capacity quota, in bytes. 0 indicates write inhibit. Not output means there is no limit.
managementStatus	String	Disk path management status: ● Added: The disk path has been added to the system. ● Removing: The disk path is being removed.
subStatus.stage	String	The stage of removing the disk path: ● Reconfiguration: Resetting. ● CheckingData: Checking data. At this stage, the information of the following fields including totalFD, healthyFD, warningFD, errorFD, safeData, reconstructionWaitData, availableFDWaitData, singleCopyLUNData, corruptedData, and specific alarm information

		(availFDWaitWarning, singleCopyLUNWarning or corruptedWarning) will be displayed at the same time. ● Executing: Execute the removal of the disk path.
subStatus.totalFD	Integer	The total number of fault domains.
subStatus.healthyFD	Integer	The number of fault domains with Healthy status.
subStatus.warningFD	Integer	The number of fault domains with Warning status.
subStatus.errorFD	Integer	The number of fault domains with Error status.
subStatus.safeData	Double	Safety data percentage, unit is %.
subStatus.reconstructionWaitData	Double	The percentage of data that needs to be reconstructed, in %.
subStatus.availFDWaitData	Double	The percentage of data that cannot be reconstructed due to an insufficient number of fault domains required for data reconstruction when disks or servers are removed.
subStatus.singleCopyLUNData	Double	Percentage of single copy data, measured in %.
subStatus.corruptedData	Double	The percentage of data that has been damaged, measured in %.
subStatus.availFDWaitWarning	String	Alarm information. Alarm information is displayed differently depending on the status: ● availFDWaitWarning: When removing a disk or server, the number of fault domains required for data reconstruction is insufficient. ● singleCopyLUNWarning: The disk or server where the single copy LUN data is located is removed. ● corruptedWarning: Fault domain anomaly causing data corruption.
subStatus.singleCopyLUNWarning	String	
subStatus.corruptedWarning	String	
healthStatus	String	Disk path health status: ● Healthy: The disk path is in a healthy status and can be read and written normally, and the disk usage of the disk path does not exceed the threshold (the system default value is 95%). ● Warning: The disk path is warning and is readable, but one or more of the following situations exist: slow disk, the utilization rate of the disk where the disk path resides exceeds the threshold (the system default value is 95%), the remaining disk space is less than 1GiB, HBlock stops writing to this path, the capacity quota

		usage of the disk path exceeds the threshold (the system default value is 95%), or the capacity quota of the disk path is set to 0. ● Error: The disk path is in an error status and cannot be accessed. The reasons may be that an I/O error occurs on the disk, resulting in the inability to read or write, or the disk path is not mounted correctly, etc.
healthDetail	Array of string	Disk path health status details: ● If the health status is Healthy, this field is empty. ● If the health status is Warning or Error, detailed information about the warning or error is displayed.
dsId	String	The DS process corresponding to the disk path, only supported by cluster mode. **Note**: The DS process is displayed only after the disk path has been added to the storage pool.

Table 4 Parameter description of port

Name	Type	Description
portName	String	HBlock port name.
port	Integer	The port number used by HBlock on the current server.

Table 5 Parameter description of storagePort

Name	Type	Description
portN	Integer	Storage service port.
diskpath	String	The disk path for storage service.
pathId	Integer	Disk path ID.

Table 6 Parameter description of baseService

Name	Type	Description
name	String	Base service name: ● mdm: Metadata management service. ● ls: Log service. ● cs: Coordination service.
status	String	The status of base service: ● Up. ● Down. ● Migrating. ● Unknown.

metaDir	String	The disk path for storing basic service data.

Table 7 Parameter description of default

Name	Type	Description
portRange	String	Port range for nodes subsequently joining the cluster
maxMemoryRatio	Double	The upper limit of the proportion of system total memory that HBlock can use for nodes subsequently joining the cluster.
maxMemorySize	Long	The maximum memory available for HBlock for nodes subsequently joining the cluster, in bytes.

Sample Request 1

Standalone Mode: Query the detailed information of server.

```
GET /rest/v1/system/server?detail=true HTTP/1.1
Date: Fri, 09 Jan 2026 07:55:19 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
Date: Fri, 09 Jan 2026 07:55:19 GMT
x-hblock-request-id: a779ec83337e4fee814f10cc2955e976
Connection: keep-alive
Content-Length: 941
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "servers": [
            {
                "serverName": "songt-005",
                "serverId": "hblock_1",
                "status": "Connected",
                "version": "4.0.0",
                "publicAddress": {
                    "ip": "192.168.0.66",
                    "port": 3260
```

```
        },
        "clusterAddress": {
            "ip": "192.168.0.66",
            "port": 20001
        },
        "targetPortalIP": {
            "ips": [
                {
                    "ip": "10.1.0.1",
                    "port": 101
                }
            ],
            "status": "Disabled"
        },
        "diskPaths": [
            {
                "path": "/mnt/stor01",
                "usedCapacity": 2528911360,
                "totalCapacity": 100169342976,
                "usedCapacityQuota": 1097037922,
                "managementStatus": "Added",
                "healthStatus": "Healthy",
                "healthDetail": []
            }
        ],
        "defaultPath": "/mnt/stor01",
        "recentStartTime": 1767919098886,
        "ports": [
            {
                "portName": "apiPort",
                "port": 1443
            },
            {
                "portName": "webPort",
                "port": 2443
```

```
                    },
                    {
                        "portName": "managementPort1",
                        "port": 20001
                    },
                    {
                        "portName": "managementPort2",
                        "port": 20003
                    },
                    {
                        "portName": "managementPort3",
                        "port": 20000
                    },
                    {
                        "portName": "managementPort4",
                        "port": 20004
                    },
                    {
                        "portName": "managementPort6",
                        "port": 20002
                    }
                ],
                "portRange": "19500-21500",
                "iSCSIPort": 3260,
                "maxMemoryRatio": 0.8,
                "maxMemorySize": 9223372036854775807
            }
        ]
    }
}
```


Sample Request 2

Cluster Mode: Query the second and third servers.

```
GET /rest/v1/system/server?range=2-3 HTTP/1.1
Date: Sun, 04 Jan 2026 05:39:36 GMT
```

```
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
Date: Sun, 04 Jan 2026 05:39:36 GMT
x-hblock-request-id: 35482534f144466fb71a88c585796879
Connection: keep-alive
Content-Length: 3302
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "servers": [
            {
                "serverName": "k8s-master",
                "serverId": "hblock_2",
                "status": "Connected",
                "version": "4.0.0",
                "isMasterServer": false,
                "isBaseServer": true,
                "publicAddress": {
                    "ip": "192.168.0.64",
                    "port": 3260
                },
                "clusterAddress": {
                    "ip": "192.168.0.64",
                    "port": 20015
                },
                "allDiskPaths": {
                    "usedCapacity": 19339370496,
                    "totalCapacity": 142631432192
                },
                "recentStartTime": 1767489601645,
                "ports": [
```

```
                {
                    "portName": "apiPort",
                    "port": 1443
                },
                {
                    "portName": "webPort",
                    "port": 2443
                },
                {
                    "portName": "managementPort1",
                    "port": 20015
                },
                {
                    "portName": "managementPort2",
                    "port": 20013
                },
                {
                    "portName": "managementPort3",
                    "port": 20016
                },
                {
                    "portName": "managementPort4",
                    "port": 20000
                },
                {
                    "portName": "managementPort5",
                    "port": 20003
                },
                {
                    "portName": "managementPort6",
                    "port": 20010
                },
                {
                    "portName": "managementPort7",
                    "port": 20014
```

```
        },
        {
            "portName": "dataPort1",
            "port": 20007
        },
        {
            "portName": "metadataPort1",
            "port": 20011
        },
        {
            "portName": "metadataPort2",
            "port": 20004
        },
        {
            "portName": "metadataPort3",
            "port": 20005
        },
        {
            "portName": "metadataPort4",
            "port": 20009
        },
        {
            "portName": "metadataPort5",
            "port": 20006
        },
        {
            "portName": "metadataPort6",
            "port": 20008
        },
        {
            "portName": "metadataPort7",
            "port": 20002
        },
        {
            "portName": "metadataPort8",
```

```
                    "port": 20001
                },
                {
                    "portName": "metadataPort9",
                    "port": 20012
                }
            ],
            "portRange": "20000-20500",
            "iSCSIPort": 3260,
            "storagePorts": [
                {
                    "port1": 20017,
                    "port2": 20019,
                    "port3": 20018,
                    "diskpath": "/mnt/stor02",
                    "pathId": "1"
                },
                {
                    "port1": 20020,
                    "port2": 20022,
                    "port3": 20021,
                    "diskpath": "/mnt/stor01",
                    "pathId": "2"
                }
            ],
            "nodeName": "default:hblock_2",
            "parentName": "default",
            "baseServices": [
                {
                    "name": "mdm",
                    "status": "Up",
                    "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                },
                {
                    "name": "ls",
```

```
                    "status": "Up",
                    "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                },
                {
                    "name": "cs",
                    "status": "Up",
                    "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                }
            ],
            "maxMemoryRatio": 0.9,
            "maxMemorySize": 9223372036854775807
        },
        {
            "serverName": "songt-0006",
            "serverId": "hblock_3",
            "status": "Connected",
            "version": "4.0.0",
            "isMasterServer": false,
            "isBaseServer": true,
            "publicAddress": {
                "ip": "192.168.0.67",
                "port": 3260
            },
            "clusterAddress": {
                "ip": "192.168.0.67",
                "port": 20015
            },
            "allDiskPaths": {
                "usedCapacity": 1816420352,
                "totalCapacity": 199407550464
            },
            "recentStartTime": 1767489617411,
            "ports": [
                {
                    "portName": "apiPort",
```

```
                    "port": 1443
                },
                {
                    "portName": "webPort",
                    "port": 2443
                },
                {
                    "portName": "managementPort1",
                    "port": 20015
                },
                {
                    "portName": "managementPort2",
                    "port": 20013
                },
                {
                    "portName": "managementPort3",
                    "port": 20016
                },
                {
                    "portName": "managementPort4",
                    "port": 20000
                },
                {
                    "portName": "managementPort5",
                    "port": 20003
                },
                {
                    "portName": "managementPort6",
                    "port": 20010
                },
                {
                    "portName": "managementPort7",
                    "port": 20014
                },
                {
```

```
                    "portName": "dataPort1",
                    "port": 20007
                },
                {
                    "portName": "metadataPort4",
                    "port": 20009
                },
                {
                    "portName": "metadataPort5",
                    "port": 20006
                },
                {
                    "portName": "metadataPort6",
                    "port": 20008
                },
                {
                    "portName": "metadataPort7",
                    "port": 20002
                },
                {
                    "portName": "metadataPort8",
                    "port": 20001
                },
                {
                    "portName": "metadataPort9",
                    "port": 20012
                }
            ],
            "portRange": "20000-20500",
            "iSCSIPort": 3260,
            "storagePorts": [
                {
                    "port1": 20004,
                    "port2": 20011,
                    "port3": 20005,
```

```
                        "diskpath": "/mnt/stor01",
                        "pathId": "1"
                    },
                    {
                        "port1": 20017,
                        "port2": 20019,
                        "port3": 20018,
                        "diskpath": "/mnt/stor02",
                        "pathId": "2"
                    }
                ],
                "nodeName": "default:hblock_3",
                "parentName": "default",
                "baseServices": [
                    {
                        "name": "ls",
                        "status": "Up",
                        "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                    },
                    {
                        "name": "cs",
                        "status": "Up",
                        "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                    }
                ],
                "maxMemoryRatio": 0.9,
                "maxMemorySize": 9223372036854775807
            }
        ]
    }
}
```


Sample Request 3

Cluster Mode: Query the detailed information of hblock_1 and hblock_2 servers, as well as the default information for nodes subsequently joining the cluster.

```
GET /rest/v1/system/server?serverId=hblock_1,hblock_2,default&detail=true HTTP/1.1
Date: Thu, 05 Mar 2026 01:21:11 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
```

Sample Response 3

```
HTTP/1.1 200 OK
Date: Thu, 05 Mar 2026 01:21:11 GMT
x-hblock-request-id: 0894b4c100524575ad220028f046d8ce
Connection: keep-alive
Content-Length: 3836
Content-Type: application/json;charset=utf-8
Server: HBlock



    "data": {
        "servers": [
            {
                "serverName": "songt-0004",
                "serverId": "hblock_1",
                "status": "Connected",
                "version": "4.0.0",
                "isMasterServer": true,
                "isBaseServer": true,
                "publicAddress": {
                    "ip": "192.168.0.65",
                    "port": 3260
                },
                "clusterAddress": {
                    "ip": "192.168.0.65",
                    "port": 20005
                },
                "targetPortalIP": {
                    "ips": [
                        {
                            "ip": "10.0.0.3",
```

```
                    "port": 3261
                }
            ],
            "status": "Enabled"
        },
        "diskPaths": [
            {
                "path": "/mnt/stor01",
                "storagePool": "default",
                "usedCapacity": 43635916800,
                "totalCapacity": 99703775232,
                "usedCapacityQuota": 43619094956,
                "managementStatus": "Added",
                "healthStatus": "Healthy",
                "healthDetail": [],
                "dsId": "ds-1"
            }
        ],
        "recentStartTime": 1772608577246,
        "ports": [
            {
                "portName": "apiPort",
                "port": 1443
            },
            {
                "portName": "webPort",
                "port": 2443
            },
            {
                "portName": "managementPort1",
                "port": 20005
            },
            {
                "portName": "managementPort2",
                "port": 20013
```

```
        },
        {
            "portName": "managementPort3",
            "port": 20002
        },
        {
            "portName": "managementPort4",
            "port": 20016
        },
        {
            "portName": "managementPort5",
            "port": 20003
        },
        {
            "portName": "managementPort6",
            "port": 20006
        },
        {
            "portName": "managementPort7",
            "port": 20007
        },
        {
            "portName": "dataPort1",
            "port": 20014
        },
        {
            "portName": "metadataPort1",
            "port": 20008
        },
        {
            "portName": "metadataPort2",
            "port": 20004
        },
        {
            "portName": "metadataPort3",
```

```
                    "port": 20011
                },
                {
                    "portName": "metadataPort4",
                    "port": 20012
                },
                {
                    "portName": "metadataPort5",
                    "port": 20000
                },
                {
                    "portName": "metadataPort6",
                    "port": 20015
                },
                {
                    "portName": "metadataPort7",
                    "port": 20009
                },
                {
                    "portName": "metadataPort8",
                    "port": 20001
                },
                {
                    "portName": "metadataPort9",
                    "port": 20010
                }
            ],
            "portRange": "20000-20500",
            "iSCSIPort": 3260,
            "storagePorts": [
                {
                    "port1": 20017,
                    "port2": 20019,
                    "port3": 20018,
                    "diskpath": "/mnt/stor01",
```

```
                    "pathId": "1"
                }
            ],
            "nodeName": "default:hblock_1",
            "parentName": "default",
            "baseServices": [
                {
                    "name": "mdm",
                    "status": "Up",
                    "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                },
                {
                    "name": "ls",
                    "status": "Up",
                    "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                },
                {
                    "name": "cs",
                    "status": "Up",
                    "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                }
            ],
            "maxMemoryRatio": 0.95,
            "maxMemorySize": 9223372036854775807
        },
        {
            "serverName": "k8s-master",
            "serverId": "hblock_2",
            "status": "Connected",
            "version": "4.0.0",
            "isMasterServer": false,
            "isBaseServer": true,
            "publicAddress": {
                "ip": "192.168.0.64",
                "port": 3260
```

```
        },
        "clusterAddress": {
            "ip": "192.168.0.64",
            "port": 20005
        },
        "diskPaths": [
            {
                "path": "/mnt/stor02",
                "storagePool": "default",
                "usedCapacity": 43636088832,
                "totalCapacity": 99703775232,
                "usedCapacityQuota": 43636043776,
                "managementStatus": "Added",
                "healthStatus": "Healthy",
                "healthDetail": [],
                "dsId": "ds-1"
            }
        ],
        "recentStartTime": 1772614410202,
        "ports": [
            {
                "portName": "apiPort",
                "port": 1443
            },
            {
                "portName": "webPort",
                "port": 2443
            },
            {
                "portName": "managementPort1",
                "port": 20005
            },
            {
                "portName": "managementPort2",
                "port": 20013
```

```
                    },
                    {
                        "portName": "managementPort3",
                        "port": 20002
                    },
                    {
                        "portName": "managementPort4",
                        "port": 20016
                    },
                    {
                        "portName": "managementPort5",
                        "port": 20003
                    },
                    {
                        "portName": "managementPort6",
                        "port": 20006
                    },
                    {
                        "portName": "managementPort7",
                        "port": 20007
                    },
                    {
                        "portName": "dataPort1",
                        "port": 20014
                    },
                    {
                        "portName": "metadataPort1",
                        "port": 20008
                    },
                    {
                        "portName": "metadataPort2",
                        "port": 20004
                    },
                    {
                        "portName": "metadataPort3",
```

```
                    "port": 20011
                },
                {
                    "portName": "metadataPort4",
                    "port": 20012
                },
                {
                    "portName": "metadataPort5",
                    "port": 20000
                },
                {
                    "portName": "metadataPort6",
                    "port": 20015
                },
                {
                    "portName": "metadataPort7",
                    "port": 20009
                },
                {
                    "portName": "metadataPort8",
                    "port": 20001
                },
                {
                    "portName": "metadataPort9",
                    "port": 20010
                }
            ],
            "portRange": "20000-20500",
            "iSCSIPort": 3260,
            "storagePorts": [
                {
                    "port1": 20017,
                    "port2": 20019,
                    "port3": 20018,
                    "diskpath": "/mnt/stor02",
```

```
                        "pathId": "1"
                    }
                ],
                "nodeName": "default:hblock_2",
                "parentName": "default",
                "baseServices": [
                    {
                        "name": "mdm",
                        "status": "Up",
                        "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                    },
                    {
                        "name": "ls",
                        "status": "Up",
                        "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                    },
                    {
                        "name": "cs",
                        "status": "Up",
                        "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
                    }
                ],
                "maxMemoryRatio": 0.95,
                "maxMemorySize": 9223372036854775807
            }
        ],
        "default": {
            "portRange": "20000-20500",
            "maxMemoryRatio": 0.9,
            "maxMemorySize": 9223372036854775807
        }
    }
}
```

4.11.9 Query a Specified Server

This operation is used to query a specified server.

Request Syntax

```
GET /rest/v1/system/server/serverId HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the server ID. If no server ID is specified, the information of all servers will be returned.	No

Response Elements

Name	Type	Description
serverName	String	Server name.
serverId	String	The server ID.
status	String	Server status: ● Connected: The server is connected. ● Disconnected: The server is disconnected. ● Removing: The server is being removed from the cluster.
version	String	The version of HBlock on the server.
isMasterServer	Boolean	Whether the server is a master server: ● true: The server is a master server. ● false: The server is not a master server.
isBaseServer	Boolean	Whether the server is a base server: ● true: The server is a base server. ● false: The server is not a base server.
publicAddress.ip	String	Public network IP.
publicAddress.port	Integer	Public network port.
clusterAddress.ip	String	Cluster network IP.
clusterAddress.port	Integer	Cluster network port.
targetPortalIP.ips	Array of targetPortalIP.ip	A collection of portal attributes of an iSCSI target, see **Table 1 Parameter description of targetPortalIP.ip** for details.
targetPortalIP.status	String	Status of the iSCSI target portal:

		● Enabled. ● Disabled.
diskPaths	Array of diskPath	A collection of disk paths properties, see **Table 2 Parameter description of diskPath** for details.
defaultPath	String	Default disk path, only supported by standalone mode.
recentStartTime	Long	The last successful startup time of the HBlock service on this node. This item is not returned when the server is not connected.
ports	Array of port	A collection of HBlock ports, see **Table 3 Parameter description of port** for details.
portRange	String	Port range.
iSCSIPort	Integer	iSCSI port.
storagePorts	Array of storagePort	A collection of storage service port, only supported by cluster mode, see **Table 4 Parameter description of storagePort** for details.
nodeName	String	The node name, only supported by cluster mode.
parentName	String	The parent node name, only supported by cluster mode.
description	String	The description information of the node, only supported by cluster mode.
baseServices	Array of baseService	A collection of basis service properties, only supported by cluster mode, see **Table 5 Parameter description of baseService** for details.
maxMemoryRatio	Double	The upper limit of the proportion of system total memory that HBlock can use.
maxMemorySize	Long	The maximum memory available for HBlock, in bytes.

Table 1 Parameter description of targetPortalIP.ip

Name	Type	Description
ip	String	iSCSI target portal IP.
port	Integer	iSCSI target portal port.

Table 2 Parameter description of diskPath

Name	Type	Description
path	String	HBlock disk path.
storagePool	String	The storage pool to which the disk path belongs.
totalCapacity	Long	The total capacity of the disk where the disk path resides, in bytes.

usedCapacity	Long	The used capacity of the disk where the disk path resides, in bytes.
usedCapacityQuota	Long	The total amount of data that has be written to the disk path by HBlock, in bytes.
capacityQuota	Long	Disk path capacity quota, in bytes. 0 indicates write inhibit. Not output means there is no limit.
managementStatus	String	Disk path management status: ● Added: The disk path has been added to the system. ● Removing: The disk path is being removed.
subStatus.stage	String	The stage of removing the disk path: ● Reconfiguration: Resetting. ● CheckingData: Checking data. At this stage, the information of the following fields including totalFD, healthyFD, warningFD, errorFD, safeData, reconstructionWaitData, availableFDWaitData, singleCopyLUNData, corruptedData, and specific alarm information (availFDWaitWarning, singleCopyLUNWarning or corruptedWarning) will be displayed at the same time. ● Executing: Execute the removal of the disk path.
subStatus.totalFD	Integer	The total number of fault domains.
subStatus.healthyFD	Integer	The number of fault domains with Healthy status.
subStatus.warningFD	Integer	The number of fault domains with Warning status.
subStatus.errorFD	Integer	The number of fault domains with Error status.
subStatus.safeData	Double	Safety data percentage, unit is %.
subStatus.reconstructionWaitData	Double	The percentage of data that needs to be reconstructed, in %.
subStatus.availFDWaitData	Double	The percentage of data that cannot be reconstructed due to an insufficient number of fault domains required for data reconstruction when disks or servers are removed.
subStatus.singleCopyLUNData	Double	Percentage of single copy data, measured in %.
subStatus.corruptedData	Double	The percentage of data that has been damaged, measured in %.
subStatus.availFDWaitWarning	String	Alarm information. Alarm information is displayed differently depending on the status:
subStatus.singleCopyLUNWarning	String	
subStatus.corruptedWarning	String	

		● availFDWaitWarning: When removing a disk or server, the number of fault domains required for data reconstruction is insufficient. ● singleCopyLUNWarning: The disk or server where the single copy LUN data is located is removed. ● corruptedWarning: Fault domain anomaly causing data corruption.
healthStatus	String	Disk path health status: ● Healthy: The disk path is in a healthy status and can be read and written normally, and the disk usage of the disk path does not exceed the threshold (the system default value is 95%). ● Warning: The disk path is warning and is readable, but one or more of the following situations exist: slow disk, the utilization rate of the disk where the disk path resides exceeds the threshold (the system default value is 95%), the remaining disk space is less than 1GiB, HBlock stops writing to this path, the capacity quota usage of the disk path exceeds the threshold (the system default value is 95%), or the capacity quota of the disk path is set to 0. ● Error: The disk path is in an error status and cannot be accessed. The reasons may be that an I/O error occurs on the disk, resulting in the inability to read or write, or the disk path is not mounted correctly, etc.
healthDetail	Array of string	Disk path health status details: ● If the health status is Healthy, this field is empty. ● If the health status is Warning or Error, detailed information about the warning or error is displayed.
dsId	String	The DS process corresponding to the disk path, only supported by cluster mode. **Note**: The DS process is displayed only after the disk path has been added to the storage pool.

Table 3 Parameter description of port

Name	Type	Description
portName	String	HBlock port name.

port	Integer	The port number used by HBlock on the current server.

Table 4 Parameter description of storagePort

Name	Type	Description
port*N*	Integer	Storage service port.
diskpath	String	Disk path for storage service.
pathId	Integer	Disk path ID.

Table 5 Parameter description of baseService

Name	Type	Description
name	String	Base service name: ● mdm: Metadata management service. ● ls: Log service. ● cs: Coordination service.
status	String	The status of base service: ● Up. ● Down. ● Migrating. ● Unknown.
metaDir	String	The disk path for storing basic service data.

Sample Request 1

Standalone Mode: Query the information of the server ID as hblock_1.

```
GET /rest/v1/system/server/hblock_1 HTTP/1.1
Date: Sun, 04 Jan 2026 03:32:34 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 5a8e4a8d99f742379829435b56692a09
Connection: keep-alive
Content-Length: 851
Date: Sun, 04 Jan 2026 03:32:34 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
```

```
    "data": {
        "serverName": "songt-005",
        "serverId": "hblock_1",
        "status": "Connected",
        "version": "4.0.0",
        "publicAddress": {
            "ip": "192.168.0.66",
            "port": 3260
        },
        "clusterAddress": {
            "ip": "192.168.0.66",
            "port": 20001
        },
        "diskPaths": [
            {
                "path": "/mnt/stor01",
                "usedCapacity": 2528108544,
                "totalCapacity": 100169342976,
                "usedCapacityQuota": 1096309995,
                "managementStatus": "Added",
                "healthStatus": "Healthy",
                "healthDetail": []
            }
        ],
        "defaultPath": "/mnt/stor01",
        "recentStartTime": 1767492674311,
        "ports": [
            {
                "portName": "apiPort",
                "port": 1443
            },
            {
                "portName": "webPort",
                "port": 2443
            },
```

```
            {
                "portName": "managementPort1",
                "port": 20001
            },
            {
                "portName": "managementPort2",
                "port": 20003
            },
            {
                "portName": "managementPort3",
                "port": 20000
            },
            {
                "portName": "managementPort4",
                "port": 20004
            },
            {
                "portName": "managementPort6",
                "port": 20002
            }
        ],
        "portRange": "20000-20500",
        "iSCSIPort": 3260,
        "maxMemoryRatio": 0.9,
        "maxMemorySize": 9223372036854775807
    }
}
```

Sample Request 2

Cluster Mode: Query the information of server ID as hblock_1.

```
GET /rest/v1/system/server/hblock_1 HTTP/1.1
Date: Thu, 05 Mar 2026 01:51:44 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.65:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 942ae9373c644438b176b3b8a2376134
Connection: keep-alive
Content-Length: 1905
Date: Thu, 05 Mar 2026 01:51:44 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "serverName": "songt-0004",
        "serverId": "hblock_1",
        "status": "Connected",
        "version": "4.0.0",
        "isMasterServer": true,
        "isBaseServer": true,
        "publicAddress": {
            "ip": "192.168.0.65",
            "port": 3260
        },
        "clusterAddress": {
            "ip": "192.168.0.65",
            "port": 20005
        },
        "targetPortalIP": {
            "ips": [
                {
                    "ip": "10.0.0.3",
                    "port": 3261
                }
            ],
            "status": "Enabled"
        },
        "diskPaths": [
```

```
            {
                "path": "/mnt/stor01",
                "storagePool": "default",
                "usedCapacity": 43635916800,
                "totalCapacity": 99703775232,
                "usedCapacityQuota": 43627483478,
                "managementStatus": "Added",
                "healthStatus": "Healthy",
                "healthDetail": [],
                "dsId": "ds-1"
            }
        ],
        "recentStartTime": 1772608577246,
        "ports": [
            {
                "portName": "apiPort",
                "port": 1443
            },
            {
                "portName": "webPort",
                "port": 2443
            },
            {
                "portName": "managementPort1",
                "port": 20005
            },
            {
                "portName": "managementPort2",
                "port": 20013
            },
            {
                "portName": "managementPort3",
                "port": 20002
            },
            {
```

```
                "portName": "managementPort4",
                "port": 20016
            },
            {
                "portName": "managementPort5",
                "port": 20003
            },
            {
                "portName": "managementPort6",
                "port": 20006
            },
            {
                "portName": "managementPort7",
                "port": 20007
            },
            {
                "portName": "dataPort1",
                "port": 20014
            },
            {
                "portName": "metadataPort1",
                "port": 20008
            },
            {
                "portName": "metadataPort2",
                "port": 20004
            },
            {
                "portName": "metadataPort3",
                "port": 20011
            },
            {
                "portName": "metadataPort4",
                "port": 20012
            },
```

```
            {
                "portName": "metadataPort5",
                "port": 20000
            },
            {
                "portName": "metadataPort6",
                "port": 20015
            },
            {
                "portName": "metadataPort7",
                "port": 20009
            },
            {
                "portName": "metadataPort8",
                "port": 20001
            },
            {
                "portName": "metadataPort9",
                "port": 20010
            }
        ],
        "portRange": "20000-20500",
        "iSCSIPort": 3260,
        "storagePorts": [
            {
                "port1": 20017,
                "port2": 20019,
                "port3": 20018,
                "diskpath": "/mnt/stor01",
                "pathId": "1"
            }
        ],
        "nodeName": "default:hblock_1",
        "parentName": "default",
        "baseServices": [
```

```
            {
                "name": "mdm",
                "status": "Up",
                "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
            },
            {
                "name": "ls",
                "status": "Up",
                "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
            },
            {
                "name": "cs",
                "status": "Up",
                "metaDir": "/mnt/storage01/CTYUN_HBlock_Plus_4.0.0_x64"
            }
        ],
        "maxMemoryRatio": 0.95,
        "maxMemorySize": 9223372036854775807
    }
}
```

4.11.10 Add Disk Paths

This operation is used to add disk paths to the specified server of HBlock. Multiple disk paths can be added at one time.
For the newly added disk path, it is recommended to set up automatic mounting at startup, or use a path or sub-path that has been set up to be automatically mounted.
Note: Each HBlock server can only add up to 100 disk paths.

Request Syntax

```
POST /rest/v1/system/server/serverId/diskpaths HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
  "diskPaths": [
       { "path":path,
          "capacityQuota": capacityvalue
        },
       { "path":path,
         "capacityQuota": capacityvalue
       },
       ……
  ...]
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the server ID to add the disk path to.	Yes
diskPaths	Array of diskPath	A collection of disk path properties, see **Table 1 Parameter description of diskPath** for details.	Yes

Table 1 Parameter description of diskPath

Parameter	Type	Description	Required
path	String	Specifies the added disk path. The disk path is used to store data and it is not recommended to share disks or file systems with the operating system. Value: It can only contain letters, numbers, Chinese	Yes

		characters, or the special characters ~ ! @ $ ( ) _ + - ; . :.	
capacityQuota	Long	Specifies the capacity quota of the disk path, that is, for each disk path added to server, the total amount of data that can be written by HBlock. Once the space used by HBlock reaches the quota, data writing is immediately blocked, and no more space is allowed to be used beyond the quota. Value: The value is smaller than the total capacity of the disk where the disk path resides, in bytes. A negative integer means unlimited writing and 0 means write inhibit. Writes are not limited by default. **Note**: If the same disk path appears multiple times, the capacity quota of the disk path that appears first shall prevail.	No

Sample Request

Add the disk path of server hblock_1.

```
POST /rest/v1/system/server/hblock_1/diskpaths HTTP/1.1
Date: Mon, 7 Apr 2025 08:24:32 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 134
Host: 192.168.0.65:1443

{
    "diskPaths":[
        { "path": "/mnt/storage01",
          "capacityQuota": 1024000
        },
        { "path": "/mnt/storage02"}
    ]
}
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 18243552b8744a2990f33ff8d2d37bd7
Connection: keep-alive
Date: Mon, 7 Apr 2025 08:24:32 GMT
Content-Length: 11
```

```
Content-Type: application/json;charset=utf-8
Server: HBlock


{
    "data": {}
}
```

4.11.11 Modify Capacity Quota of Disk Path

This operation is used to modify the capacity quota of the specified server disk path.

Request Syntax

```
PUT /rest/v1/system/server/serverId/diskpaths HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "diskPaths": [
        { "path":path,
          "capacityQuota": capacityvalue
         },
        { "path":path,
          "capacityQuota": capacityvalue
        },
        ……
    ...]
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies server ID of the disk path to be modified.	Yes
diskPaths	Array of diskPath	A collection of disk path properties, see **Table 1 Parameter description of diskPath** for details.	Yes

Table 1 Parameter description of diskPath

Parameter	Type	Description	Required
path	String	Specifies the disk path whose capacity quota is to be modified.	Yes
capacityQuota	Long	Specifies the capacity quota of the disk path, that is, for each disk path added to server, the total amount of data that can be written by HBlock. Once the space used by HBlock reaches the quota, data writing is immediately blocked, and no more space is allowed to be used beyond the quota. Value: The value is smaller than the total capacity of the	Yes

		disk where the disk path resides, in bytes. A negative integer means unlimited writing and 0 means write inhibit. Writes are not limited by default. **Note**: If the same disk path appears multiple times, the capacity quota of the disk path that appears first shall prevail.	

Sample Request

Edit the capacity quota of the server hblock_2 disk path /mnt/stor.

```
PUT /rest/v1/system/server/hblock_2/diskpaths HTTP/1.1
Date: Wed, 11 Oct 2023 08:06:57 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 128
Host: 192.168.0.117:1443

{
    "diskPaths": [
        {
            "path": "/mnt/stor",
            "capacityQuota": 2048000000
        }
    ]
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 45f9f3b6359b48a8a663bb053d2d2731
Connection: keep-alive
Date: Wed, 11 Oct 2023 08:06:57 GMT
Content-Length: 0
Server: HBlock
```

4.11.12 Remove a Disk Path

This operation is used to remove the disk path for the HBlock server.

Note:

- Forcibly removing the disk path may cause data loss.
- For the standalone mode, specify another disk path as default before removing a default disk path.
- If the collected logs are saved in the disk path of HBlock after log collection is executed, and you choose to delete the HBlock data in the disk path when the disk path is removed, the log will be deleted.
- While a disk path is being removed, other disk paths cannot be removed. If it must be removed, please use force removal, but there is a risk of data loss.
- For the cluster mode, the disk path is only allowed to be removed if it does not belong to any storage pool. Otherwise, it cannot be removed. If it must be removed, please use forced removal, but there is a risk of data loss.
- If base services are running on the server, the server must not be removed.

Request Syntax

```
DELETE /rest/v1/system/server/serverId/diskpaths HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
       "diskPaths": [
            path,
            path
        ],
       "force": force,
       "deleteLocalData": deleteLocalData
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the HBlock server ID of the removed disk path.	Yes
diskPaths	Array of string	HBlock disk path to be removed. Multiple disk path can be removed at one time.	Yes
force	Boolean	Whether to force removing the disk path.	No

		Note: Forcibly removing the disk path may cause data loss. Value: ● true. ● false. The default value is false.	
deleteLocalData	Boolean	Whether to delete data on the disk path. Value: ● true. ● false. The default value is false.	No

Sample Request

Remove the disk path **/mnt/storage2** for server **hblock_2**.

```
DELETE /rest/v1/system/server/hblock_2/diskpaths HTTP/1.1
Date: Fri, 01 Apr 2022 01:53:09 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 124
Host: 192.168.0.121:1443

{
    "diskPaths": [
        "/mnt/storage02"
        ],
    "force": "false",
    "deleteLocalData": "false"
}
```

Sample Response

```
HTTP/1.1 202 Accepted
Date: Fri, 1 Apr 2022 01:53:12 GMT
x-hblock-request-id: 5f1bfda64dc24879b7ed62d4b366f07d
Connection: keep-alive
Content-Length: 0
Server: HBlock
```

4.11.13 Error Code List

HTTP status	Error Code	Error Message
400	CanNotDeleteServer	The server can not be deleted. Please stop the server, prepare a new server with same IP, and recover it.
400	CanNotRemoveDefaultPath	This path *path* is the default disk path, please specify a new default disk path first.
400	CanNotRemoveServer	The base server *serverId* can not be removed. Please migrate the base service on it and retry.
400	DeleteServerForcibly	Force delete should be used when deleting a server. When using this option, there may be a risk of data loss.
400	ExceedDecimalPlaces	Value *value* at 'max memory ratio' failed to satisfy constraint: Argument must have no more than 2 decimal places.
400	ExceedMaxPathCount	You can only add 100 local storage paths.
400	InsufficientPath	The disk path can not be deleted because the server must have at least one disk path.
400	InsufficientPorts	Insufficient available ports for server *server*. Expand the port range to support *N* additional ports.
400	InsufficientSpace	This method is not allowed because there is no more space to store data.
400	InvalidDiskPath	The disk paths do not exist: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The available disk space must be greater than or equal to 1 GiB for each disk path: *serverIP*:d*iskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths can not access: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths must be directory: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths include incompatible data: *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths include unsupported symbols： *serverIP*:*diskPaths* [,*diskPaths*...] [; *serverIP*:*diskPaths*[,*diskPaths*...]]. The disk paths is already on the server and the status is removing: *serverIP*:*diskPaths* [,*diskPaths*...]

400	InvalidDiskPathCapacityQuota	The capacity quota for the following disk paths failed to satisfy constraint. It must be integer and not greater than the total capacity of disk path. *serverIP*:*diskPaths* [,*diskPaths*...] [;*serverIP*:*diskPaths*[,*diskPaths*...]..].
400	InvalidLong	Value *value* at '*argument*' failed to satisfy constraint: Argument must be of type long.
400	InvalidMetaDir	The meta directory *metaDir* is invalid. *reason*
400	InvalidPathStatus	The path *path* status is '*status*', the request is invalid.
400	InvalidPort	Value *value* at '*argument*' failed to satisfy constraint: Argument must have value between 1 and 65535.
400	InvalidtargetPortalIP	Value at 'ips' failed to satisfy constraint: only one target portal IP is supported.
400	MissingtargetPortalIP	Value null at 'ip' failed to satisfy constraint: Argument must not be null when target portal IP is enabled.
400	MissingtargetPortalIPOrPort	Target portal IP and port must exist at the same time.
400	MissingtargetPortalPort	Value null at 'port' failed to satisfy constraint: Argument must not be null when target portal IP is enabled.
400	NoSuchService	The *serviceName* service does not exist on server serverid.
400	NotInterfaceIP	The IP *IP* is not an interface IP address, check and retry.
400	PathUsed	The path *path* is being used by LUN *lunName*, *lunName*..., please delete the LUN first.
400	RemoveFaultDomainRisk	Can not remove multiple fault domains at the same time. You can use force remove. When using this option, there may be a risk of data loss.
400	RemoveNodeRisk	The node *nodeName* or its child nodes are being used by a storage pool. Removing the node may cause data loss. You can use force remove. When using this option, there may be a risk of data loss.
400	RemovePathRisk	The path *path* status is '*status*'. Removing the path may cause data loss. You can use force remove. When using this option, there may be a risk of data loss.
400	RemovePathRisk	There is LUN with redundancy mode, which has the minimum requirement for the number of paths.

		LUN: *lunName*1[, *lunName2*....] Removing the path may cause data loss. You can use force remove. When using this option, there may be a risk of data loss.
400	RemoveServerRisk	There is LUN with high availability disabled, and the LUN is connected with the client. LUN: *lunName1*[, *lunName2*....] There is LUN with redundancy mode, which has the minimum requirement for the number of servers. LUN: *lunName1*[, *lunName2*....] There is target IQN which has no available server to migrate, removing server will cause the IQN deleted. target: *targetIQN1*_[, *targetIQN2*....]_ Removing the server may cause data loss. You can use force remove. When using this option, there may be a risk of data loss.
400	RestartServerRisk	There is no more space to store data or HBlock encountered an internal error. You can use force restart. When using this option, there may be a risk of data loss.
400	SetConfigFailed	Failed to set the config '*argument1*', '*argument2*'...: *serverid1*, *serverid2*.... Failed to set the configuration on one or more servers: *serverid1*: *class1*, *class2* *serverid2*: *class2*, *class4* .....
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
400	SystemCrashRisk	The node *nodename* can not be removed because there is only one available fault domain left in the base storage pool, or the node is related to multiple fault domains in the base pool, removing node may result in a system crash.
404	NoSuchPath	The path *path* does not exist in the HBlock.
404	NoSuchServer	The server with ID *serverId* does not exist.
404	NotargetPortalIP	Target portal IP is not configured.
409	ConflictWithServiceMigrating	Failed to *action* because the service *serviceName* on *serverId* is migrating to serverid.
409	InvalidServiceStatus	The status of service *serviceName* on *serverId* is '*status*', the request is invalid.

409	InvalidServerStatus	The server *serverId* status is '*status*', the request is invalid.
409	PortConflict	Error: the following port is/ports are in use. *server_ID*/*IP*/local server: *port_name port*[, *port_name port*...].
409	RemovingAnotherPath	There is another path being removed. You can use force remove. When using this option, there may be a risk of data loss.
409	RemovingAnotherServer	There is another server being removed. You can use force remove. When using this option, there may be a risk of data loss.
409	ServiceAlreadyExists	The service *serviceName* already exists on server serverid.
409	ServerAlreadyExists	The server with IP *IP* already exists.
500	InsufficientResource	Operation failed due to insufficient resources.

4.12 Query HBlock Information

This operation is used to query HBlock information, including HBlock ID, HBlock name, HBlock serial number, number of servers, fault domain (Cluster Mode), initialization time, trial period information and HBlock Administrator Username.

Request Syntax

```
GET /rest/v1/system/info HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Response Elements

Name	Type	Description
storId	String	HBlock ID.
storName	String	HBlock name.
serialId	String	HBlock serial number.
serverNumbers	Integer	Number of HBlock servers.
basePoolName	String	Base storage pool name, only supported by cluster mode.
faultDomain	String	Fault domain type of the base storage pool, only supported by cluster mode: ● path. ● server. ● rack. ● room.
setupTime	Long	System initialization time. Unix timestamp (UTC), accurate to milliseconds.
trialStatus	String	Trial period identification: ● Commercial edition: ■ Trial: In the trial period, and the software license has not been imported. ■ TrialExpired: The trial period has expired, and the software license has not been imported. ■ NonTrialVersion: Non-trial version, and the software license has been imported. ● Free edition: ■ FreeEdition: Software license has not been imported, and Pro Trial has not been enabled. ■ ProTrialEnabled: Software license has not been

		imported, and Pro Trial has been enabled. ■ ProTrialExpired: Software license has not been imported, and Pro trial has expired.
trialExpireTime	Long	The software license expiration time. Unix timestamp (UTC), accurate to milliseconds.
userName	String	HBlock Administrator Username.
licenseId	String	The ID of the last successfully imported software license (commercial edition).
type	String	Types of software license subscriptions (commercial edition): ● Subscription ● Perpetual
status	String	Software license status (commercial edition): ● Effective: The software license is effective. ● Expired: The software license has expired. ● Invalid: The software license is invalid.
maintenanceExpireTime	Long	For perpetual software licenses, the software license maintenance effective time. Unix timestamp (UTC), accurate to milliseconds.
subscribeExpireTime	Long	For subscription software licenses, the software license expiration time. Unix timestamp (UTC), accurate to milliseconds.
proTrialStartTime	Long	Pro Trial start time for the free edition. Unix timestamp (UTC), accurate to milliseconds. Only returned when the Pro Trial is enabled; not returned if not enabled.
proTrialExpireTime	Long	Pro Trial end time for the free edition. Unix timestamp (UTC), accurate to milliseconds. Only returned when the Pro Trial is enabled; not returned if not enabled.
freeUpgradeExpireTime	Long	Upgrade feature expiration time for the free edition. Unix timestamp (UTC), accurate to milliseconds.

Sample Request 1

Query HBlock information (standalone mode - commercial edition).

```
GET /rest/v1/system/info HTTP/1.1
Date: Fri, 26 Dec 2025 07:50:09 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 55cd9d5a2a0d4fafb873d337971848c7
Connection: keep-alive
Content-Length: 401
Date: Fri, 26 Dec 2025 07:50:09 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "storId": "0A769770-1528-49B8-A82D-D1CB71333FFB",
        "storName": "storuser",
        "serialId": "0A769770-1528-49B8-A82D-D1CB71333FFB-0201-040000",
        "serverNumbers": 1,
        "setupTime": 1765259023707,
        "trialStatus": "NonTrialVersion",
        "trialExpireTime": 1767851023707,
        "userName": "storuser",
        "licenseId": "qws2b6a9-f3fb-4098-a6b3-3652a5a76530",
        "type": "Perpetual",
        "status": "Effective",
        "maintenanceExpireTime": 1798255505624
    }
}
```

Sample Request 2

Query HBlock information, Pro Trial enabled (standalone mode - free edition).

```
GET /rest/v1/system/info HTTP/1.1
Date: Mon, 12 Jan 2026 03:56:23 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.66:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 5b8713084ded4ebdb7b84f6d68d831b6
Connection: keep-alive
Content-Length: 344
Date: Mon, 12 Jan 2026 03:56:23 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

```
{
    "data": {
        "storId": "C3238159-40D5-4E6E-A719-1A5205BB688D",
        "storName": "stor1",
        "serialId": "C3238159-40D5-4E6E-A719-1A5205BB688D-0201-040000",
        "serverNumbers": 1,
        "setupTime": 1768185567944,
        "trialStatus": "ProTrialEnabled",
        "userName": "storuser",
        "proTrialStartTime": 1768188583000,
        "proTrialExpireTime": 1770780583000,
        "freeUpgradeExpireTime": 1831257567944
    }
}
```

Sample Request 3

Query HBlock information (cluster mode - commercial edition).

```
GET /rest/v1/system/info HTTP/1.1
Date: Fri, 26 Dec 2025 07:20:37 GMT
Authorization: HBlock userName:signature
Host:192.168.0.65:1443
```

Sample Response 3

```
HTTP/1.1 200 OK
x-hblock-request-id: 0e653a2596334cc18aa7517a1250129f
Connection: keep-alive
Content-Length: 447
Date: Fri, 26 Dec 2025 07:20:37 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "storId": "1E46239F-BD8B-4CB3-A151-C3A58892AEF9",
        "storName": "stor1",
        "serialId": "1E46239F-BD8B-4CB3-A151-C3A58892AEF9-0202-040000",
        "serverNumbers": 3,
        "basePoolName": "default",
        "faultDomain": "server",
        "setupTime": 1766021632008,
```

```
        "trialStatus": "NonTrialVersion",
        "trialExpireTime": 1768613632008,
        "userName": "storuser",
        "licenseId": "ehc2b6a9-f3fb-4098-a6b3-3652a5d71232",
        "type": "Subscription",
        "status": "Effective",
        "subscribeExpireTime": 1798255470002
    }
}
```

Sample Request 4

Query HBlock information, Pro Trial not enabled (cluster mode - free edition).

```
GET /rest/v1/system/info HTTP/1.1
Date: Mon, 12 Jan 2026 03:58:18 GMT
Authorization: HBlock userName:signature
Host:192.168.0.65:1443
```

Sample Response 4

```
HTTP/1.1 200 OK
x-hblock-request-id: 74a51ff96dc444d9b4107293fce19a9b
Connection: keep-alive
Content-Length: 319
Date: Mon, 12 Jan 2026 03:58:18 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "storId": "10266612-3B09-4111-968A-CBB4D271F358",
        "storName": "stor2",
        "serialId": "10266612-3B09-4111-968A-CBB4D271F358-0202-040000",
        "serverNumbers": 3,
        "basePoolName": "default",
        "faultDomain": "server",
        "setupTime": 1768187650175,
        "trialStatus": "FreeEdition",
        "userName": "storuser",
        "freeUpgradeExpireTime": 1831259650175
    }
}
```

4.13 Query HBlock Service Status

This operation is used to query the HBlock status, including the system, storage pool (Cluster Mode), server, disk path (standalone mode), and LUN.

Request Syntax

```
GET /rest/v2/system/status HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Response Elements

Name	Type	Description
system.status	String	HBlock service status: ● Upgrading ● Uninstalling ● Working
system.licenseStatus	String	Software license status: ● Expired: The software license has expired. ● Effective: The software license is effective. ● Invalid: The software license is invalid. ● None: The software license has not been imported.
server.status	Object	The server status, see **Table 1 Parameter description of server.status** for details.
disk.status	Object	The server status, only supported by standalone mode, see **Table 2 Parameter description of disk.status (only supported by standalone mode)** for details.
disk.usage	Object	The server status, only supported by standalone mode, see **Table 3 Parameter description of disk.usage (only supported by standalone mode)** for details.
lun.status	Object	The server status, see **Table 4 Parameter description of lun.status** for details.
lun.data	Object	The server status, see **Table 5 Parameter description of lun.data** for details.
storagePool.number	Integer	The number of storage pools, only supported by cluster mode.
storagePool.basePool	String	Base storage pool name, only supported by cluster

		mode.
storagePool.basePoolDetail	Object	The server status, see **Table 6 Parameter description of storagePool.basePoolDetail** for details.

Table 1 Parameter description of server.status

Name	Type	Description
connected	Integer	The number of servers with connected status.
disconnected	Integer	The number of servers with disconnected status.
removing	Integer	The number of servers with removing status.

Table 2 Parameter description of disk.status (only supported by standalone mode)

Name	Type	Description
healthy	Integer	The number of disks with healthy status.
warning	Integer	The number of disks with warning status.
error	Integer	The number of disks with an error status.

Table 3 Parameter description of disk.usage (only supported by standalone mode)

Name	Type	Description
used	Long	The used capacity of the disk where the disk path resides, in bytes.
total	Long	The total capacity of the disk where the disk path resides, in bytes.

Table 4 Parameter description of lun.status

Name	Type	Description
number	Integer	The number of LUNs.
cacheNumber	Integer	The number of cache mode LUNs.
storageNumber	Integer	The number of storage mode LUNs.
localNumber	Integer	The number of local mode LUNs.
cacheCapacity	Long	The capacity of cache mode LUNs, in bytes.
storageCapacity	Long	The capacity of storage mode LUNs, in bytes.
localCapacity	Long	The capacity of local mode LUNs, in bytes.

Table 5 Parameter description of lun.data

Name	Type	Description
normal	Double	The percentage of normal data.
lowRedundancy	Double	The percentage of low redundancy data.
error	Double	The percentage of erroneous data.
reconstructionProgress	Double	The percentage of data reconstruction progress when the LUN has low redundancy data.

ETR	Long	The estimated remaining reconstruction time when the LUN has low redundancy data, in seconds. If the return value is negative, the data cannot be reconstructed and the user needs to repair it as soon as possible.

Table 6 Parameter description of storagePool.basePoolDetail (only supported by cluster mode)

Name	Type	Description
faultDomain.level	String	Fault domain level of the base storage pool.
faultDomain.status.healthy	Integer	The number of fault domains with healthy status.
faultDomain.status.warning	Integer	The number of fault domains with warning status.
faultDomain.status.error	Integer	The number of fault domains with an error status.
disk.status.healthy	Integer	The number of disks with healthy status.
disk.status.warning	Integer	The number of disks with warning status.
disk.status.error	Integer	The number of disks with an error status.
disk.usage.used	Long	The used capacity of disks where disk paths are located, in bytes.
disk.usage.total	Long	The total capacity of disks where disk paths are located, in bytes.
dataHealth.normal	Double	The percentage of normal data for all LUNs in this storage pool.
dataHealth.lowRedundancy	Double	The percentage of low redundancy data for all LUNs in this storage pool.
dataHealth.error	Double	The percentage of erroneous data for all LUNs in this storage pool.
dataHealth.reconstructionProgress	Double	The percentage of data reconstruction progress when low redundancy data exists on LUNs in this storage pool.
dataHealth.ETR	Long	The estimated remaining reconstruction time when low redundancy data exists on LUNs in this storage pool, in seconds. If the return value is negative, the data cannot be reconstructed and the user needs to repair it as soon as possible.

Sample Request 1

Standalone Mode: Query HBlock status.

```
GET /rest/v2/system/status HTTP/1.1
Date: Tue, 09 Dec 2025 06:11:13 GMT
Authorization: HBlock userName:signature
Host:192.168.0.66:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: b9a47583b571487697f327cfd70723fe
Connection: keep-alive
Content-Length: 440
Date: Tue, 09 Dec 2025 06:11:13 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "system": {
            "status": "Working",
            "licenseStatus": "None"
        },
        "server": {
            "status": {
                "connected": 1,
                "disconnected": 0,
                "removing": 0
            }
        },
        "disk": {
            "status": {
                "healthy": 1,
                "warning": 0,
                "error": 0
            },
            "usage": {
                "used": 1431740416,
                "total": 100169342976
            }
        },
        "lun": {
            "status": {
                "number": 2,
```

```
                "cacheNumber": 1,
                "storageNumber": 0,
                "localNumber": 1,
                "cacheCapacity": 236223201280,
                "storageCapacity": 0,
                "localCapacity": 107374182400
            },
            "data": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            }
        }
    }
}
```

Sample Request 2

Cluster Mode: Query HBlock status.

```
GET /rest/v2/system/status HTTP/1.1
Date: Tue, 09 Dec 2025 02:42:02 GMT
Authorization: HBlock userName:signature
Host:192.168.0.64:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 34e45fb7348647a6afbfb1dcb5b602cf
Connection: keep-alive
Content-Length: 660
Date: Tue, 09 Dec 2025 02:42:02 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "system": {
            "status": "Working",
            "licenseStatus": "Effective"
        },
        "server": {
            "status": {
                "connected": 3,
```

```
                "disconnected": 0,
                "removing": 0
            }
        },
        "storagePool": {
            "number": 2,
            "basePool": "default",
            "basePoolDetail": {
                "faultDomain": {
                    "level": "server",
                    "status": {
                        "healthy": 3,
                        "warning": 0,
                        "error": 0
                    }
                },
                "disk": {
                    "status": {
                        "healthy": 4,
                        "warning": 0,
                        "error": 0
                    },
                    "usage": {
                        "used": 18785857536,
                        "total": 342038982656
                    }
                },
                "dataHealth": {
                    "normal": 100,
                    "lowRedundancy": 0,
                    "error": 0
                }
            }
        },
        "lun": {
            "status": {
                "number": 15,
                "cacheNumber": 1,
                "storageNumber": 2,
                "localNumber": 12,
                "cacheCapacity": 225485783040,
```

```
                "storageCapacity": 323196289024,
                "localCapacity": 928786677760
            },
            "data": {
                "normal": 100,
                "lowRedundancy": 0,
                "error": 0
            }
        }
    }
}
```

4.14 Monitoring

4.14.1 Obtain Real-time Monitoring Data

This operation is used to obtain real-time performance data of HBlock.

Request Syntax

```
GET
/rest/v1/system/monitor/current?dimension=dimension&instanceId=instanceId&metric=metric
HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
dimension	String	Monitoring objects. Value: ● system. ● pool: Storage pool, only supported by cluster mode. ● server. ● disk: The disk partition where the disk path resides. ● LUN. The default value is system for standalone mode, the default value is pool for cluster mode.	No
instanceId	String	The unique identifier of the monitoring object instance. Multiple entries can be entered, separated by commas (,). Value: ● The monitoring object is system and there is no instance. ● The monitoring object is pool, and the instance value is the storage pool name. ● The monitoring object is server, and the instance value is the server ID. ● The monitoring object is diskPath, and the instance value is *serverId:/diskPath*. ● The monitoring object is a LUN, and the instance value is the LUN name. If no *instanceId* is specified, all instances of the monitoring object are queried by default.	No

metric	String	Metric name, which can be filled with more than one, separated by commas (,). You can refer to **Monitoring Metrics** for more details. Value: ● The monitoring object is system: ■ IOPS ■ R_IOPS ■ W_IOPS ■ Bandwidth ■ R_Bandwidth ■ W_Bandwidth ■ Latency ■ W_Latency ■ R_Latency ■ Path_Cap ■ Path_Used ■ Path_Rate ■ Path_Cap_Quota ■ Path_Cap_Quota_Used ■ Path_Cap_Quota_Rate ■ Cloud_Bandwidth ■ Cloud_U_Bandwidth ■ Cloud_D_Bandwidth ● The monitoring object is pool: ■ IOPS ■ R_IOPS ■ W_IOPS ■ Bandwidth ■ R_Bandwidth ■ W_Bandwidth ■ Latency ■ W_Latency ■ R_Latency ■ Path_Cap ■ Path_Used ■ Path_Rate ■ Path_Cap_Quota ■ Path_Cap_Quota_Used ■ Path_Cap_Quota_Rate ● The monitoring object is server: ■ CPU_Rate	No

		■ Mem_Rate ■ Mem_Total ■ Mem_Used ■ IOPS ■ R_IOPS ■ W_IOPS ■ Bandwidth ■ R_Bandwidth ■ W_Bandwidth ■ Latency ■ W_Latency ■ R_Latency ■ Path_Cap ■ Path_Used ■ Path_Rate ■ Path_Cap_Quota ■ Path_Cap_Quota_Used ■ Path_Cap_Quota_Rate ■ Cloud_Bandwidth ■ Cloud_U_Bandwidth ■ Cloud_D_Bandwidth ● The monitoring object is disk: ■ Path_Cap ■ Path_Used ■ Path_Rate ■ Path_Cap_Quota ■ Path_Cap_Quota_Used ■ Path_Cap_Quota_Rate ● The monitoring object is LUN: ■ IOPS ■ R_IOPS ■ W_IOPS ■ Bandwidth ■ R_Bandwidth ■ W_Bandwidth ■ Latency ■ W_Latency ■ R_Latency ■ Cloud_Bandwidth ■ Cloud_U_Bandwidth ■ Cloud_D_Bandwidth	

		• Wait_Upload If no metic is specified, all indicators of the monitoring object will be queried by default.	

Response Elements

Name	Type	Description
monitoring	Array of monitoring	A collection of monitoring information, see **Table 1 Parameter description of monitoring** for details.

Table 1 Parameter description of monitoring

Name	Type	Description
dimension	String	Monitoring objects: • system. • pool: Storage pool, only supported by cluster mode. • Server. • disk: The disk partition where the disk path resides. • LUN.
instanceId	String	Monitoring object instance: • Monitoring object is system, the HBlock name is displayed. • Monitoring object is pool, the storage pool name is displayed, only supported by cluster mode. • Monitoring object is server, the server ID is displayed. • Monitoring object is disk, the disk path is displayed. • Monitoring object is LUN, the LUN name is displayed.
metric	String	Indicator name. You can refer to **Monitoring Metrics** for more details.
avgValueSeries	Array of string	[time, value] sequence of the monitoring data. The time is a unix timestamp, accurate to milliseconds.

Sample Request

Query the CPU usage and memory usage of server **hblock_1** and **hblock_2**.

```
GET
/rest/v1/system/monitor/current?dimension=server&instanceId=hblock_1,hblock_2&metric=CPU_
Rate,Mem_Rate HTTP/1.1
Date: Fri, 12 Aug 2022 07:48:25 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 200 OK
```

```
x-hblock-request-id: 2e40eab6db8440b5b5ec68f2dd5f8cf1
Connection: keep-alive
Content-Length: 455
Date: Fri, 12 Aug 2022 07:48:25 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "monitoring": [
            {
                "dimension": "server",
                "instanceId": "hblock_1",
                "metric": "CPU_Rate",
                "avgValueSeries": [
                    [
                        1660290480000,
                        1.35
                    ]
                ]
            },
            {
                "dimension": "server",
                "instanceId": "hblock_1",
                "metric": "Mem_Rate",
                "avgValueSeries": [
                    [
                        1660290480000,
                        98.15
                    ]
                ]
            },
            {
                "dimension": "server",
                "instanceId": "hblock_2",
                "metric": "CPU_Rate",
                "avgValueSeries": [
                    [
                        1660290480000,
                        0.94
                    ]
```

```
                ]
            },
            {
                "dimension": "server",
                "instanceId": "hblock_2",
                "metric": "Mem_Rate",
                "avgValueSeries": [
                    [
                        1660290480000,
                        97.78
                    ]
                ]
            }
        ]
    }
}
```

4.14.2 Obtain Historical Performance Data

This operation is used to obtain historical performance data of HBlock.

Request Syntax

```
GET
/rest/v1/system/monitor?startTime=startTime&endTime=endTime&dimension=dimension&instanceI
d=instanceId1&metric=metric1,metric2 HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
startTime	String	Query start time. Value: unix timestamp (UTC), accurate to milliseconds. The default value is the time point two hours before the end time. **Note**: The start time must be earlier than the end time, and the start time cannot be one year earlier than the current server time.	No
endTime	String	Query end time. Value: unix timestamp (UTC), accurate to milliseconds. The default value is the current time. **Note**: The start time must be earlier than the end time.	No
dimension	String	Monitoring objects. Value: ● system. ● pool: Storage pool, only supported by cluster mode. ● server. ● disk: The disk partition where the disk path resides. ● LUN. The default value is system for standalone mode, the default value is pool for cluster mode.	No
instanceId	String	Specifies the unique identifier of the monitoring object instance. Value: ● Monitoring object is system and there is no instance. ● Monitoring object is server, the item is required, and the instance value is the server ID.	No

		• Monitoring object is pool, the item is required, and the instance value is the storage pool name. • Monitoring object is diskPath, the item is required, and the instance value is *serverId*:/*diskPath*. • Monitoring object is a LUN, the item is required, and the instance value is the LUN name.	

metric	String	You can fill in multiple indicator names, separated by commas. You can refer to **Monitoring Metrics** for detailed specific descriptions of the indicators.
		Value:
		• Monitoring object is system:
		  ▪ IOPS
		  ▪ R_IOPS
		  ▪ W_IOPS
		  ▪ Bandwidth
		  ▪ R_Bandwidth
		  ▪ W_Bandwidth
		  ▪ Latency
		  ▪ W_Latency
		  ▪ R_Latency
		  ▪ Path_Cap
		  ▪ Path_Used
		  ▪ Path_Rate
		  ▪ Path_Cap_Quota
		  ▪ Path_Cap_Quota_Used
		  ▪ Path_Cap_Quota_Rate
		  ▪ Cloud_Bandwidth
		  ▪ Cloud_U_Bandwidth
		  ▪ Cloud_D_Bandwidth
		• Monitoring object is pool:
		  ▪ IOPS
		  ▪ R_IOPS
		  ▪ W_IOPS
		  ▪ Bandwidth
		  ▪ R_Bandwidth
		  ▪ W_Bandwidth
		  ▪ Latency
		  ▪ W_Latency
		  ▪ R_Latency
		  ▪ Path_Cap
		  ▪ Path_Used
			No

		■ Path_Rate ■ Path_Cap_Quota ■ Path_Cap_Quota_Used ■ Path_Cap_Quota_Rate ● Monitoring object is server: ■ CPU_Rate ■ Mem_Rate ■ Mem_Total ■ Mem_Used ■ IOPS ■ R_IOPS ■ W_IOPS ■ Bandwidth ■ R_Bandwidth ■ W_Bandwidth ■ Latency ■ W_Latency ■ R_Latency ■ Path_Cap ■ Path_Used ■ Path_Rate ■ Path_Cap_Quota ■ Path_Cap_Quota_Used ■ Path_Cap_Quota_Rate ■ Cloud_Bandwidth ■ Cloud_U_Bandwidth ■ Cloud_D_Bandwidth ● Monitoring object is disk: ■ Path_Cap ■ Path_Used ■ Path_Rate ■ Path_Cap_Quota ■ Path_Cap_Quota_Used ■ Path_Cap_Quota_Rate ● Monitoring object is LUN: ■ IOPS ■ R_IOPS ■ W_IOPS ■ Bandwidth ■ R_Bandwidth ■ W_Bandwidth	

		■ Latency ■ W_Latency ■ R_Latency ■ Cloud_Bandwidth ■ Cloud_U_Bandwidth ■ Cloud_D_Bandwidth ■ Wait_Upload If no metric is specified, all indicators of the monitoring object will be obtained by default.	

Response Elements

Name	Type	Description
monitoring	Array of monitoring	A collection of monitoring information, see **Table 1 Parameter description of monitorin**g for details.

Table 1 Parameter description of monitorin

Name	Type	Description
dimension	String	Monitoring objects: ● system. ● pool: Storage pool, only supported by cluster mode. ● server. ● disk: The disk partition where the disk path resides. ● LUN.
instanceId	String	Monitoring object instance: ● Monitoring object is system, displaying HBlock name. ● Monitoring object is pool, displaying storage pool name, only supported by cluster mode. ● Monitoring object is server, displaying the server ID. ● Monitoring object is disk, displaying *serverId+path name*, and the format is *serverId:/path/dir*. ● Monitoring object is LUN, displaying LUN name.
metric	String	Indicator name. Please refer to **Monitoring Metrics** Monitoring for details.
avgValueSeries	Array of string	[time, value] sequence of monitoring data. The time is a unix timestamp, accurate to milliseconds.

Sample Request

Query the IOPS and bandwidth of LUN **lun01a** from 2022-08-12 13:43:57 to 2022-08-12 14:03:57.

```
GET
/rest/v1/system/monitor?startTime=1660283037000&endTime=1660284237000&dimension=LUN&insta
```

```
nceId=lun01a&metric=IOPS,Bandwidth HTTP/1.1
Date: Fri, 12 Aug 2022 06:07:39 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: bdbfd372ebf143ae8c08c79b09909fc9
Connection: keep-alive
Content-Length: 2464
Date: Fri, 12 Aug 2022 06:07:39 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "monitoring": [
            {
                "dimension": "LUN",
                "instanceId": "lun01a",
                "metric": "IOPS",
                "avgValueSeries": [
                    [
                        1660283020000,
                        0
                    ],
                    [
                        1660283040000,
                        0
                    ],
                    [
                        1660283060000,
                        0
                    ],

   ……

                    [
                        1660284120000,
                        0
                    ],
```

```
                [
                    1660284140000,
                    0
                ],
                [
                    1660284160000,
                    0.45
                ],
                [
                    1660284180000,
                    304.75
                ],
                [
                    1660284200000,
                    108
                ],
                [
                    1660284220000,
                    141.9
                ],
                [
                    1660284240000,
                    84.8
                ]
            ]
        },
        {
            "dimension": "LUN",
            "instanceId": "lun01a",
            "metric": "Bandwidth",
            "avgValueSeries": [
                [
                    1660283020000,
                    0
                ],
                [
                    1660283040000,
                    0
                ],
                [
                    1660283060000,
```

```
                    0
                ],

……

                [
                    1660284080000,
                    0
                ],
                [
                    1660284100000,
                    0
                ],
                [
                    1660284120000,
                    0
                ],
                [
                    1660284140000,
                    0
                ],
                [
                    1660284160000,
                    1843
                ],
                [
                    1660284180000,
                    79475506
                ],
                [
                    1660284200000,
                    28099583
                ],
                [
                    1660284220000,
                    37126348
                ],
                [
                    1660284240000,
                    22083788
                ]
```

```
                ]
            }
        ]
    }
}
```

4.14.3 Error Code List

HTTP Status	Error Code	Error Message
400	ArgumentNotAllowed	The argument '*argument*' is not allowed when value at '*argument2*' is *value2*.
400	ExceedQueryRange	Value *value* at '*argument*' failed to satisfy constraint: Argument must be *message*.
400	InvalidEnumValue	Value *value* at '*argument*' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...].
400	InvalidTime	The end time must be later than the start time.
400	InvalidTimeFormat	Value *value* at '*argument*' failed to satisfy constraint: Argument must conform to *Format* format.

4.15 Alarm

Note: The limit of the data in 'Unresolved' status is 10,000. If the limit is reached, new alarms cannot be displayed or notified. At that time, please fix the related problem, or try to manually resolve the alarm.

4.15.1 Query HBlock Alarm Information in Batches

This operation is used to query HBlock alarm information in batches.

Request Syntax

```
GET /rest/v1/system/alarm?alarmStatus=alarmStatus&filter=filter&range=i-j HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Name	Type	Description	Required
alarmStatus	String	Alarm status: ● Unresolved: The alarm is ongoing. ● Resolved: The alarm has been resolved. ● Expired: The alarm has expired. The default value is Unresolved. **Note**: Only the last 10,000 items of resolved and expired data can be queried. If the data of unresolved alarm exceed 10,000, the function will be unavailable.	No
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● instanceSnapshot: Details of the alarm instance. ● alarmRule: Alarm rule name. for more details you can refer to **Alarm List**. ● severity: Alarm level. The values are:	No

		■ Warning ■ Major ■ Critical ● muteStatus: Mute status. The values are: ■ Normal ■ Muted ● alarmTime: Alarm occurrence time, supporting range query through > and <. Unix timestamp (UTC), accurate to milliseconds. ● resolveTime: resolve time, supporting range query through > and <. Unix timestamp (UTC), accurate to milliseconds. ● resolveType: Alarm resolve type. The values are: ■ Manual: Manually resolve the alarm. ■ Auto: Automatically resolve the alarm. ● expireTime: Alarm expiration time, supporting range query through > and <. Unix timestamp (UTC), accurate to milliseconds.	
range	String	Query range. The format is i-j, where i and j are positive integers, i is less than j, and j-i<1000. Returns the i-th to j-th alarms sorted in reverse order according to alarmTime. If the entered query range exceeds the total number of alarms, an empty result set will be returned. If the range parameter is not entered, all alarms that meet the conditions are returned.	No

Response Elements

Name	Type	Description
totalCount	Integer	Number of alarms that meet the query conditions.
alarmList	Array of alarmList	Alarm list, see **Table 1 Parameter description of alarmList** for details.

Table 1 Parameter description of alarmList

Name	Type	Description
alarmId	String	Alarm ID.
instanceId	String	Alarm instance ID.
instanceSnapshot	String	Alarm instance snapshot refers to the detailed information of the alarm instance when the alarm occurs.
alarmRule	String	Alarm rules.
severity	Enum	Alarm level:

		• Warning • Major • Critical
alarmStatus	Enum	Alarm status: • Unresolved: The alarm is ongoing. • Resolved: The alarm has been resolved. • Expired: The alarm has expired.
duration	Long	Alarm duration. Unix timestamp (UTC), accurate to milliseconds.
alarmTime	Long	Alarm occurrence time. Unix timestamp (UTC), accurate to milliseconds.
muteStatus	Enum	Mute status: • Muted • Normal
alarmValue	String	Alarm value. Only alarms corresponding to numerical metrics will return this item. The following alarm rules will involve numerical metrics: • AlarmNumberApproachingLimit: The number of unresolved alarms is close to the upper limit. Displays (total number of unresolved alarms /upper limit of number of unresolved alarms) as percentage. The unit is %. Calculation formula: (total number of unresolved alarms /upper limit of number of unresolved alarms)*100%. • ResourceUsageApproachingLimit: The resource usage is close to the upper limit, showing the license used capacity usage as a percentage, the unit is %. Calculation formula: (total local LUN capacity/capacity allowed by the license)*100%. • CapacityQuotaUsageExceedsThreshold: The quota usage exceeds the threshold, showing the quota usage (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). • CapacityQuotaUsageApproachLimit: The quota is exhausted, showing the quota usage rate (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). • DiskUsageExceedsThreshold: The disk usage exceeds the threshold, showing the usage (Path_Rate) of the disk associated with the storage pool or disk path, in percentage (%).

		• InsufficientSpaceonInstallationPath: The remaining space of the installation directory is insufficient, showing the remaining space of the file system of the disk where the directory is located, in GiB. • InsufficientSpaceonMetaDir: The remaining space in the disk path of the base service is insufficient. It shows the remaining space of the file system on the disk where the disk path resides, in GiB.
currentValue	String	Current numerical value. Only alarms corresponding to numerical metrics will return this item. The following alarm rules will involve numerical metrics: • AlarmNumberApproachingLimit: The number of unresolved alarms is close to the upper limit. Displays (total number of unresolved alarms /upper limit of number of unresolved alarms) as percentage. The unit is %. Calculation formula: (total number of unresolved alarms /upper limit of number of unresolved alarms)*100%. • ResourceUsageApproachingLimit: The resource usage is close to the upper limit, showing the license used capacity usage as a percentage, the unit is %. Calculation formula: (total local LUN capacity/capacity allowed by the license)*100%. • CapacityQuotaUsageExceedsThreshold: The quota usage exceeds the threshold, showing the quota usage (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). • CapacityQuotaUsageApproachLimit: The quota is exhausted, showing the quota usage rate (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). • DiskUsageExceedsThreshold: The disk usage exceeds the threshold, showing the usage (Path_Rate) of the disk associated with the storage pool or disk path, in percentage (%). • InsufficientSpaceonInstallationPath: The remaining space of the installation directory is insufficient, showing the remaining space of the file system of the disk where the directory is located, in GiB. • InsufficientSpaceonMetaDir: The remaining space in the disk path of the base service is insufficient. It

		shows the remaining space of the file system on the disk where the disk path resides, in GiB.
resolveTime	Long	Alarm resolve time. Unix timestamp (UTC), accurate to milliseconds. Alarms in Resolved status will return this field.
resolveValue	String	The value when the alarm is resolved. Only alarms corresponding to numerical indicators will return this item: ● AlarmNumberApproachingLimit: The number of unresolved alarms is close to the upper limit. Displays (total number of unresolved alarms /upper limit of number of unresolved alarms) as percentage. The unit is %. Calculation formula: (total number of unresolved alarms /upper limit of number of unresolved alarms)*100%. ● ResourceUsageApproachingLimit: The resource usage is close to the upper limit, showing the license used capacity usage as a percentage, the unit is %. Calculation formula: (total local LUN capacity/capacity allowed by the license)*100%. ● CapacityQuotaUsageExceedsThreshold: The quota usage exceeds the threshold, showing the quota usage (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● CapacityQuotaUsageApproachLimit: The quota is exhausted, showing the quota usage rate (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● DiskUsageExceedsThreshold: The disk usage exceeds the threshold, showing the usage (Path_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● InsufficientSpaceonInstallationPath: The remaining space of the installation directory is insufficient, showing the remaining space of the file system of the disk where the directory is located, in GiB. ● InsufficientSpaceonMetaDir: The remaining space in the disk path of the base service is insufficient. It shows the remaining space of the file system on the disk where the disk path resides, in GiB.
resolveType	Enum	Alarm resolve type:

		• Auto: Automatically resolve. • Manual: Manually resolve.
expireTime	Long	Alarm expiration time. Alarms in Expired status will return this field.
reason	String	Reason for the alarm resolved or expired.
muteDueTime	Long	Mute due time, unix timestamp (UTC), accurate to milliseconds. If muted multiple times, return the mute due time of the last operation.
muteOperations	Array of muteOperation	Mute operation, see **Table 2 Parameter description of muteOperation** for details.

Table 2 Parameter description of muteOperation

Name	Type	Description
operTime	Long	Mute operation time.
operType	Enum	Mute operation type: • Mute: Muted. • AutoUnmute: Automatically unmute. • ManualUnmute: Manually unmute.
reason	String	Reason for muting/unmuting.
dueTime	Long	Mute due time.

Sample Request 1

Query the information of unresolved alarm.

```
GET /rest/v1/system/alarm?alarmStatus=Unresolved HTTP/1.1
Date: Mon, 8 Jan 2024 03:26:58 GMT
Host: 192.168.0.110:1443
Authorization: HBlock userName:signature
```

Sample Response 1

```
HTTP/1.1 200 OK
Date: Mon, 8 Jan 2024 03:26:58 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 1448
Connection: keep-alive
x-hblock-request-id: 0ba4372189a8470ca43fb8bea7959bf5
Server: HBlock

{
    "data": {
```

```
        "totalCount": 5,
        "alarmList": [
            {
                "alarmId": "4jlSnwld",
                "instanceId": "hblock_3:/mnt/stor",
                "instanceSnapshot": "hblock_3:/mnt/stor",
                "alarmRule": "CapacityQuotaUsageExceedsThreshold",
                "severity": "Warning",
                "alarmStatus": "Unresolved",
                "duration": 346407,
                "alarmTime": 1704684071663,
                "alarmValue": "93.69",
                "currentValue": "92.63",
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4jlSnJ9h",
                "instanceId": "hblock_3",
                "instanceSnapshot": "hblock_3",
                "alarmRule": "CapacityQuotaUsageExceedsThreshold",
                "severity": "Warning",
                "alarmStatus": "Unresolved",
                "duration": 346861,
                "alarmTime": 1704684071209,
                "alarmValue": "93.69",
                "currentValue": "92.63",
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4jlSmXuZ",
                "instanceId": "hblock_3:/mnt/stor",
                "instanceSnapshot": "hblock_3,ecs-9689-0915140,192.168.0.102:/mnt/stor",
                "alarmRule": "FaultDomainWarning",
                "severity": "Warning",
                "alarmStatus": "Unresolved",
                "duration": 347413,
                "alarmTime": 1704684070657,
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4jlSmPPo",
```

```
                "instanceId": "hblock_3:/mnt/stor",
                "instanceSnapshot": "hblock_3,ecs-9689-0915140,192.168.0.102:/mnt/stor",
                "alarmRule": "DataServiceHealthStatusWarning",
                "severity": "Warning",
                "alarmStatus": "Unresolved",
                "duration": 347608,
                "alarmTime": 1704684070462,
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4jlhtUel",
                "instanceId": "hblock_4",
                "instanceSnapshot": "hblock_4,ecs-9689-0915141,192.168.0.202",
                "alarmRule": "ProtocolServiceAbnormal",
                "severity": "Major",
                "alarmStatus": "Unresolved",
                "duration": 2634530,
                "alarmTime": 1704681783540,
                "muteStatus": "Normal"
            }
        ]
    }
}
```


Sample Request 2

Query the resolved alarm information.

```
GET /rest/v1/system/alarm?alarmStatus=Resolved HTTP/1.1
Date: Mon, 8 Jan 2024 05:34:23 GMT
Host: 192.168.0.110:1443
Authorization: HBlock userName:signature
```

Sample Response 2

```
HTTP/1.1 200 OK
Date: Mon, 8 Jan 2024 05:34:23 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 3268
Connection: keep-alive
x-hblock-request-id: b47f7f2aae794363bc577eb304425122
Server: HBlock

{
```

```
    "data": {
        "totalCount": 10,
        "alarmList": [
            {
                "alarmId": "4jlSnwld",
                "instanceId": "hblock_3:/mnt/stor",
                "instanceSnapshot": "hblock_3:/mnt/stor",
                "alarmRule": "CapacityQuotaUsageExceedsThreshold",
                "severity": "Warning",
                "alarmStatus": "Resolved",
                "duration": 603073,
                "alarmTime": 1704684071663,
                "alarmValue": "93.69",
                "resolveTime": 1704684674736,
                "resolveValue": "5.06",
                "resolveType": "Auto",
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4jlSnJ9h",
                "instanceId": "hblock_3",
                "instanceSnapshot": "hblock_3",
                "alarmRule": "CapacityQuotaUsageExceedsThreshold",
                "severity": "Warning",
                "alarmStatus": "Resolved",
                "duration": 603023,
                "alarmTime": 1704684071209,
                "alarmValue": "93.69",
                "resolveTime": 1704684674232,
                "resolveValue": "5.06",
                "resolveType": "Auto",
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4jlSmXuZ",
                "instanceId": "hblock_3:/mnt/stor",
                "instanceSnapshot": "hblock_3,ecs-9689-0915140,192.168.0.102:/mnt/stor",
                "alarmRule": "FaultDomainWarning",
                "severity": "Warning",
                "alarmStatus": "Resolved",
                "duration": 603430,
```

```
            "alarmTime": 1704684070657,
            "resolveTime": 1704684674087,
            "resolveType": "Auto",
            "muteStatus": "Normal"
        },
        {
            "alarmId": "4jlSmPPo",
            "instanceId": "hblock_3:/mnt/stor",
            "instanceSnapshot": "hblock_3,ecs-9689-0915140,192.168.0.102:/mnt/stor",
            "alarmRule": "DataServiceHealthStatusWarning",
            "severity": "Warning",
            "alarmStatus": "Resolved",
            "duration": 602999,
            "alarmTime": 1704684070462,
            "resolveTime": 1704684673461,
            "resolveType": "Auto",
            "muteStatus": "Normal"
        },
        {
            "alarmId": "4ilZH7wX",
            "instanceId": "hblock_1",
            "instanceSnapshot": "hblock_1,hblockserver,192.168.0.110",
            "alarmRule": "ProtocolServiceAbnormal",
            "severity": "Major",
            "alarmStatus": "Resolved",
            "duration": 230649424,
            "alarmTime": 1704446197387,
            "resolveTime": 1704676846811,
            "resolveType": "Auto",
            "muteStatus": "Normal"
        },
        {
            "alarmId": "4hDwJnaH",
            "instanceId": "hblock_3",
            "instanceSnapshot": "hblock_3,ecs-9689-0915140,192.168.0.102",
            "alarmRule": "ProtocolServiceAbnormal",
            "severity": "Major",
            "alarmStatus": "Resolved",
            "duration": 361874,
            "alarmTime": 1704275265260,
            "resolveTime": 1704275627134,
```

```
                "resolveType": "Auto",
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4hD1BMWS",
                "instanceId": "hblock_4",
                "instanceSnapshot": "hblock_4,ecs-9689-0915141,192.168.0.202",
                "alarmRule": "ProtocolServiceAbnormal",
                "severity": "Major",
                "alarmStatus": "Resolved",
                "duration": 2291572,
                "alarmTime": 1704273335042,
                "resolveTime": 1704275626614,
                "resolveType": "Auto",
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4hD2AgSt",
                "instanceId": "hblock_1:/mnt/stor",
                "instanceSnapshot": "hblock_1,hblockserver,192.168.0.110:/mnt/stor",
                "alarmRule": "FaultDomainError",
                "severity": "Major",
                "alarmStatus": "Resolved",
                "duration": 61433,
                "alarmTime": 1704273396083,
                "resolveTime": 1704273457516,
                "resolveType": "Auto",
                "muteStatus": "Normal"
            },
            {
                "alarmId": "4hD2zESY",
                "instanceId": "hblock_1:/mnt/stor",
                "instanceSnapshot": "hblock_1,hblockserver,192.168.0.110:/mnt/stor",
                "alarmRule": "DataServiceHealthStatusError",
                "severity": "Major",
                "alarmStatus": "Resolved",
                "duration": 61164,
                "alarmTime": 1704273395799,
                "resolveTime": 1704273456963,
                "resolveType": "Auto",
                "muteStatus": "Normal"
```

```
            },
            {
                "alarmId": "4hCtBCK5",
                "instanceId": "hblock_4:/mnt/storage01",
                "instanceSnapshot": "hblock_4,ecs-9689-0915141,192.168.0.202:/mnt/storage01",
                "alarmRule": "DataServiceHealthStatusError",
                "severity": "Major",
                "alarmStatus": "Resolved",
                "duration": 60395,
                "alarmTime": 1704271227603,
                "resolveTime": 1704271287998,
                "resolveType": "Auto",
                "muteStatus": "Normal"
            }
        ]
    }
}
```

Sample Request 3

Query the information of unresolved alarm with the level of Major.

```
GET /rest/v1/system/alarm?alarmStatus=Unresolved&filter=severity:Major HTTP/1.1
Date: Mon, 8 Jan 2024 05:38:29 GMT
Host: 192.168.0.1110:1443
Authorization: HBlock userName:signature
```

Sample Response 3

```
HTTP/1.1 200 OK
Date: Mon, 8 Jan 2024 05:38:29 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 299
Connection: keep-alive
x-hblock-request-id: 988b145267ac41c886954b6f81598ec4
Server: HBlock

{
    "data": {
        "totalCount": 1,
        "alarmList": [
            {
                "alarmId": "4jlhtUel",
                "instanceId": "hblock_4",
```

```
                "instanceSnapshot": "hblock_4,ecs-9689-0915141,192.168.0.202",
                "alarmRule": "ProtocolServiceAbnormal",
                "severity": "Major",
                "alarmStatus": "Unresolved",
                "duration": 10526372,
                "alarmTime": 1704681783540,
                "muteStatus": "Normal"
            }
        ]
    }
}
```

4.15.2 Query the Specified HBlock Alarm

This operation is used to query the specified HBlock alarm information.

Request Syntax

```
GET /rest/v1/system/alarm/alarmId HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Name	Type	Description	Required
alarmId	String	Alarm ID. Only alarms in the Unresolved status support a single query.	Yes

Response Elements

Name	Type	Description
alarmId	String	Alarm ID.
instanceId	String	Alarm instance ID.
instanceSnapshot	String	Alarm instance snapshot refers to the detailed information of the alarm instance when the alarm occurs.
alarmRule	String	Alarm rules.
severity	Enum	Alarm level: ● Warning ● Major ● Critical
alarmStatus	Enum	Alarm status: ● Unresolved: The alarm is ongoing. ● Resolved: The alarm has been resolved. ● Expired: The alarm has expired.
duration	Long	Alarm duration. Unix timestamp (UTC), accurate to milliseconds.
alarmTime	Long	Alarm occurrence time. Unix timestamp (UTC), accurate to milliseconds.
alarmValue	String	Alarm value. Only an alarm corresponding to a numerical indicator will display values. The following alarm rules involve numerical indicators: ● AlarmNumberApproachingLimit: The number of unresolved alarms is close to the upper limit. Displays (total number of unresolved alarms /upper limit of number of unresolved alarms) as percentage.

		The unit is %. Calculation formula: (total number of unresolved alarms /upper limit of number of unresolved alarms)*100%. ● ResourceUsageApproachingLimit: The resource usage is close to the upper limit, showing the license used capacity usage as a percentage, the unit is %. Calculation formula: (total local LUN capacity/capacity allowed by the license)*100%. ● CapacityQuotaUsageExceedsThreshold: The quota usage exceeds the threshold, showing the quota usage (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● CapacityQuotaUsageApproachLimit: The quota is exhausted, showing the quota usage rate (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● DiskUsageExceedsThreshold: The disk usage exceeds the threshold, showing the usage (Path_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● InsufficientSpaceonInstallationPath: The remaining space of the installation directory is insufficient, showing the remaining space of the file system of the disk where the directory is located, in GiB. ● InsufficientSpaceonMetaDir: The remaining space in the disk path of the base service is insufficient. It shows the remaining space of the file system on the disk where the disk path resides, in GiB.
currentValue	String	Current numerical value Only an alarm corresponding to a numerical indicator will display values. The following alarm rules involve numerical indicators: ● AlarmNumberApproachingLimit: The number of unresolved alarms is close to the upper limit. Displays (total number of unresolved alarms /upper limit of number of unresolved alarms) as percentage. The unit is %. Calculation formula: (total number of unresolved alarms /upper limit of number of unresolved alarms)*100%. ● ResourceUsageApproachingLimit: The resource usage is close to the upper limit, showing the license used capacity usage as a percentage, the unit is %.

		Calculation formula: (total local LUN capacity/capacity allowed by the license)*100%. ● CapacityQuotaUsageExceedsThreshold: The quota usage exceeds the threshold, showing the quota usage (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● CapacityQuotaUsageApproachLimit: The quota is exhausted, showing the quota usage rate (Path_Cap_Quota_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● DiskUsageExceedsThreshold: The disk usage exceeds the threshold, showing the usage (Path_Rate) of the disk associated with the storage pool or disk path, in percentage (%). ● InsufficientSpaceonInstallationPath: The remaining space of the installation directory is insufficient, showing the remaining space of the file system of the disk where the directory is located, in GiB. ● InsufficientSpaceonMetaDir: The remaining space in the disk path of the base service is insufficient. It shows the remaining space of the file system on the disk where the disk path resides, in GiB.
muteStatus	Enum	Mute status: ● Muted ● Normal
muteDueTime	Long	Mute due time, unix timestamp (UTC), accurate to milliseconds. If muted multiple times, return the mute due time of the last operation.
muteOperations	Array of muteOperation	Mute operation, see **Table 1 Parameter description of muteOperation** for details.

Table 1 Parameter description of muteOperation

Name	Type	Description
operTime	Long	Mute operation time.
operType	Enum	Mute operation type: ● Mute: Muted. ● AutoUnmute: Automatically unmute. ● ManualUnmute: Manually unmute.
reason	String	Reason for muting/unmuting.

dueTime	Long	Mute due time.

Sample Request

Query the alarm information whose alarm ID is **4jlhtUel**.

```
GET /rest/v1/system/alarm/4jlhtUel HTTP/1.1
Date: Mon, 8 Jan 2024 05:42:22 GMT
Host: 192.168.0.110:1443
Authorization: HBlock userName:signature
```

Sample Response

```
HTTP/1.1 200 OK
Date: Mon, 8 Jan 2024 05:42:22 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 268
Connection: keep-alive
x-hblock-request-id: dea2f8c199624d33aed3c4daa4654c2a
Server: HBlock

{
    "data": {
        "alarmId": "4jlhtUel",
        "instanceId": "hblock_4",
        "instanceSnapshot": "hblock_4,ecs-9689-0915141,192.168.0.202",
        "alarmRule": "ProtocolServiceAbnormal",
        "severity": "Major",
        "alarmStatus": "Unresolved",
        "duration": 10718615,
        "alarmTime": 1704681783540,
        "muteStatus": "Normal"
    }
}
```

4.15.3 Manually Resolve HBlock Alarm

This operation is used to manually resolve the specified HBlock alarm.

Request Syntax

```
PUT /rest/v1/system/alarm/alarmId/resolve HTTP/1.1
Date: date
Host: ip:port
Content-Type: text/plain
Content-Length: length
Authorization: authorization

{
     “reason”: reason
}
```

Request Parameters

Name	Type	Description	Required
alarmId	String	Alarm ID.	Yes
reason	String	The reason for resolving the alarm. Value: The value is a string of 1 to 50 characters.	Yes

Sample Request

Manually resolve the alarm 1kyvM3zJ.

```
PUT /rest/v1/system/alarm/1kyvM3zJ/resolve HTTP/1.1
Date: Wed, 17 Aug 2022 06:29:20 GMT
Host: 192.168.0.121:1443
Content-Type: text/plain
Content-Length: 41
Authorization: HBlock userName:signature

{
    "reason": "A new license has been applied for"
}
```

Sample Response

```
HTTP/1.1 204 No Content
Date: Wed, 17 Aug 2022 06:29:21 GMT
Connection: keep-alive
x-hblock-request-id: 9fe8d7733bd34c40a8895d674162c072
Server: HBlock
```

4.15.4 Mute/Unmute Alarm

This operation is used to mute the alarm or unmute the alarm.

Request Syntax

```
PUT /rest/v1/system/alarm/alarmId/mute HTTP/1.1
Date: date
Host: ip:port
Content-Type: text/plain
Content-Length: length
Authorization: authorization

{
    "operType": operType,
    "dueTime": dueTime,
    "reason": reason
}
```

Request Parameters

Name	Type	Description	Required
alarmId	String	Alarm ID.	Yes
operType	Enum	Mute operation. Value: ● Mute: Mute the alarm. ● ManualUnmute: Unmute the alarm.	Yes
dueTime	Long	Mute due time. Value: Unix timestamp (UTC), accurate to milliseconds. This field is mandatory if the silent operation is Mute.	No
reason	String	Reason for muting/unmuting. Value: The value is a string of 1 to 50 characters.	Yes

Sample Request 1

Mute alarm 1kUyXPFy.

```
PUT /rest/v1/system/alarm/1kUyXPFy/mute HTTP/1.1
Date: Thu, 18 Aug 2022 08:25:06 GMT
Host: 192.168.0.121:1443
Content-Type: text/plain
Content-Length: 90
Authorization: HBlock userName:signature

{
```

```
    "operType":"Mute",
    "dueTime": 1660903200000,
    "reason": "renew license"
}
```

Sample Response 1

```
HTTP/1.1 204 No Content
Date: Thu, 18 Aug 2022 08:25:06 GMT
Connection: keep-alive
x-hblock-request-id: 40d4c09de42d4d4cbf2f63e42d929208
Server: HBlock
```

Sample Request 2

Unmute the alarm 1kUyXPFy.

```
PUT /rest/v1/system/alarm/1kUyXPFy/mute HTTP/1.1
Date: Thu, 18 Aug 2022 08:35:55 GMT
Host: 192.168.0.121:1443
Content-Type: text/plain
Content-Length: 81
Authorization: HBlock userName:signature

{
    "operType":"ManualUnmute",
    "reason": "license is about to expire."
}
```

Sample Response

```
HTTP/1.1 204 No Content
Date: Thu, 18 Aug 2022 08:35:55 GMT
Connection: keep-alive
x-hblock-request-id: 40d4c09de42d4d4cbf2f63e42d929208
Server: HBlock
```

4.15.5 Export Alarm

This operation is used to export the alarm information.

Request Syntax

```
GET /rest/v1/system/alarm/file?alarmStatus=alarmStatus HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Name	Type	Description	Required
alarmStatus	Sting	Alarm status. Value: ● Unresolved: The alarm is ongoing. ● Resolved: The alarm has been resolved. ● Expired: The alarm has expired. The default value is Unresolved.	No

Sample Request

Export unresolved alarms.

```
GET /rest/v1/system/alarm/file HTTP/1.1
Date: Mon, 08 Jan 2024 05:47:24 GMT
Host: 192.168.0.110:1443
Authorization: HBlock userName:signature
```

Sample Response

```
HTTP/1.1 204 No Content
Date: Mon, 08 Jan 2024 05:47:24 GMT
Connection: keep-alive
x-hblock-request-id: 1c631d8b1b3549d7b4959d2bfae5f13b
Content-Disposition: attachment;filename=alarm_Unresolved_20220817160233.csv
Transfer-Encoding: chunked
Server: HBlock

alarmId,instanceId,instanceSnapshot,alarmRule,severity,alarmStatus,alarmTime,alarmValue,m
uteStatus,muteOperations
4jlhtUel,hblock_4,"hblock_4,ecs-9689-
0915141,192.168.0.202",ProtocolServiceAbnormal,Major,Unresolved,2024-01-08
10:43:03,,Normal,
```

4.15.6 Error Code List

HTTP status	Error Code	Error Message
400	InvalidArgumentLength	Value at 'reason' failed to satisfy constraint: Argument must not exceed 50 characters.
400	InvalidEnumValue	Value *value* at '*argument*' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...]
400	InvalidFilterEnum	Value value at 'filter' failed to satisfy constraint: Argument can only contain: [instanceSnapshot, alarmRule, severity, muteStatus, alarmTime, resolveTime, resolveType, expireTime].
400	MissingArgument	Value null at 'reason' failed to satisfy constraint: Argument must not be null.
400	MissingArgument	Value null at 'dueTime' failed to satisfy constraint: Argument must not be null.
400	InvalidTimeFormat	Value *value* at '*argument*' failed to satisfy constraint: Argument must conform to *Format* format.
400	NoSuchUnresolvedAlarm	The alarm with ID *ID* does not exist in 'Unresolved' alarm records.

4.16 Event and Log Management

You can refer to **User Event List** and **System Event List** for more details of event name.
Note: The system can retain events for 6 months.

4.16.1 Query HBlock Events

This operation is used to query HBlock events.

Request Syntax

```
GET /rest/v1/system/event?number=number&type=type HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
number	Integer	Specifies the number of the latest events to query. Value: The value is an integer that ranges from 1 to 1000. The default value is 1000.	No
type	Enum	Specifies the event type. Value: ● user: User event. ● system: System Event. The default value is user.	No

Response Elements

Name	Type	Description
events	Array of event	Events information collection, see **Table 1 Parameter description of event** for details.

Table 1 Parameter description of event

Name	Type	Description
eventId	String	Event ID.
module	String	The module to which the event belongs.
eventTime	Long	For user event: Time when the HBlock received the user event request. Unix timestamp (UTC), accurate to milliseconds. For system event: Time when the system event is reported. Unix timestamp (UTC), accurate to milliseconds.

name	String	Event Name. **Note**: You can refer to **User Event List** and **System Event List** for more details of event name**.**
requestId	String	Request ID of user event.
requesterIP	String	In user events, the source IP address of the request.
statusCode	Integer	User event response status code.
errorCode	String	User event error code. -: Indicates no error code.
errorMessage	String	User event error message. -: Indicates no error message.
detail.method	String	Request method for user events.
detail.url	String	The URL of the user event.
detail.body	String	The request body of the event.
instanceId	String	Instance ID of the system event. If there is no instance ID, this item is not returned.

Sample Request 1

Query HBlock user events.

```
GET /rest/v1/system/event?number=2 HTTP/1.1
Date: Thu, 04 Aug 2022 06:12:33 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: d701da5a23c94eef8a8efe0907b12751
Connection: keep-alive
Content-Length: 853
Date: Thu, 04 Aug 2022 06:12:33 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "events": [
            {
                "eventId": "78f85f5e-e8ca-42b9-889d-834a167283cc",
                "module": "System",
                "eventTime": 1659429529758,
                "name": "StartLogCollect",
```

```
                "requestId": "f630a474bc7e4d9eba75f3b9d28e5d51",
                "requesterIP": "36.111.88.33",
                "statusCode": 202,
                "errorCode": "-",
                "errorMessage": "-",
                "detail": {
                    "method": "POST",
                    "url": "/rest/v1/system/logcollect",
                    "body":
"{\"startTime\":1659422322714,\"endTime\":1659429522714,\"servers\":[\"hblock_1\",\"hbloc
k_2\",\"hblock_3\"],\"logTypes\":[\"Config\",\"System\",\"Data\",\"Coordination\"]}"
                }
            },
            {
                "eventId": "37fd582e-6d36-4174-a9bd-94c825316f8a",
                "module": "System",
                "eventTime": 1659429493016,
                "name": "Login",
                "requestId": "ab3c00578efb4372b1fd622d827ad97c",
                "requesterIP": "36.111.88.33",
                "statusCode": 200,
                "errorCode": "-",
                "errorMessage": "-",
                "detail": {
                    "method": "POST",
                    "url": "/internal/v1/system/user/login",
                    "body": "{\"userName\":\"storuser\"}"
                }
            }
        ]
    }
}
```


Sample Request 2

Query HBlock system events.

```
GET /rest/v1/system/event?number=2&type=system HTTP/1.1
Date: Thu, 4 Aug 2022 06:27:30 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 9199a40fdf4c48c58ec5a4f7a1acda95
Connection: keep-alive
Content-Length: 454
Date: Thu, 4 Aug 2022 06:27:30 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "events": [
            {
                "eventId": "19cb57dd-5210-45af-a930-3d4cc70fe299",
                "module": "System",
                "eventTime": 1659343497897,
                "name": "DataResumed"
            },
            {
                "eventId": "1843075f-1281-4abc-af22-05a95c3a00ac",
                "module": "System",
                "eventTime": 1659343497897,
                "name": "DataLowRedundancy",
                "detail": {
                    "body": "{\"percent\": \"0%\"}"
                }
            },
            {
                "eventId": "6b6d9ec4-4a20-44d2-b00c-f3f154373a11",
                "module": "Disk",
                "eventTime": 1659343495978,
                "name": "PathRemoved",
                "instanceId": "hblock_2:/mnt/storage02"
            }
        ]
    }
}
```

4.16.2 Export HBlock Events

This operation is used to export HBlock events.

Request Syntax

```
GET /rest/v1/system/event/file?number=numebr&type=type HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
number	Integer	Specifies the number of the latest HBlock events to export. **Note**: If this parameter is not specified, all events are exported. The system records event information for at least 6 months. Value: The value is an integer that ranges from 1 to 10,000.	No
type	Enum	Specifies the event type. Value: ● user: User event. ● system: System event. The default value is user.	No

Response Header

Name	Type	Description
Content-Disposition	String	The display form of the response content.
Transfer-Encoding	String	The encoded form in which the entity is transmitted to the user.

Sample Request 1

Export HBlock user events.

```
GET /rest/v1/system/event/file?number=3 HTTP/1.1
Date: Mon, 21 Mar 2022 01:53:48 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 9fd643aa73bd4b60ab59a29e2904ab49
Connection: keep-alive
```

```
Date: Mon, 21 Mar 2022 01:53:48 GMT
Content-Disposition: attachment;filename=events_20220321095348.csv
Transfer-Encoding: chunked
Server: HBlock

eventId,eventTime,module,name,requestId,requesterIP,method,URL,body,statusCode,errorCode,
errorMessage
a3830830-7f8a-40b2-a764-8ebfa6083f33,2022-03-21
09:53:28,LUN,ExpandLUN,5929bcbd0cf54e7f8a50b41f8bdd549b,111.198.231.68,PUT,http://218.78.
41.185:1443/rest/v1/block/lun/lunName1/expand,"{
 ""capacity"":200000
}
",400,LessThanCurrentCapacity,Value 200000 at 'capacity' failed to satisfy constraint:
Argument must be greater than 200000.
79a4c7b3-5b5c-46da-9725-f14237d462be,2022-03-21
09:53:21,LUN,SwitchLUN,a9be97449f434964960dbc8b48c05818,111.198.231.68,PUT,http://218.78.
41.185:1443/rest/v1/block/lun/Lun1/switch,,200,-,-
9481763e-da71-4354-8a77-bff1c2d3effd,2022-03-21
09:53:09,LUN,SetLUN,9718a304ab1f4f03b9530ebeef3b51fc,111.198.231.68,PUT,http://218.78.41.
185:1443/rest/v1/block/lun/Lun1,"{
  ""config"":{
""writePolicy"":""WriteThrough""
}
}
",200,-,-
```

Sample Request 2

Export HBlock system events.

```
GET /rest/v1/system/event/file?number=3&type=system HTTP/1.1
Date: Thu, 4 Aug 2022 09:28:28 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 0de4cbbd38104d8aaeae7700e6af9bae
Connection: keep-alive
Date: Thu, 4 Aug 2022 09:28:28 GMT
Content-Disposition: attachment;filename=events_20220321095348.csv
Transfer-Encoding: chunked
```

```
Server: HBlock

eventId,eventTime,module,name,instanceId,details
19cb57dd-5210-45af-a930-3d4cc70fe299,2022-08-01 16:44:57,System,DataResumed,null,{}
1843075f-1281-4abc-af22-05a95c3a00ac,2022-08-01
16:44:57,System,DataLowRedundancy,null,"{""percent"": ""0%""}"
6b6d9ec4-4a20-44d2-b00c-f3f154373a11,2022-08-01
16:44:55,Disk,PathRemoved,hblock_2:/mnt/storage02,{}
```

4.16.3 Initiate HBlock Log Collection

This operation is used to initiate HBlock log collection.

Note: The number of processes for HBlock log collection cannot exceed 10.

Request Syntax

```
POST /rest/v1/system/logcollect HTTP/1.1
Date: date
Host: ip:port
Content-Length: length
Authorization: authorization

{
    "startTime": startTime,
    "endTime": endTime,
    "servers": [ server_ID ],
    "logTypes": [ logTypes ],
    "outputDirectory": outputDirectory
}
```

Request Parameters

Parameter	Type	Description	Required
startTime	String	The start time of log to be collected. Value: Unix timestamp (UTC), accurate to milliseconds. The default value is the time point at 2 hours before the end time of HBlock log collection. **Note**: ● The start time of the HBlock log collection must be earlier than the end time of the HBlock log collection. ● If the start time of the HBlock log collection is earlier than the HBlock initialization time, the HBlock initialization time is the log collection start time. ● If the system time is modified, the last modification time of the log file may fluctuate or even be incorrect.	No
endTime	String	The end time of log to be collected. Value: Unix timestamp (UTC), accurate to milliseconds. The default value is the current time. **Note:**	No

		• The start time of the HBlock log collection must be earlier than the end time of the HBlock log collection. • The end time of the HBlock log collection must be later than the HBlock initialization time. • When the last modification time of the log file is greater than the end time, if there are multiple logs of the same type that are greater than the end time, the log file with the smallest HBlock log collection time value will be used.	
servers	Array of string	Specifies the server ID of HBlock log collection. Value: you can fill in multiple server IDs, separated by comma (,). It will collect logs of all servers by default.	No
logTypes	Array of logType	Specifies the log type. Value: • Config: Configuration-related logs. • System: system-related logs. • Data: Logs related to data processing, only supported by cluster mode. • Coordination: Logs related to the internal coordination service, only supported by cluster mode. All types of logs are collected by default.	No
outputDirectory	String	The directory where the collected information is stored. It is an absolute path. Value: If the directory not specified, the log is stored in the HBlock installation directory of the requested server by default, named as collected_logs/hblock_logs_*id_yyyyMMddHHmmss_yyyyMMddHHmmss*.zip, where: • id: Unique identifier for this log request. • *yyyyMMddHHmmss:* The start time and end time of log collection, UTC+0 time.	No

Response Elements

Name	Type	Description
id	String	Log ID.

Sample Request 1

Collect logs for the following conditions: The server ID is hblock_1 and hblock_2. The time is 2022-08-07 10:00:00 to 2022-08-07 22:00:00. The type of collection log is configuration and system.

The log file is stored in /mnt/storage01.

```
POST /rest/v1/system/logcollect HTTP/1.1
Date: Mon, 08 Aug 2022 05:57:49 GMT
Authorization: HBlock userName:signature
Content-Length: 192
Content-Type: text/plain
Host:192.168.0.121:1443

{
    "startTime": "1659837600000",
    "endTime": "1659880800000",
    "servers": ["hblock_1","hblock_2"],
    "logTypes": ["Config","System"],
    "outputDirectory": "/mnt/storage01"
}
```

Sample Response 1

```
HTTP/1.1 202 Accepted
x-hblock-request-id: 68a53a147d504d5087841192adef799e
Connection: keep-alive
Content-Length: 50
Date: Mon, 8 Aug 2022 05:57:52 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "id": "7889764ce31444d2b06f8c2b8201c836"
    }
}
```

Sample Request 2

Collect all types of logs on all servers of HBlock in the last two hours, and store the log files in /mnt/storage01.

```
POST /rest/v1/system/logcollect HTTP/1.1
Date: Mon, 08 Aug 2022 06:18:12 GMT
Authorization: HBlock userName:signature
Content-Length: 45
Content-Type: text/plain
Host:192.168.0.121:1443

```

```
{
    "outputDirectory": "/mnt/storage01"
}
```

Sample Response 2

```
HTTP/1.1 202 Accepted
x-hblock-request-id: f9cbe1e2e7564f00becc8903aaa7c9e6
Connection: keep-alive
Content-Length: 50
Date: Mon, 8 Aug 2022 06:18:14 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "id": "8c042a768cc74b15b74669d7ebec683c"
    }
}
```

4.16.4 Query Collected Logs in Batches

This operation is used to query collected logs in batches.

Request Syntax

```
GET /rest/v1/system/logcollect?filter=filter HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Sets the filter criteria for the query. The filter criteria consist of query attributes and attribute values. A single colon between the key and value (*key*:*value*) indicates a fuzzy match, while a double colon (*key*::*value*) indicates an exact match. Multiple filter criteria can be specified: use "or" to separate conditions for an OR relationship, and "and" to separate conditions for an AND relationship. The following filter criteria types are supported: ● status: Status of log collection. ■ Processing. ■ Succeeded. ■ PartiallySucceeded. ■ Failed. ● logTypes: Type of log collection. ■ Config: Configuration-related logs. ■ System: System-related logs. ■ Data: Logs related to data processing, only supported by cluster mode. ■ Coordination: Logs related to internal coordination services, only supported by cluster mode.	No

Response Elements

Name	Type	Description
logs	Array of log	A collection of log list information, see **Table 1 Parameter description of log** for details.

Table 1 Parameter description of log

Name	Type	Description
id	String	Log ID.
startTime	Long	The start time of the HBlock log collection.
endTime	Long	The end time of the HBlock log collection.
servers	Array of String	The server ID of HBlock log collection
logTypes	Array of logType	HBlock log type: ● Config: Configuration-related logs. ● System: System-related logs. ● Data: Logs related to data processing, only supported by cluster mode. ● Coordination: Logs related to internal coordination services, only supported by cluster mode.
file	String	The directory where the collected information is stored.
status	Enum	Status of log collection: ● Processing. ● Succeeded. ● PartiallySucceeded. ● Failed.
size	Long	The size of the collected log file, in bytes.
createTime	Long	The creation time of the log collection request.

Sample Request 1

Query all collected logs.

```
GET /rest/v1/system/logcollect HTTP/1.1
Date: Wed, 7 Aug 2024 05:48:56 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: ae3b8ec3785e4792bf8aeddd1ed3ab26
Connection: keep-alive
Content-Length: 772
Date: Wed, 7 Aug 2024 05:48:56 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
```

```
        "logs": [
            {
                "id": "ea35db6a939d40b9825c470a9f8826bb",
                "startTime": 1723002728561,
                "endTime": 1723009928561,
                "servers": [
                    "hblock_1"
                ],
                "logTypes": [
                    "System"
                ],
                "file":
"192.168.0.192:/mnt/storage01/CTYUN_HBlock_Plus_3.7.0_x64/collected_logs/hblock_logs_ea35
db6a939d40b9825c470a9f8826bb_20240807035208_20240807055208.zip",
                "status": "Succeeded",
                "size": 27607851,
                "createTime": 1723009904028
            },
            {
                "id": "54dfd39212fc476dba61f761c08d8a8a",
                "startTime": 1722915993000,
                "endTime": 1723009593754,
                "servers": [
                    "hblock_1",
                    "hblock_2",
                    "hblock_3",
                    "hblock_4"
                ],
                "logTypes": [
                    "Config"
                ],
                "file":
"192.168.0.192:/mnt/storage01/CTYUN_HBlock_Plus_3.5.0_x64/collected_logs/hblock_logs_54df
d39212fc476dba61f761c08d8a8a_20240806034633_20240807054633.zip",
                "status": "Succeeded",
                "size": 104534,
                "createTime": 1723009566777
            }
        ]
    }
}
```

Sample Request 2

Query logs whose log type is Config.

```
GET /rest/v1/system/logcollect?filter=logTypes:Config HTTP/1.1
Date: Wed, 7 Aug 2024 05:52:13 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 3906705dd9e946ffb640c1b97649bee8
Connection: keep-alive
Content-Length: 411
Date: Wed, 7 Aug 2024 05:52:13 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "logs": [
            {
                "id": "54dfd39212fc476dba61f761c08d8a8a",
                "startTime": 1722915993000,
                "endTime": 1723009593754,
                "servers": [
                    "hblock_1",
                    "hblock_2",
                    "hblock_3",
                    "hblock_4"
                ],
                "logTypes": [
                    "Config"
                ],
                "file":
"192.168.0.192:/mnt/storage01/CTYUN_HBlock_Plus_3.5.0_x64/collected_logs/hblock_logs_54df
d39212fc476dba61f761c08d8a8a_20240806034633_20240807054633.zip",
                "status": "Succeeded",
                "size": 104534,
                "createTime": 1723009566777
            }
        ]
```

```
    }
}
```

4.16.5 Query the Specified Collected Log

This operation is used to query the specified collected log.

Request Syntax

```
GET /rest/v1/system/logcollect/id HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
id	String	Log ID. If not filled in, all collection logs will be queried.	No

Response Elements

Name	Type	Description
id	String	Log ID.
startTime	Long	The start time of the HBlock log collection.
endTime	Long	The end time of the HBlock log collection.
servers	Array of string	The server ID of HBlock log collection.
logTypes	Array of logType	The log type: ● Config: Configuration-related logs. ● System: System-related logs. ● Data: Logs related to data processing, only supported by cluster mode. ● Coordination: Logs related to internal coordination services, only supported by cluster mode.
file	String	The directory where the collected information is stored.
status	Enum	Status of log collection: ● Processing. ● Succeeded. ● PartiallySucceeded. ● Failed.
size	Long	The size of the collected log file, in bytes.
createTime	Long	The creation time of the log collection request.

Sample Request

Query the log whose ID is 54dfd39212fc476dba61f761c08d8a8a.

```
GET /rest/v1/system/logcollect/5f84a6ea8edf4f9ea1debe601ce15c22 HTTP/1.1
```

```
Date: Wed, 07 Aug 2024 05:57:41 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 83e8981108e948719fb64f7a977fede5
Connection: keep-alive
Content-Length: 400
Date: Wed, 07 Aug 2024 05:57:41 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "id": "54dfd39212fc476dba61f761c08d8a8a",
        "startTime": 1722915993000,
        "endTime": 1723009593754,
        "servers": [
            "hblock_1",
            "hblock_2",
            "hblock_3",
            "hblock_4"
        ],
        "logTypes": [
            "Config"
        ],
        "file":
"192.168.0.192:/mnt/storage01/CTYUN_HBlock_Plus_3.7.0_x64/collected_logs/hblock_logs_54df
d39212fc476dba61f761c08d8a8a_20240806034633_20240807054633.zip",
        "status": "Succeeded",
        "size": 104534,
        "createTime": 1723009566777
    }
}
```

4.16.6 Download the Collected Log File

This operation is used to download the collected log file.

Note: Only logs of Succeeded and PartiallySucceeded status can be downloaded.

Request Syntax

```
GET /rest/v1/system/logcollect/id/file HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
id	String	Log ID.	Yes

Sample Request

Download the log whose ID is 903fec5908534445b847a2b13bd205e2.

```
GET /rest/v1/system/logcollect/903fec5908534445b847a2b13bd205e2/file HTTP/1.1
Date: Mon, 05 Sep 2022 08:26:41 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: c0958bc7287c4ca4a515e9ac5e32863d
Connection: keep-alive
Content-Length: 28950
Date: Mon, 5 Sep 2022 08:26:42 GMT
Content-Disposition:
attachment;filename=hblock_logs_903fec5908534445b847a2b13bd205e2_20220905082042_202209050
82242.zip
Content-Type: application/zip;charset=utf-8
Server: HBlock

{ …… }
```

4.16.7 Delete the Specified Collected Log

This operation is used to delete the specified collected log.

Request Syntax

```
DELETE /rest/v1/system/logcollect/id HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
id	String	Log ID. If not filled in, all collected logs will be deleted.	No

Sample Request

Delete the log with the ID of 5f84a6ea8edf4f9ea1debe601ce15c22.

```
DELETE /rest/v1/system/logcollect/5f84a6ea8edf4f9ea1debe601ce15c22 HTTP/1.1
Date: Mon, 08 Aug 2022 08:55:18 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 9bed087398184a77b7ef63eabb0670d3
Connection: keep-alive
Date: Mon, 8 Aug 2022 08:55:20 GMT
Server: HBlock
```

4.16.8 Delete All Collected Logs

This operation is used to delete all collected logs.

Request Syntax

```
DELETE /rest/v1/system/logcollect HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Sample Request

Delete all collected logs.

```
DELETE /rest/v1/system/logcollect HTTP/1.1
Date: Mon, 08 Aug 2022 09:01:57 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: d5e2973621064ed7b2e846b3874535d3
Connection: keep-alive
Date: Mon, 8 Aug 2022 09:02:00 GMT
Server: HBlock
```

4.16.9 Error Code List

HTTP Status	Error Code	Error Message
400	CanNotConnectToServer	Can not connect to the server *IP*[:*port*].
400	ExceedMaxValue	Value *value* at 'number' failed to satisfy constraint: Argument must be less than or equal to *value*.
400	ExceedThreshold	The number of *operation* cannot exceed value.
400	InsufficientServerSpace	This method is not allowed because the free space of *directory* must be greater than or equal to *value* for server *serverId[, serverId...]*.
400	InvalidDirectory	The *argument* must be a directory specified with an absolute path.
400	InvalidEnumValue	Value *value* at '*argument*' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...]
400	InvalidPositiveInteger	Value *value* at '*number*' failed to satisfy constraint: Argument must be positive integer.
400	InvalidTime	The end time must be later than the start time.
400	InvalidTimeFormat	Value *value* at '*argument*' failed to satisfy constraint: Argument must conform to *Format* format.
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
400	TooLargeFile	The file is too large. It is recommended to narrow the query range.
403	PermissionDenied	Failed to action because user has no permission.
404	NoSuchLog	The log with ID *ID* does not exist.
409	InvalidLogStatus	The status of log collection task with ID *ID* is '*status*', the request is invalid.

4.17 HBlock System Settings

4.17.1 Change Administrator Password

This operation is used to change the administrator password.

Request Syntax

```
PUT /rest/v1/system/user/password HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
   "userName": userName,
   "newPassword": newPassword
}
```

Request Parameters

Name	Type	Description	Required
userName	String	HBlock Administrator Username. Value: Consistent with the username set during initialization.	Yes
newPassword	String	Specifies the new password for administrator. Value: The value is a string of 8 to 16 case-sensitive characters: ● The password must contain at least three of the following: lowercase letters, uppercase letters, digits, or special characters. The special characters only include ~ ! @ # $ % ^ & * ( ) _ + [ ] { } | ; : , . / < > ?. ● The password cannot contain t 3 consecutive repeating characters, 3 consecutive or in-reverse order of numbers or letters (case-insensitive), 3 consecutive or in-reverse order of keyboard sequences (case-insensitive).	Yes

Sample Request

Change administrator password.

```
PUT /rest/v1/system/user/password HTTP/1.1
Date: Wed, 24 Jan 2024 07:54:58 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 67
Host:192.168.0.110:1443

{
    "userName": "storuser",
    "newPassword": "**********"
}
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 914ac22b6fb74f5ba5dc085e35718294
Connection: keep-alive
Date: Wed, 24 Jan 2024 07:54:58 GMT
Server: HBlock
```

4.17.2 Email Settings

4.17.2.1 Set the Email

This operation is used to set or edit email configuration information.
Note: If the email server address is IPv6 address, to ensure successful email sending, it is recommended that each HBlock server has an IPv6 address that can connect to the email server.

Request Syntax

```
PUT /rest/v1/system/config/notification HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "status": status,
    "smtpHost": smtpHost,
    "smtpPort": smtpPort,
    "SSL": ssl,
    "senderEmail": senderEmail,
    "password": password,
    "receiverEmail": reciverEmail
}
```

Request Parameters

Parameter	Type	Description	Required
status	String	Whether to enable email notification function. Value: ● Enabled: Enable email notification function. ● Disabled: Disable email notification function.	Yes
smtpHost	String	Specifies the SMTP host. Value: The value is the domain name or IP of SMTP server. **Note**: If the email configuration is not saved on the server when the email notification is enabled, this item is required.	No
smtpPort	Integer	Specifies the SMTP port. Value: The value is an integer that ranges from 1 to 65535. If SSL function is enabled, the default value is 465.	No

		Note: If SSL function is not enabled, the default value is 25.	
SSL	String	Whether to enable SSL function. Value: ● Enabled: Enable SSL function. ● Disabled: Disable SSL function. The default value is Disabled.	No
senderEmail	String	Specifies the sender email. The email format is *local-part@domain*: ● *local-part*: The value is a string of 1 to 64 characters. It can contain lowercase letters, uppercase letters, digits, or special characters (! # $ % & * + - / = ? ^ _ ` { | }~ .). A dot (.) cannot be used as a starting or ending character, nor can it appear consecutively. ● *domain*: The value is a string of 1 to 255 characters separated by dots (.). Each string separated by a dot(.) needs to meet the following requirements: ■ A string of 1 to 63 characters. ■ It can contain lowercase letters, uppercase letters, digits, or hyphens (-). ■ The top-level domain name cannot consist of pure digits. ■ The hyphen (-) cannot be used as the first and last characters. **Note**: If the email configuration is not saved on the server when the email notification is enabled, this item is required.	No
password	String	Specifies authorization code of the sender email. Email authorization code is a special password issued by the mailbox and used for third-party client login. **Note**: If the email configuration is not saved on the server when the email notification is enabled, this item is required.	No
receiverEmail	String	Specifies the receiver email. Multiple emails can be specified at one time. The email format is *local-part@domain*: ● *local-part*: The value is a string of 1 to 64 characters. It can contain lowercase letters, uppercase letters, digits, or special characters (! # $ % & * + - / = ? ^ _ ` { | }~ .). A dot (.) cannot be used	No

		as a starting or ending character, nor can it appear consecutively. ● *domain*: The value is a string of 1 to 255 characters separated by dots (.). Each string separated by a dot (.) needs to meet the following requirements: ■ A string of 1 to 63 characters. ■ It can contain lowercase letters, uppercase letters, digits, or hyphens (-). ■ The top-level domain name cannot consist of pure digits. ■ The hyphen (-) cannot be used as the first and last characters. **Note**: If the email configuration is not saved on the server when the email notification is enabled, this item is required.	

Sample Request 1

Set email configuration and enable email notification function.

```
PUT /rest/v1/system/config/notification HTTP/1.1
Date: Mon, 1 Aug 2022 01:53:36 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 243
Host: 192.168.0.121:1443

{
    "status": "Enabled",
    "smtpHost": "smtp.chinatelecom.cn",
    "smtpPort": 475,
    "SSL": "Enabled",
    "senderEmail": "account1@chinatelecom.cn",
    "password": "***************",
    "receiverEmail":"account2@chinatelecom.cn"
}
```

Sample Response 1

```
HTTP/1.1 204 No Content
x-hblock-request-id: 24c17819e3ed4c648f37d13f9af05537
Connection: keep-alive
Date: Mon, 1 Aug 2022 01:53:36 GMT
Server: HBlock
```

Sample Request 2

Disable the email notification function, but do not delete the email configuration.

```
PUT /rest/v1/system/config/notification HTTP/1.1
Date: Mon, 01 Aug 2022 01:56:05 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 30
Host: 192.168.0.121:1443
Authorization: HBlock userName:signature

{
    "status": "Disabled"
}
```

Sample Response 2

```
Http/1.1 204 No Content
x-hblock-request-id: 9022434a208a4c2ebf89da97f3f72976
Connection: Keep-Alive
Date: Mon, 01 Aug 2022 01:56:05 Gmt
Server: HBlock
```

4.17.2.2 Send a Test Email

This action is used to send a test email.

Request Syntax

```
POST /rest/v1/system/config/notification/testEmail HTTP/1.1
Date:date
Host: ip:port
Authorization:authorization
```

Sample Request

Send test email.

```
POST /rest/v1/system/config/notification/testEmail HTTP/1.1
Date: Thu, 17 Mar 2022 05:39:56 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 0
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 3de55df515314e4cb9b7b61ade66937f
Connection: keep-alive
Date: Thu, 17 Mar 2022 05:40:01 GMT
Content-Length: 0
Server: HBlock
```

4.17.2.3 Query Email Configuration

This operation is used to query email configuration.

Request Syntax

```
GET /rest/v1/system/config/notification HTTP/1.1
Date: date
Host: ip:port
Authorization:authorization
```

Response Elements

Name	Type	Description
status	String	Whether to enable email notification function: ● Enabled: Enable email notification function. ● Disabled: Disable email notification function.
smtpHost	String	SMTP server host.
smtpPort	Integer	SMTP port.
SSL	String	Whether to enable SSL function: ● Enabled: Enable SSL function. ● Disabled: Disable SSL function.
senderEmail	String	Sender email.
receiverEmail	String	Receiver email.

Sample Request

Query email configuration information.

```
GET /rest/v1/system/config/notification HTTP/1.1
Date: Thu, 17 Mar 2022 05:46:57 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 4b5e0623e73a4dcd8754fd2ed504b9c1
Connection: keep-alive
Content-Length: 199
Date: Thu, 17 Mar 2022 05:46:57 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
```

```
        "status": "Disabled",
        "smtpHost": "smtp.chinatelecom.cn",
        "smtpPort": 475,
        "SSL": "Enabled",
        "senderEmail": "account1@chinatelecom.cn",
        "receiverEmail": "account2@chinatelecom.cn"
    }
}
```

4.17.2.4 Delete Email Configuration

This operation is used to delete the email configuration.

Request Syntax

```
DELETE /rest/v1/system/config/notification HTTP/1.1
Date:date
Host: ip:port
Authorization:authorization
```

Sample Request

Delete mail configuration.

```
DELETE /rest/v1/system/config/notification HTTP/1.1
Date: Thu, 17 Mar 2022 05:56:29 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: 9639c0c89dca4fcb83719458a50452ac
Connection: keep-alive
Date: Thu, 17 Mar 2022 05:56:29 GMT
Server: HBlock
```

4.17.2.5 Error Code List

HTTP Status	Error Code	Error Message
400	InvalidReceiverEmail	Value *value* at 'receiver email' failed to satisfy constraint: Argument must conform to email format, and be separated by comma if there are multiple receivers.
400	InvalidSenderEmail	Value *value* at 'sender email' failed to satisfy constraint: Argument must conform to email format, and only one sender can be set.
400	MissingReceiverEmail	Value null at 'receiver email' failed to satisfy constraint: Argument must not be null when enable email configuration.
400	MissingSenderEmail	Value null at 'sender email' failed to satisfy constraint: Argument must not be null when enable email configuration.
400	MissingSenderPassword	Value null at 'password' failed to satisfy constraint: Argument must not be null when enable email configuration.
400	MissingSMTPHost	Value null at 'smtp host' failed to satisfy constraint: Argument must not be null when enable email configuration.
400	SendEmailFailed	Test email failed to send out.
404	NoSuchNotificationConfiguration	Notification is not configured.

4.17.3 Remote Assistance Configuration

4.17.3.1 Set Remote Assistance Configuration

This operation is used to set remote assistance configuration.

Request Syntax

```
PUT /rest/v1/system/config/remoteAccess HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
  "serverId": serverId,
  "status": status,
  "host": host,
  "port": port
}
```

Request Parameters

Name	Type	Description	Required
serverId	String	Specifies the server ID. If not specified, defaults to the currently requested server ID.	No
status	String	Whether to enable the remote assistance function. Value: ● Enabled: Enable the remote assistance function. ● Disabled: Disabled the remote assistance function.	Yes
host	String	Specifies the remote assistance host. Please contact the software vendor to get the HOST info. Except that host is required in the following cases, it is optional in other cases: ● If remote assistance function is enabled, this item has not been saved on the server. ● If a specific port number is entered when setting up remote assistance.	No
port	Integer	Specifies the remote assistance port. Please contact the software vendor to get the port. Value: The value is an integer that ranges from 1 to 65535. The default value is 18100.	No

Response Elements

Name	Type	Description
code	Integer	Remote assistance code, 6 digits.
host	String	Remote assistance server IP.
port	Integer	Remote assistance port.

Sample Request

Set remote assistance configuration.

```
PUT /rest/v1/system/config/remoteAccess HTTP/1.1
Date: Thu, 17 Mar 2022 09:20:16 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 113
Host: 192.168.0.121:1443
Authorization: HBlock userName:signature

{
    "serverId": "hblock_1",
    "status": "Enabled",
    "host": "182.151.21.174",
    "port": 18100
}
```

Sample Response

```
HTTP/1.1 200 OK
Date: Thu, 17 Mar 2022 09:20:16 GMT
Content-Length: 63
Connection:keep-alive
Content-Type: application/json; charset=utf-8
x-hblock-request-id: a839f9f8e76a4f18969f7e2637c957eb
Server: HBlock

{
    "data": {
        "code": "999342",
        "host": "182.151.21.174",
        "port": 18100
    }
}
```

4.17.3.2 Query Remote Assistance Configuration

This operation is used to query remote assistance configuration.

Note:

- If HBlock has not been initialized, only the information of this server will be displayed.
- Only supports querying servers with remote assistance configuration.

Request Syntax

```
GET /rest/v1/system/config/remoteAccess?filter=filter&range=i-j HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Request Parameters

Parameter	Type	Description	Required
filter	String	Set the filter conditions for the query. The following query type is supported: serverId (server ID).	No
range	String	Specifies query range. The format is i-j, where i, j are positive integers, and 0<j-i<1000. The server sorts the query results according to the server IDs and returns the i-th to j-th servers. If the range exceeds the total number of servers, the returned result is empty. If the range is not specified, all servers that meet the conditions are returned.	No

Response Elements

Name	Type	Description
serverId	String	Server ID. This item is not returned if system has not been initialized.
status	String	Whether to enable the remote assistance function: ● Enabled. ● Disabled.
host	String	The remote assistance host.
port	Integer	The remote assistance port.
code	String	The remote assistance code.

Sample Request

Query remote assistance configuration.

```
GET /rest/v1/system/config/remoteAccess HTTP/1.1
Date: Thu, 17 Mar 2022 09:34:04 GMT
Host: 192.168.0.121:1443
Authorization: HBlock userName:signature
```

Sample Response

```
HTTP/1.1 200 OK
Date: Thu, 17 Mar 2022 09:34:04 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 214
Connection: keep-alive
x-hblock-request-id: 0cda25588df44123ae5113876bd91ca0
Server: HBlock

{
    "data": {
        "servers": [
            {
                "serverId": "hblock_1",
                "status": "Enabled",
                "host": "182.151.21.174",
                "port": 18100,
                "code": "999342"
            },
            {
                "serverId": "hblock_2",
                "status": "Enabled",
                "host": "182.151.21.174",
                "port": 18100,
                "code": "258699"
            }
        ]
    }
}
```

4.17.3.3 Delete Remote Assistance Configuration.

This operation is used to delete remote assistance configuration.
Note: If the *serverId* is not specified, it indicates to delete the remote assistance configuration of the currently requested server.

Request Syntax

```
DELETE /rest/v1/system/config/remoteAccess/serverId HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Sample Request

Delete remote assistance configuration for hblock_1.

```
DELETE /rest/v1/system/config/remoteAccess/hblock_1 HTTP/1.1
Date: Thu, 17 Mar 2022 09:37:30 GMT
Authorization: HBlock userName:signature
Host: 192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 204 No Content
x-hblock-request-id: a4e3bc5f38a24992ab70da684388d6f6
Connection: keep-alive
Date: Thu, 17 Mar 2022 09:37:30 GMT
Server: HBlock
```

4.17.3.4 Error Code List

HTTP Status	Error Code	Error Message
400	CanNotConnectToServer	Can not connect to the server *IP*[:*port*].
400	InvalidHost	The host is invalid.
400	MissingRemoteAccessHost	Value null at 'host' failed to satisfy constraint: Argument must not be null.
404	NoSuchRemoteAccessConfiguration	Remote access is not configured.
409	RemoteAccessAlreadyEnabled	Remote access to the *Host*:*Port* has been enabled, and the remote access code is: *CODE*. If you want to change the Host and Port, please disable the remote access first.

4.17.4 Pushgateway Monitoring Configuration

4.17.4.1 Add Pushgateway Monitoring Configuration

This operation is used to add pushgateway monitoring configuration.
Note: When adding the monitoring configuration for pushgateway, the following labels are included by default: job, cluster ID, cluster name, ServerIP, and hostname. Users are allowed to modify or delete the cluster ID, cluster name, ServerIP, and hostname, but it is not recommended to do so. If a user-defined label has the same name as a default label, the value of the label will be determined by the user's settings.

Request Syntax

```
POST /rest/v1/system/config/monitor?serverId=serverid1,serverid2,serveridN HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "pushgateway": address:port,
    "pushgatewayLabels": {
        "key1": "value1",
        "key2": "value2",
        "key3": "value3",
...
    }
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the server ID whose monitor configuration is to be changed. Multiple server IDs can be added at one time, separated by comma (,). By default, all HBlock servers are configured with pushgateway monitoring.	No
pushgateway	String	Specifies the address and port of pushgateway. Value: The format is *IPv4*:*port*, [*IPv6*]:*port* or *domain-name*:*port*.	Yes
pushgatewayLabels	Object	Specifies the key-value pairs which assigned to	No

		the data in the pushgateway. Value: The format is *"key":"value"*.	

Sample Request 1

Add pushgateway monitoring configuration for servers hblock_2 and hblock_3.

```
POST /rest/v1/system/config/monitor?serverId=hblock_3,hblock_2 HTTP/1.1
Date: Fri, 24 May 2024 02:24:01 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 138
Host: 192.168.0.110:1443

{
    "pushgateway": "192.168.0.1:9091",
    "pushgatewayLabels": {
        "agent": "agentname",
        "idc": "idcname"
    }
}
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 65ba83698f7742de82c2a26fcd57e6e1
Connection: keep-alive
Date: Fri, 24 May 2024 02:24:01 GMT
Server: HBlock
```

Sample Request 2

Add pushgateway monitoring configuration for all HBlock servers.

```
POST /rest/v1/system/config/monitor HTTP/1.1
Date: Fri, 24 May 2024 02:43:57 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 130
Host: 192.168.0.110:1443

{
    "pushgateway": "192.168.0.1:9091",
    "pushgatewayLabels": {
        "agent":"ctyun",
```

```
        "idc": "idc8"
    }
}
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 9949f15915b24eada38615013e93ea53
Connection: keep-alive
Date: Fri, 24 May 2024 02:43:57 GMT
Server: HBlock
```

4.17.4.2 Modify Pushgateway Monitoring Configuration

This operation is used to modify pushgateway monitoring configuration.
Note: It is not recommended to modify the default labels carried: job, cluster ID, cluster name, ServerIP, and hostname.

Request Syntax

```
PUT /rest/v1/system/config/monitor?serverId=serverid1,serverid2,serveridN HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "pushgateway":address:port,
    "pushgatewayTimeout":pushgatewayTimeout,
    "pushgatewayLabels": {
        "key1": "value1",
        "key2": "value2",
        "key3": "value3",
...
    },
    "changeAll": changeAll,
    "collectInterval": collectInterval,
    "collectMetric": name,
    "collectMetricItems": [
        "item1",
        "item2",
        "item3",
...
    ],
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the server ID whose monitor	No

		configuration is to be modified. Multiple server IDs can be changed at one time, separated by comma (,). By default, all HBlock servers' pushgateway monitoring configurations are changed.	
pushgateway	String	Specifies the address and port of pushgateway. Value: The format is *IPv4*:*port*, [*IPv6*]:*port* or *domain-name*:*port*.	Yes
pushgatewayTimeout	Long	Specifies the timeout for sending data to pushgateway. Value: The value is an integer that ranges from 1000 to 1000000, in milliseconds.	No
pushgatewayLabels	Object	Specifies the key-value pairs which assigned to the data in the pushgateway. Value: The format is *"key":"value"*.	No
changeAll	Boolean	When modifying the configuration, should it be updated by overwriting or adding. Mainly for the setting the parameters pushgatewayLabels and collectMetricItems. **Note**: If collectMetricItems and pushgatewayLabels are not specified, this parameter does not take effect. Value: ● true: The configuration is updated by overwriting. ● false: The configuration is updated by adding. The default value is false.	No
collectInterval	Long	Specifies the collection interval on the server. Value: The value is an integer that ranges from 2000 to 1000000, or a negative integer, in milliseconds. **Note**: ● When specified together with collectMetric, the value can be	No

		a negative integer, indicating that the specified monitoring metric will not be collected. ● If collectMetric is not specified, it indicates setting the collection interval for all monitoring metrics, and the value can only be a positive integer within the allowed range.	
collectMetric	String	Specifies the monitoring metric to be modified. Value: The value is server, fileSystem, interface, load, disk, tcp or os. All metrics will be collected by default.	No
collectMetricItems	Array of collectMetricItem	Specifies the monitoring metric item to be modified. Only the monitoring indicators disk, fileSystem, and interface can specify metric items. **Note**: ● If monitoring metric is specified and no metric item is specified, all metric items of monitoring indicator will be modified by default. ● If monitoring metric is not specified, this parameter cannot be specified.	No

Sample Request 1

Modify pushgateway monitoring configuration for servers hblock_2 and hblock_3.

```
PUT /rest/v1/system/config/monitor?serverId=hblock_3,hblock_2 HTTP/1.1
Date: Fri, 24 May 2024 02:59:53 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 317
Host: 192.168.0.110:1443

{
    "pushgateway": "192.168.0.1:9091",
```

```
    "pushgatewayTimeout": 3000,
    "pushgatewayLabels": {
        "agent": "ctyunoos",
        "idc": "2"
    },
    "changeAll": true,
    "collectInterval": 5000,
    "collectMetric": "disk",
    "collectMetricItems": [
        "tmpfs",
        "cgroup"
    ]
}
```

Sample Response 1

```
HTTP/1.1 204 No Content
x-hblock-request-id: a097237d448f4371a8838df64e753f3e
Connection: keep-alive
Date: Fri, 24 May 2024 02:59:53 GMT
Server: HBlock
```

Sample Request 2

Modify pushgateway monitoring configuration for all HBlock servers.

```
PUT /rest/v1/system/config/monitor HTTP/1.1
Date: Fri, 24 May 2024 05:55:52 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 318
Host: 192.168.0.110:1443

{
    "pushgateway": "192.168.0.1:9091",
    "pushgatewayTimeout": 3000,
    "pushgatewayLabels": {
        "agent": "ctyun",
        "idc": "3"
    },
    "changeAll": false,
    "collectInterval": 5000,
    "collectMetric": "disk",
    "collectMetricItems": [
```

```
        "pstore",
        "devpts"
    ]
}
```

Sample Response 2

```
HTTP/1.1 204 No Content
x-hblock-request-id: 860024bc04814789b55f9d662914922a
Connection: keep-alive
Date: Fri, 24 May 2024 05:55:52 GMT
Server: HBlock
```

4.17.4.3 Delete Pushgateway Monitoring Configuration

This operation is used to delete pushgateway monitoring configuration.
Note: Deleting the "labels that metrics must have" may pose the risk of making the related monitoring data unrecognizable.

Request Syntax

```
DELETE /rest/v1/system/config/monitor?serverId=serverid1,serverid2,serveridN HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization


{
    "pushgateway":address:port,
    "pushgatewayLabels": [
        "key1",
        "key2",
        "key3",
...
    ]
    "collectMetric": name,
    "collectMetricItems": [
        "item1",
        "item2",
        "item3",
...
    ],
}
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the HBlock server ID to delete the pushgateway monitoring configuration. Multiple server IDs can be specified at one time, separated by comma (,).	No

		By default, delete the pushgateway monitoring configuration for all HBlock servers.	
pushgateway	String	Specifies the address and port of pushgateway. Value: The format is *IPv4*:*port*, [*IPv6*]:*port* or *domain-name*:*port*.	Yes
pushgatewayLabels	Array of pushgatewayLabel	Specifies the keys of pushgateway labels. Value: Key of the label.	No
collectMetric	String	Specifies the monitoring metrics to be deleted. Type: Enumeration Value: The value is server, fileSystem, interface, load, disk, tcp or os. All metrics will be deleted by default.	No
collectMetricItems	Array of collectMetricItem	Specifies the monitoring metric items to be deleted.	No

Sample Request

Delete the pushgateway monitoring configuration for servers hblock_1 and hblock_2: labels are agent and idc, monitoring metric is disk, and monitoring metric items are pstore and devpts.

```
DELETE /rest/v1/system/config/monitor?serverId=hblock_1,hblock_2 HTTP/1.1
Date: Fri, Fri, 24 May 2024 07:01:39 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 216
Host: 192.168.0.110:1443

{
    "pushgateway": "192.168.0.1:9091",
    "pushgatewayLabels": [
        "agent",
        "idc"
    ],
    "collectMetric": "disk",
    "collectMetricItems": [
        "pstore",
        "devpts"
    ]
}
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 4b7487d492754feab5f572be3ae532f8
Connection: keep-alive
Date: Fri, 24 May 2024 07:01:39 GMT
Server: HBlock
```

Sample Request 2

Delete the pushgateway monitoring configuration for all servers: labels are agent, idc.

```
DELETE /rest/v1/system/config/monitor HTTP/1.1
Date: Fri, 24 May 2024 08:30:08 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 112
Host: 192.168.0.110:1443

{
    "pushgateway": "192.168.0.1:9091",
    "pushgatewayLabels": [
        "agent",
        "idc"
    ]
}
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: ba61c4c8ecf54ad89ca872faa02c8433
Connection: keep-alive
Date: Fri, 24 May 2024 08:30:08 GMT
Server: HBlock
```

4.17.4.4 Query Pushgateway Monitoring Configuration

This operation is used to query pushgateway monitoring configuration information.

Request Syntax

```
GET /rest/v1/system/config/monitor?serverId=serverid1,serverid2,serveridN HTTP/1.1
HTTP/1.1
Date:date
Host: ip:port
Authorization:authorization
```

Request Parameters

Parameter	Type	Description	Required
serverId	String	Specifies the HBlock server ID to query the pushgateway monitoring configuration. Multiple server IDs can be specified at one time, separated by comma (,). By default, query the pushgateway monitoring configuration of all HBlock servers.	No

Response Elements

Name	Type	Description
monitors	Array of monitor	Monitoring information, see **Table 1 Parameter description of monitor** for details.

Table 1 Parameter description of monitor

Name	Type	Description
serverId	String	HBlock server ID.
send.pushgatewayTimeout	Long	The timeout for sending data to pushgateway. Timeout is considered a push failure.
send.pushgateways	Array of pushgateway	Pushgateway information, see **Table 2 Parameter description of pushgateway** for details.
collect.interval	Long	The collection interval for hardware indicators.
collect.metrics	Array of metric	Hardware collection metrics information, see **Table 3 Parameter description of metric** for details.

Table 2 Parameter description of monitor

Name	Type	Description
address	String	The IP or domain name of pushgateway.

port	Integer	The port of pushgateway.
labels.agent	String	Client of pushgateway.
labels.idc	Integer	Data center to which the data belongs.
labels.hostname	String	Host name.
labels.serverIp	String	Server IP.
labels.clusterId	String	Cluster ID.
labels.clusterName	String	Cluster name.
labels.job	String	Source of data pushed to pushgateway.

Table 3 Parameter description of metric

Name	Type	Description
name	String	The hardware indicator category name of the collection interval or collection object.
interval	Long	The collection interval for specified metric items.
items	String	The specified metric items of hardware indicators.

Sample Request 1

Query the pushgateway monitoring configuration of servers hblock_2 and hblock_3.

```
GET /rest/v1/system/config/monitor?serverId=hblock_2,hblock_3 HTTP/1.1
Date: Fri, 24 May 2024 08:58:12 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.110:1443
```

Sample Response 1

```
HTTP/1.1 200 OK
x-hblock-request-id: 4b5e0623e73a4dcd8754fd2ed504b9c1
Connection: keep-alive
Content-Length: 1115
Date: Fri, 24 May 2024 08:58:12 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "monitors": [
            {
                "serverId": "hblock_2",
                "send": {
```

```
                "interval": 20000,
                "timeout": 2000,
                "pushgatewayTimeout": 3000,
                "pushgateways": [
                    {
                        "address": "192.168.0.1",
                        "port": 9091,
                        "labels": {
                            "agent": "ctyun",
                            "idc": "3",
                            "hostname": "pm-006",
                            "serverIp": "192.168.0.192",
                            "clusterId": "B8BFE310-8DF6-429E-8C8A-ACD22310AC08",
                            "clusterName": "stor2",
                            "job": "hblock"
                        }
                    }
                ]
            },
            "collect": {
                "interval": 14000,
                "metrics": [
                    {
                        "name": "storFs",
                        "interval": 20000,
                        "items": [
                            "ds-1",
                            "mdm"
                        ]
                    },
                    {
                        "name": "server",
                        "interval": 5000,
                        "items": [
                            "cpu"
                        ]
                    },
                    {
                        "name": "disk",
                        "interval": 5000,
                        "items": [
```

```
                            "tmpfs",
                            "devpts",
                            "pstore",
                            "cgroup"
                        ]
                    }
                ]
            }
        },
        {
            "serverId": "hblock_3",
            "send": {
                "interval": 20000,
                "timeout": 2000,
                "pushgatewayTimeout": 3000,
                "pushgateways": [
                    {
                        "address": "192.168.0.1",
                        "port": 9091,
                        "labels": {
                            "agent": "ctyun",
                            "idc": "3",
                            "hostname": "ecs-9689-0915140",
                            "serverIp": "192.168.0.102",
                            "clusterId": "B8BFE310-8DF6-429E-8C8A-ACD22310AC08",
                            "clusterName": "stor2",
                            "job": "hblock"
                        }
                    }
                ]
            },
            "collect": {
                "interval": 14000,
                "metrics": [
                    {
                        "name": "storFs",
                        "interval": 20000,
                        "items": [
                            "ds-1"
                        ]
                    },
```

```
                        {
                            "name": "server",
                            "interval": 5000,
                            "items": [
                                "cpu"
                            ]
                        },
                        {
                            "name": "disk",
                            "interval": 5000,
                            "items": [
                                "tmpfs",
                                "devpts",
                                "pstore",
                                "cgroup"
                            ]
                        }
                    ]
                }
            }
        ]
    }
}
```

Sample Request 2

Query the pushgateway monitoring configuration of all HBlock servers.

```
GET /rest/v1/system/config/monitor HTTP/1.1
Date: Fri, 24 May 2024 09:06:56 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Host: 192.168.0.110:1443
```

Sample Response 2

```
HTTP/1.1 200 OK
x-hblock-request-id: 4b5e0623e73a4dcd8754fd2ed504b9c1
Connection: keep-alive
Content-Length: 1115
Date: Fri, 24 May 2024 09:06:56 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock
```

```
{
    "data": {
        "monitors": [
            {
                "serverId": "hblock_1",
                "send": {
                    "interval": 20000,
                    "timeout": 2000,
                    "pushgatewayTimeout": 3000,
                    "pushgateways": [
                        {
                            "address": "192.168.0.1",
                            "port": 9091,
                            "labels": {
                                "hostname": "hblockserver",
                                "serverIp": "192.168.0.110",
                                "clusterId": "B8BFE310-8DF6-429E-8C8A-ACD22310AC08",
                                "clusterName": "stor2",
                                "job": "hblock",
                                "agent": "ctyun",
                                "idc": "3"
                            }
                        }
                    ]
                },
                "collect": {
                    "interval": 14000,
                    "metrics": [
                        {
                            "name": "storFs",
                            "interval": 20000,
                            "items": [
                                "ds-1",
                                "ds-2",
                                "mdm"
                            ]
                        },
                        {
                            "name": "disk",
                            "interval": 5000,
                            "items": [
```

```
                        "tmpfs",
                        "devpts",
                        "pstore",
                        "cgroup"
                    ]
                }
            ]
        }
    },
    {
        "serverId": "hblock_3",
        "send": {
            "interval": 20000,
            "timeout": 2000,
            "pushgatewayTimeout": 3000,
            "pushgateways": [
                {
                    "address": "192.168.0.1",
                    "port": 9091,
                    "labels": {
                        "agent": "ctyun",
                        "idc": "3",
                        "hostname": "ecs-9689-0915140",
                        "serverIp": "192.168.0.102",
                        "clusterId": "B8BFE310-8DF6-429E-8C8A-ACD22310AC08",
                        "clusterName": "stor2",
                        "job": "hblock"
                    }
                }
            ]
        },
        "collect": {
            "interval": 14000,
            "metrics": [
                {
                    "name": "storFs",
                    "interval": 20000,
                    "items": [
                        "ds-1"
                    ]
                },
```

```
                    {
                        "name": "server",
                        "interval": 5000,
                        "items": [
                            "cpu"
                        ]
                    },
                    {
                        "name": "disk",
                        "interval": 5000,
                        "items": [
                            "tmpfs",
                            "devpts",
                            "pstore",
                            "cgroup"
                        ]
                    }
                ]
            }
        },
        {
            "serverId": "hblock_2",
            "send": {
                "interval": 20000,
                "timeout": 2000,
                "pushgatewayTimeout": 3000,
                "pushgateways": [
                    {
                        "address": "192.168.0.1",
                        "port": 9091,
                        "labels": {
                            "agent": "ctyun",
                            "idc": "3",
                            "hostname": "pm-006",
                            "serverIp": "192.168.0.192",
                            "clusterId": "B8BFE310-8DF6-429E-8C8A-ACD22310AC08",
                            "clusterName": "stor2",
                            "job": "hblock"
                        }
                    }
                ]
```

```
                },
                "collect": {
                    "interval": 14000,
                    "metrics": [
                        {
                            "name": "storFs",
                            "interval": 20000,
                            "items": [
                                "ds-1",
                                "mdm"
                            ]
                        },
                        {
                            "name": "server",
                            "interval": 5000,
                            "items": [
                                "cpu"
                            ]
                        },
                        {
                            "name": "disk",
                            "interval": 5000,
                            "items": [
                                "tmpfs",
                                "devpts",
                                "pstore",
                                "cgroup"
                            ]
                        }
                    ]
                }
            }
        ]
    }
}
```

4.17.4.5 Error Code List

HTTP status	Error Code	Error Message
400	AddConfigFailed	Servers cannot be connected: *serverid1*, *serverid2*....
400	DeleteConfigFailed	Servers cannot be connected: *serverid1*, *serverid2*....
400	ExceedMaxValue	Value *value* at 'number' failed to satisfy constraint: Argument must be less than or equal to *value*.
400	InvalidEnumValue	Value *value* at 'argument' failed to satisfy constraint: Argument must satisfy enum value set: [*value1*, *value2*...]
400	InvalidKeyInPushgatewayLabel	The key in the pushgateway label can not be the same as built-in keywords, which include type, cpu, device, fstype, mountpoint, lu, path, file, mode, address and target.
400	InvalidPort	Value *value* at 'port of pushgateway' failed to satisfy constraint: Argument must have value between 1 and 65535.
400	InvalidString	Value '' at '*argument*' failed to satisfy constraint: Argument must not be an empty string.
400	LessThanMinValue	Value *value* at 'number' failed to satisfy constraint: Argument must be greater than or equal to *value*.
400	MissingAtLeastOneArgument	Missing argument, at least one argument in '*argument1*, *argument2*, *argument3* ...' is needed.
400	SetConfigFailed	Servers cannot be connected: *serverid1*, *serverid2*.... The pushgateway with address *address* and port *port* does not exist in *serverid1*, *serverid2*....

4.17.5 Authentication Mode

4.17.5.1 Set the Authentication Mode

This operation is used to set the HBlock authentication mode.

Request Syntax

```
PUT /rest/v1/system/config/parameter HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization


{
    "authMode": authMode
}
```

Request Parameters

Parameter	Type	Description	Required
authMode	String	Sets the HBlock authentication mode. Value: ● strict: Uses the latest authentication method. ● compatible: Compatible with historical authentication methods. For HBlock upgraded from versions below 3.8, the authentication mode is compatible; for versions 3.8 and above, the default authentication mode after installation is strict. **Note**: ● Authentication method before version 3.8: SHA256(Date header value + "\n" + SHA256(password)) ● Authentication method for version 3.8 and later: HMAC-SHA256(SHA256(password), Date header value + "\n" + SHA256(password))	No

Sample Request

Set the HBlock authentication mode to strict.

```
PUT /rest/v1/system/config/parameter HTTP/1.1
Date: Fri, 09 Jan 2026 08:29:37 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 30
Connection: keep-alive
Host: 192.168.0.65:1443

{
    "authMode": "strict"
}
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: f50be9c8d72e4f0ea2eb8850e69b7fcd
Connection: keep-alive
Date: Fri, 09 Jan 2026 08:29:37 GMT
Server: HBlock
```

4.17.5.2 Query the Authentication Mode

This operation is used to query the HBlock authentication mode.

Request Syntax

```
GET /rest/v1/system/config/parameter HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Response Elements

Name	Type	Description
authMode	String	The HBlock authentication mode: ● strict: Uses the latest authentication method. ● compatible: Compatible with historical authentication methods.

Sample Request

Query the HBlock authentication mode.

```
GET /rest/v1/system/config/parameter HTTP/1.1
Date: Fri, 09 Jan 2026 08:29:37 GMT
Authorization: HBlock userName:signature
Connection: keep-alive
Host: 192.168.0.65:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 4b5e0623e73a4dcd8754fd2ed504b9c1
Date: Fri, 09 Jan 2026 08:35:13 GMT
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 30
Server: HBlock

{
    "data": {
        "authMode": "strict"
    }
}
```

4.17.5.3 Error Code List

HTTP status	Error Code	Error Message
400	SetConfigFailed	Failed to set config.

4.17.6 Enable Pro Trial (Free Edition)

4.17.6.1 Enable Pro Trial

This operation is used to enable the Pro Trial for the free edition.
After enabling the Pro Trial, some advanced features of the commercial edition can be trialed.
For differences between the commercial edition and the free edition, see **Commercial Edition and Free Edition Features Available After Software License Expiration (Trial or Subscription Mode)**.
Note:

- The free edition includes 2 years of upgrade service; upgrades will not be supported after expiration. If the user has never enabled the Pro Trial, it can still be enabled normally after 2 years.
- For the free edition, the Pro Trial can only be enabled once. After enabling the Pro Trial, advanced features can be trialed for 1 month; after 1 month, advanced features will be disabled. When advanced features are disabled, if you wish to use the commercial edition, please contact the software vendor to obtain a formal software license and load it.

Request Syntax

```
PUT /rest/v1/system/config/protrial HTTP/1.1
Date: date
Connection: keep-alive
Content-Length: length
Host: ip:port
Authorization: authorization
```

Response Elements

Name	Type	Description
proTrialStartTime	Long	Pro Trial start time for the free edition. Unix timestamp (UTC), accurate to milliseconds. Only returned when the Pro Trial is enabled; not returned if not enabled.
proTrialExpireTime	Long	Pro Trial end time for the free edition. Unix timestamp (UTC), accurate to milliseconds. Only returned when the Pro Trial is enabled; not returned if not enabled.

Sample Request

Enable the Pro Trial for the free edition.

```
PUT /rest/v1/system/config/protrial HTTP/1.1
```

```
Date: Mon, 12 Jan 2026 07:28:32 GMT
Authorization: HBlock userName:signature
Content-Length: 0
Connection: keep-alive
Host: 192.168.0.65:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: 392b32b685ca4556965878adef3d4093
Connection: keep-alive
Content-Type: application/json;charset=utf-8
Content-Length: 79
Date: Mon, 12 Jan 2026 07:28:32 GMT
Server: HBlock

{
    "data": {
        "proTrialStartTime": 1768202912282,
        "proTrialExpireTime": 1770794912282
    }
}
```

4.17.6.2 Error Code List

HTTP status	Error Code	Error Message
400	CommercialNotAllowed	The request is invalid in the commercial edition.
400	ProFeatureDisabled	This feature is only available in the commercial edition. Please contact your software vendor to get a license to unlock more capabilities.
400	ProFeatureTrialNotify	This feature is only available in the commercial edition. You can start a Pro trial or contact your software vendor to obtain a license to unlock more capabilities.
409	ProFeatureEnabled	The Pro trial (started on *YYYY-MM-DD XX:XX:XX*) ends on *YYYY-MM-DD XX:XX:XX*. This is your one and only trial opportunity.

4.18 Tune the Performance Parameters of HBlock（Cluster Mode）

4.18.1 Tune the Performance Parameters of HBlock

This operation can be used to optimize performance based on the hardware environment and business scenario.

Request Syntax

```
PUT /rest/v1/system/tuning HTTP/1.1
Date: date
Content-Type: application/json; charset=utf-8
Content-Length: length
Host: ip:port
Authorization: authorization

{
    "perfScen": perfScen,
    "haSens": haSens
}
```

Request Parameters

Parameter	Type	Description	Required
perfScen	String	Specifies the scenario for performance tuning. Value: ● ICv1: Intelligent Computing Scenario. ● VMv1: Virtualization Scenario. ● default: The default type of the system.	No
haSens	String	Set the performance tuning scenario to Sensitive. Value: ● High: High-Sensitivity Scenario. ● Middle: Medium-Sensitivity Scenario. ● Low: Low-Sensitivity Scenario. The default value is Middle.	No

Sample Request

HBlock performance tuning.

```
PUT /rest/v1/system/tuning HTTP/1.1
```

```
Date: Thu, 19 Dec 2024 08:39:13 GMT
Content-Type: application/json; charset=utf-8
Authorization: HBlock userName:signature
Content-Length: 50
Host: 192.168.0.192:1443

{
    "perfScen": "ICv1",
    "haSens": "Low"
    }
```

Sample Response

```
HTTP/1.1 204 No Content
Date: Thu, 19 Dec 2024 08:39:13 GMT
Connection: keep-alive
x-hblock-request-id: e2216c93aade40e3b7dec96f6b0ef15a
Server: HBlock
```

4.18.2 View the Performance Tuning Configuration.

This operation is used to view the performance tuning configuration.

Request Syntax

```
GET /rest/v1/system/tuning HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Response Elements

Parameter	Type	Description
perfScen	String	The scenario for performance tuning: ● ICv1: Intelligent Computing Scenario. ● VMv1: Virtualization Scenario. ● default: The default type of the system.
haSens	String	The performance tuning for scenario sensitive types: ● High: High-Sensitivity Scenario. ● Middle: Medium-Sensitivity Scenario. ● Low: Low-Sensitivity Scenario. ● custom: The scenario set by the user. ● Unknown: The scenario is unknown.

Sample Request

View the performance tuning configuration.

```
GET /rest/v1/system/tuning HTTP/1.1
Date: Thu, 19 Dec 2024 08:58:46 GMT
Host: 192.168.0.192:1443
Authorization: HBlock userName:signature
```

Sample Response

```
HTTP/1.1 200 OK
Date: Thu, 19 Dec 2024 08:58:46 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 46
Connection:keep-alive
x-hblock-request-id: ee4731a7add542f9af6d0955e3fbf4b1
Server: HBlock

{
    "data": {
```

```
        "perfScen": "ICv1",
        "haSens": "Middle"
    }
}
```

4.18.3 Error Code

HTTP status	Error Code	Error Message
400	StandaloneModeNotAllowed	'*operation*' is not supported by standalone mode of HBlock.
404	TuningNotComplete	The previous tuning operation failed to execute on *serverid1*,*serverid2*....., the system is automatically retrying. In the meantime, please check and ensure network connection is stable. If the issue persists, please contact software vendor.

4.19 Query HBlock Version

This operation is used to query HBlock version information.

Request Syntax

```
GET /rest/v1/system/version HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Response Elements

Name	Type	Description
version	String	HBlock version.
type	String	HBlock mode: ● Standalone: Standalone mode. ● Cluster: Cluster mode.

Sample Request

Query HBlock version.

```
GET /rest/v1/system/version HTTP/1.1
Date: Wed, 07 Aug 2024 03:10:21 GMT
Authorization: HBlock userName:signature
Host:192.168.0.121:1443
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: ab2219e1469849fb81742a9395b9f22a
Connection: keep-alive
Content-Length: 45
Date: Wed, 07 Aug 2024 03:10:21 GMT
Content-Type: application/json;charset=utf-8
Server: HBlock

{
    "data": {
        "version": "3.7.0",
        "type": "Cluster"
    }
}
```

4.20 Upgrade HBlock

4.20.1 Upgrade HBlock

This operation is used to upgrade HBlock.
Note: The upgrade service completion status can be queried by calling querying the upgrade progress.
During the upgrade process, the system will perform checks. If the conditions for upgrade are not met, the upgrade may fail. The reason for the upgrade failure can be viewed in the log file upgrade.log (Log path: HBlock_installation_directory/logs/ops/upgrade.log) on the server where the upgrade operation was executed. We recommend that you check the system before the upgrade to ensure that:

- All statuses are normal:
  - All HBlock servers are connected properly, no server is in the process of being deleted.
  - HBlock is in working and upgrading status.
  - If the software license is subscription, it must be within the validity period; if the license is perpetual, it must be within the maintenance period; if it is in trial mode, the trial must not have expired.
- Cluster mode: If the LUN's type is ActiveStandby, the active/standby connection is normal.
- No LUNs are in failed or in-progress status.
- The overall data redundancy of the system is not degraded, and the percentage of normal data is 100%. In addition, the number of available fault domains and the number of healthy domains are greater than the write requirements of all LUNs.
- The listening service (stor:ua) can be properly upgraded.
- The protocol parsing service (stor:ps) is normal.
- Cluster mode: Data service (stor:ds-*x*) is normal.
- Cluster mode: Base services are normal, including metadata management service (stor:mdm), log service (stor:ls), and coordination service (stor:cs).

Note:

- Before upgrading HBlock, ensure that the file system corresponding to the HBlock installation path of each server has at least 1 GiB of free space.
- If the cluster is composed of servers with different architectures, please add the upgrade files for all architectures and keep the versions consistent.

Request Syntax

- **Same-architecture upgrade:**

```
PUT /rest/v1/system/upgrade HTTP/1.1
Date: date
Content-Type: application/zip
Content-Length: length
```

```
x-update-parameter: key1=value1;key2=value2
Host: ip:port
Authorization: authorization

  <upgradeFile>
```

- **Hybrid Deployment Upgrade (only supported by cluster mode):**

```
POST /rest/v1/system/upgrade HTTP/1.1
Date: date
Content-Type: multipart/form-data; boundary=value
Content-Length: length
Content-MD5: MD5
x-update-parameter: key1=value1;key2=value2
Host: ip:port
Authorization: authorization

upgradeFile1name:upgradeFile1
upgradeFile2name:upgradeFile2
……
```

Request Header

Parameter	Type	Description	Required
Content-Type	Sting	The MIME type of the request body. Value: ● If it is a same-architecture upgrade, the value is `application/zip` or `multipart/form-data; boundary=value`. ● If it is a mixed deployment upgrade, the value is `multipart/form-data; boundary=value`. Where `boundary` is a delimiter used to separate different fields in the form. Its value is generated by the browser or client and is usually random.	No
x-update-parameter	Sting	When upgrading to the target version of HBlock, if the version requires importing parameters, this item must be set. The specific parameter settings should be based on the target version. If the target version requires multiple parameters, they can be added in the form of *key1=value1;key2=value2;....* The **key** is the parameter name, and the **value** is the parameter value, separated by ";".	No

Request Parameters

Parameter	Type	Description	Required
upgradeFile	No	The file stream of the upgrade package. If the cluster uses a mixed deployment, you need to upload the upgrade packages for all architectures in the cluster.	Yes

Sample Request

Upgrade the HBlock service.

```
PUT /rest/v1/system/upgrade HTTP/1.1
Date: Wed, 16 Apr 2025 02:33:55 GMT
Content-Type: multipart/form-data; boundary--------------------------
376560147304188301045278
Authorization: HBlock userName:signature
Content-Length: 187960472
Host: 192.168.0.665:1443

upgradeFile: upgradeFile
```

Sample Response

```
HTTP/1.1 202 Accepted
Date: Wed, 16 Apr 2025 02:33:55 GMT
Content-Length: 0
Connection: keep-alive
x-hblock-request-id: c745e6cdd7264125841cf8be09571aa2
Server: HBlock
```

4.20.2 Query the Upgrade Status of HBlock

This operation is used to query the upgrade status of HBlock.

Request Syntax

```
GET /rest/v1/system/upgrade HTTP/1.1
Date: date
Host: ip:port
Authorization: authorization
```

Response Elements

Name	Type	Description
status	Sting	HBlock service upgrade status: ● NotUpgraded: No upgrade has been performed. ● Preparation: Preparing for upgrade. ● Processing: Upgrading in progress. ● Succeeded: Upgrade completed successfully. ● Failed: Upgrade failed. ● Interrupted: Upgrade interrupted. ● Unknown: Unknown status.
progress	String	Upgrade process details.
targetVersion	String	Target upgrade version.
startTime	Long	The start time of this upgrade, Unix timestamp (UTC), accurate to milliseconds.
lastEndTime	Long	The end time of the last upgrade, Unix timestamp (UTC), accurate to milliseconds.

Sample Request

Query the upgrade status of HBlock.

```
GET /rest/v1/system/upgrade HTTP/1.1
Date: Mon, 8 Sep 2025 08:00:42 GMT
Host: 192.168.0.65:1443
Authorization: HBlock userName:signature
```

Sample Response

```
HTTP/1.1 200 OK
x-hblock-request-id: a97736e1aa6345368f64dccc7d04bf49
Date: Mon, 8 Sep 2025 08:00:42 GMT
Content-Type: application/json; charset=utf-8
Content-Length: 3600
```

```
Connection:keep-alive
Server: HBlock

{
    "data": {
        "status": "Processing",
        "progress": "Server info:\nhblock_1, 192.168.0.65, songt-0004\nhblock_2,
192.168.0.64, k8s-master\nhblock_3, 192.168.0.67, songt-0006\n\n2025-09-08 15:51:47
CST+0800 [Step 1/5] Checking for system status...\n2025-09-08 15:51:47 CST+0800 Checking
system info\n2025-09-08 15:51:47 CST+0800 Checking data status\n\n2025-09-08 15:52:05
CST+0800 [Step 2/5] Uploading update files...\n\r2025-09-08 15:52:08 CST+0800 Upload
[100%] for hblock_1 ###[server 1/3]\n\r2025-09-08 15:52:10 CST+0800 Upload [100%] for
hblock_2 ###[server 2/3]\n\r2025-09-08 15:52:13 CST+0800 Upload [100%] for hblock_3
###[server 3/3]\n\n2025-09-08 15:52:13 CST+0800 [Step 3/5] Upgrade preparing...\n\n2025-
09-08 15:52:33 CST+0800 [Step 4/5] Installing updates...\n\r2025-09-08 15:52:33 CST+0800
Upgrading config - Update[√] ### [module 1/10]\n\r2025-09-08 15:52:39 CST+0800 Upgrading
storfsBase - Update[√] ### [module 2/10]\n\r2025-09-08 15:52:48 CST+0800 Upgrading ls for
hblock_1 - Check[√], Stop[√], Update[√], Start[√] ### [server 1/3] [module 3/10]\n\r2025-
09-08 15:53:37 CST+0800 Upgrading ls for hblock_2 - Check[√], Stop[√], Update[√],
Start[√] ### [server 2/3] [module 3/10]\n\r2025-09-08 15:54:27 CST+0800 Upgrading ls for
hblock_3 - Check[√], Stop[√], Update[√], Start[√] ### [server 3/3] [module 3/10]\n\r2025-
09-08 15:55:17 CST+0800 Upgrading mdm for hblock_2 - Check[√], Stop[√], Update[√],
Start[√] ### [server 1/3] [module 4/10]\n\r2025-09-08 15:55:48 CST+0800 Upgrading mdm for
hblock_1 - Check[√], Stop[√], Update[√], Start[√] ### [server 2/3] [module 4/10]\n\r2025-
09-08 15:56:18 CST+0800 Upgrading mdm for hblock_3 - Update[√] ### [server 3/3] [module
4/10]\n\r2025-09-08 15:56:22 CST+0800 Upgrading ds-1 for hblock_1 - Check[√], Stop[√],
Update[√], Start[√] ### [service 1/1] [server 1/3] [module 5/10]\n\r2025-09-08 15:56:42
CST+0800 Upgrading ds-1 for hblock_2 - Check[√], Stop[√], Update[√], Start[√] ###
[service 1/1] [server 2/3] [module 5/10]\n\r2025-09-08 15:57:32 CST+0800 Upgrading ds-1
for hblock_3 - Check[√], Stop[√], Update[√], Start[√] ### [service 1/1] [server 3/3]
[module 5/10]\n\r2025-09-08 15:58:23 CST+0800 Upgrading ps for hblock_1 - Check[√],
Stop[√], Update[√], Start[√] ### [server 1/3] [module 6/10]\n\r2025-09-08 15:58:37
CST+0800 Upgrading ps for hblock_2 - Check[√], Stop[√], Update[√], Start[√] ### [server
2/3] [module 6/10]\n\r2025-09-08 15:58:54 CST+0800 Upgrading ps for hblock_3 - Check[√],
Stop[√], Update[√], Start[√] ### [server 3/3] [module 6/10]\n\r2025-09-08 15:59:14
CST+0800 Upgrading tool - Update[√] ### [module 7/10]\n\r2025-09-08 15:59:20 CST+0800
Upgrading remote for hblock_1 - Check[√], Stop[√], Update[√], Start[√] ### [server 1/3]
[module 8/10]\n\r2025-09-08 15:59:37 CST+0800 Upgrading remote for hblock_2 - Check[√],
Stop[√], Update[√], Start[√] ### [server 2/3] [module 8/10]\n\r2025-09-08 15:59:53
CST+0800 Upgrading remote for hblock_3 - Check[√], Stop[√], Update[√], Start[√] ###
[server 3/3] [module 8/10]\n\r2025-09-08 16:00:05 CST+0800 Upgrading monitor for hblock_1
```

```
- Check[√], Stop[√], Update[√], Start[√] ### [server 1/3] [module 9/10]\n\r2025-09-08
16:00:21 CST+0800 Upgrading monitor for hblock_2 - Check[√], Stop[√], Update[√], Start[√]
### [server 2/3] [module 9/10]\n\r2025-09-08 16:00:37 CST+0800 Upgrading monitor for
hblock_3 - Check[√], Stop[&gt;], Update[-], Start[-] ### [server 3/3] [module 9/10]",
        "targetVersion": "3.10.0",
        "startTime": 1757317907227,
        "lastEndTime": 0
    }
}
```

4.20.3 Error Code

HTTP status	Error Code	Error Message
400	CanNotConnectToIP	Can not connect to the IP *IP*.
400	CanNotConnectToServer	Can not connect to the server *IP*[:*port*].
400	CanNotConnectToService	Can not connect to '*serviceName*' service on server *serverIp*[:*port*].
400	DuplicatePackage	The name of the upgrade package must be unique. Please check and try again.
400	ExceedThreshold	The number of *operation* cannot exceed *value*.
400	GetUpgradeStatusFailed	Failed to get upgrade status. Please check the network, service, etc, then try again.
400	InitUpgradeFailed	The upgrade operation failed to start. *reason*
400	InsufficientFDForLUNToWrite	Available fault domains and healthy disk paths are insufficient for the LUNs to write: *lunname1*, *lunname2*, *lunname3*... . Make sure available fault domains and healthy disk paths are greater than the minimum replica number of the LUNs.
400	InsufficientAvailableServices	The number of available '*serviceName*' service node in the cluster must be greater than or equal to *value*.
400	InvalidDouble	Value value at '*argument*' failed to satisfy constraint: Argument must be of type double.
400	InvalidLong	Value *value* at '*argument*' failed to satisfy constraint: Argument must be of type long.
400	InvalidPackage	Invalid upgrade package. Please get the correct package.
400	InvalidProductType	Cannot run upgrade, product type mismatch. Please get the correct package.
400	InvalidStorStatus	The HBlock status is '*status*', the request is invalid.
400	InvalidVersion	No need to upgrade because your current version is newer.
400	LoadConfigFailed	Failed to load configuration files.
400	LoadPackageFailed	Failed to load upgrade package. Reason: *Reason*
400	LowVersion	The upgrade package requires the current system version to be *minimumVersion* or later.
400	MissingArchPackage	Missing *architecture* upgrade package. Please get the correct package.
400	MissingArgument	Value null at '*argument*' failed to satisfy constraint:

		Argument must not be null.
400	NoUpgradeOperation	No upgrade operation.
400	SameVersion	No need to upgrade because the versions are same.
400	ServiceWaitTimeout	'*serviceName*' service wait timeout.
400	SetConfigFailed	Failed to set config.
400	SystemDataDegraded	There is low redundancy or error data in the system, operation is not allowed. Please repair fault domains and disk paths.
400	UpgradeExpired	Your upgrade function has expired on *xxxx-xx-xx xx:xx:xx* . To ensure business continuity and access the full product experience, please contact your software vendor to get a license.
400	UploadPackageFaied	Failed to upload or unzip package. Reason: *reason*.
409	InvalidTargetIQNsStatus	The request is invalid. Ensure the number of target IQNs whose status is neither unavailable nor offline is greater than or equal to 2.
409	UpgradeInProgress	The upgrade task is in progress, the request is invalid.

5 Appendix

5.1 Escape Character Table

The following special characters are escaped in the response body.

Before Escaping	After Escaping
<	<
>	>
(	(
)	)
&	&

5.2 HBlock Service

Service	Service Name	Effect
stor:mdm	Metadata management services (only supported by cluster mode)	Manage metadata for the entire system.
stor:fc	Failover control service (only supported by cluster mode)	Perform system health check and implement failover control.
stor:ls	Ledger service (only supported by cluster mode)	Provides log-based data synchronization function.
stor:ds-*x*	Data service (only supported by cluster mode)	Manage user's file data blocks.
stor:cs	Coordination service (only supported by cluster mode)	Monitor the status of each server and trigger notification events to ensure high availability of cluster services.
stor:ms	Management services	Process request information and maintain cluster operating status.
stor:ws	Watchdog service	Monitor the status of each service and be responsible for starting the service.
stor:ps	Processor service	Responsible for iSCSI protocol parsing and data storage.
stor:ag	Aggregator service	Responsible for acquiring performance data.
stor:ua	Upgrade agent service	Responsible for receiving upgrade requests and performing upgrade-related operations.

5.3 User Event List

Server

Event	Description
AddServer	Add server
RemoveServer	Recover server
SetServer	Set server properties
DeleteTargetPortalIP	Delete server Target portal IP
RestartService	Restart service
AddPath	Add disk path
RemovePath	Remove disk path
StartService	Start service
StopService	Stop service
SetPath	Edit disk path
MigrateService	Migrate service

iSCSI target

Event	Description
CreateTarget	Create target
DeleteTarget	Delete target
SetTarget	Set target property
MigrateTarget	Migrate target
DeleteCHAP	Delete CHAP
DeleteConnection	Delete Connection
DeletetargetAllowlist	Delete target allow list
SettargetAllowlist	Set target allow list

LUN

Event	Description
CreateLUN	Create a LUN
DeleteLUN	Delete a LUN
SetLUN	Set LUN properties
ExpandLUN	Expand a LUN
SwitchLUN	LUN active/backup switching

Event	Description
RecoverLUN	Recover a LUN
ResumeLUNRecovery	Resume recovery of a previously failed LUN
SetBatchLUN	Set LUNs in batch
CreateCloneLUN	Create Clone LUN
FlattenCloneLUN	Flatten Clone LUN
LUNDataResidue	LUN Data Residue
WipeLUN	Wipe LUN
DeleteLUNXattr	Delete LUN xattr
SetLUNXattr	Set LUN xattr
SuspendLUN	Suspend LUN
ResumeLUN	Resume LUN

System

Event	Description
Login	Log in
SetMailConfig	Set up email notification
DeleteMailConfig	Delete email notification
SendTestMail	Send test email
SetRemoteAccess	Set up remote assistance
DeleteRemoteAccess	Delete remote assistance
ImportLicense	Import software license
SetPassword	Set password
StartLogCollect	Initiate a log collection request
DeleteLogCollect	Delete log collection request
SetAlarmMuteStatus	Edit alarm silent status
ManuallyResolveAlarm	Manually Resolve the Alarm
Setup	Initialize
AddMonitorConfig	Add monitor config
SetMonitorConfig	Set monitor config
DeleteMonitorConfig	Delete monitor config

Cluster Topology

Event	Description
SetNode	Modify node information
CreateNode	Create a node
DeleteNode	Delete a node

Storage Pool

Event	Description
CreateStoragePool	Create a storage pool
DeleteStoragePool	Delete a storage pool
SetStoragePool	Modify storage pool information
AddNodeToPool	Add a node to a pool
RemoveNodeFromPool	Remove a node from a pool

Upgrade

Event	Description
StartUpgrade	Start the upgrade

Snapshot

Event	Description
CreateSnapshot	Create Snapshot
SetSnapshot	Set Snapshot
DeleteSnapshot	Delete Snapshot
RollbackSnapshot	Rollback Snapshot
CreateConsistencySnapshot	Create Consistency Snapshot
SetConsistencySnapshot	Set Consistency Snapshot
RollbackConsistencySnapshot	Rollback Consistency Snapshot
DeleteConsistencySnapshot	Delete Consistency Snapshot

QoS Policy

Event	Description

Event	Description
CreateQoSPolicy	Create QoS Policy
SetQoSPolicy	Set QoS Policy
DeleteQoSPolicy	Delete QoS Policy
AssociateQoSPolicy	Associate QoS Policy
DisassociateQoSPolicy	Disassociate QoS Policy

Backup

Event	Description
ExportBackup	Export Backup
ImportBackup	Import Backup

5.4 System Event List

Server

Event	Description
ServiceUnavailable	Service unavailable
ServiceAvailable	Service available
ServerAdded	Server added
ServerRemoved	Server removed
ProtocolServiceAbnormal	Protocol parsing service exception
ProtocolServiceResumed	Protocol parsing service resumed
InsufficientSpaceonInstallationPath	The remaining space of the installation directory is insufficient.
SpaceonInstallationPath	The remaining space of the installation directory meets service running requirements
BaseServiceAbnormal	Base service exception
BaseServiceResumed	Base service resumed
ServiceMigrated	Service migration completed
ServiceMigrateAbnormal	Service migration exception
InsufficientSpaceonMetaDir	Insufficient space on the disk where the base service data directory is located
SufficientSpaceonMetaDir	Sufficient space on the disk where the base service data directory is located
InsufficientMemory	Insufficient memory
ServiceRestartRequired	Service restart required

Disk

Event	Description
DiskIOError	Disk I/O error
DiskIOResumed	Disk I/O resumed
DiskWriteSpeedTooSlow	Disk write speed is slow
DiskWriteSpeedResumed	Disk write speed returns to normal
PathAdded	Add disk path
PathRemoved	Remove disk path
CapacityQuotaUsageExceedsThreshold	Quota usage exceeds threshold
CapacityQuotaUsageBelowThreshold	Quota usage returns to normal
CapacityQuotaUsageApproachLimit	Quota exhausted
CapacityQuotaUsageBelowLimit	Quota usage rate is lower than the upper limit
DiskUsageExceedsThreshold	Disk usage exceeds threshold
DiskUsageBelowThreshold	Disk usage returns to normal

DiskPathHealthStatusWarning	Disk path health status warning
DiskPathHealthStatusError	Disk path health status error
DiskPathHealthStatusResumed	Disk path health status resumed
DataServiceHealthStatusWarning	Data service health status warning
DataServiceHealthStatusError	Data service health status error
DataServiceHealthStatusResumed	Data service health status resumed

LUN

Event	Description
ActiveStandbySwitched	LUN active/standby switching
InsufficientFDForLUNToWrite	The number of available fault domains does not meet the LUN write requirements
SufficientFDForLUNToWrite	Number of available fault domains meets LUN write requirements
LUNRecovered	LUN recovered
CannotConnectToCloud	Cannot connect to cloud
ConnectWithCloudResumed	Connect with cloud resumed
CloudAccountAbnormal	Cloud account abnormal
CloudAccountNormal	Cloud account normal
LUNCloudDataConflict	LUN cloud data conflict
LUNCloudDataConflictResolved	LUN cloud data conflict resolved
LUNCloudHeartbeatConflict	LUN cloud heartbeat conflict
LUNCloudHeartbeatNormal	LUN cloud heartbeat normal
LUNFlattened	LUN flattened
LUNResumed	LUN resumed
LUNDataLowRedundancy	LUN data low redundancy
LUNDataRedundancyResumed	LUN data redundancy resumed
LUNDataAccessResumed	LUN data access resumed
LUNDataAccessFailed	LUN data access failed

Target

Event	Description
InitiatorConnectionFailed	Initiator connection failed
InitiatorConnectionNormal	Initiator connection normal

System

Event	Description
ReachLicenseMaxCapacity	License capacity reached upper limit
LicenseMaintenanceExpired	License out of warranty
LicenseExpired	License expired

LicenseImported	License import
DataLowRedundancy	Data low redundancy
DataRedundancyResumed	Data redundancy resumed
DataResumed	Data resumed
DataBalanceStart	Data balancing begin
DataBalanceProgress	Data balancing process
DataBalanceFailed	Data balancing failed
DataBalanceEnd	Data balancing end
DataAccessFailed	Data cannot be accessed
DataAccessResumed	Data access resumed
ProTrialActive	Pro Trial active

Fault Domain Module

Event	Description
FaultDomainWarning	Fault domain status changes to warning
FaultDomainError	Fault domain status changes to Error
FaultDomainResumed	The fault domain status returns to normal

Storage Pool

Event	Description
CapacityQuotaUsageExceedsThreshold	Quota usage exceeds threshold
CapacityQuotaUsageBelowThreshold	Quota usage returns to normal
CapacityQuotaUsageApproachLimit	Quota exhausted
CapacityQuotaUsageBelowLimit	Quota is lower than the upper limit
DiskUsageExceedsThreshold	Disk usage exceeds threshold
DiskUsageBelowThreshold	Disk usage returns to normal
PoolDataLowRedundancy	Pool data low redundancy
PoolDataRedundancyResumed	Pool data redundancy resumed
PoolDataAccessResumed	Pool data access resumed
PoolDataAccessFailed	Pool data access failed

5.5 Monitoring Metrics

- **Data Granularity**

  The granularities of monitoring metrics are "Fine" and "Coarse". The following table lists the meanings of the metrics.

Category	Data Granularity	Data Retention Period	Description
Fine	20 seconds	2 hours	Acquires real-time data every 20 seconds. One data point is generated, and each data point is retained for two hours.
	1 minute	6 hours	Based on data of 20s granularity, aggregates the data of 1-minute granularity and retains it for 6 hours.
	5 minutes	1 day	Based on data of 20s granularity, aggregates the data of 5-minute granularity and retains it for 1 day.
	1 hour	7 days	Based on data of 20s granularity, aggregates the data of 1-hour granularity and retains it for 7 days.
	1 day	1 year	Based on data of 20s granularity, aggregates the data of 1-day granularity and retains it for 1 year.
Coarse	5 minutes	2 hours	Based on data of 20s granularity, aggregates the data of 5-minute granularity and retains it for 2 hours.
	1 hour	1 day	Based on data of 20s granularity, aggregates the data of 1-hour granularity and retains it for 1 day.
	1 day	1 month	Based on data of 20s granularity, aggregates the data of 1-day granularity and retains it for 1 month.
	1 week	6 months	Based on data of 20s granularity, aggregates the data of 1-week granularity and retains it for 6 months.
	1 month	1 year	Based on data of 20s granularity, aggregates the data of 1-month granularity and retains it for 1 year.

- Monitoring Metrics

Monitoring Dimension	Monitoring Metric	Description	Unit	Data Granularity
system	IOPS	Total IOPS between the client and HBlock.	None	Fine
	R_IOPS	IOPS when the client reads data from HBlock.	None	Fine

	W_IOPS	IOPS when the client writes data to HBlock.	None	Fine
	Bandwith	Total bandwidth between the client and HBlock.	B/s	Fine
	R_Bandwith	Bandwidth when the client reads data from HBlock.	B/s	Fine
	W_Bandwith	Bandwidth when the client writes data to HBlock.	B/s	Fine
	Latency	Total latency between the client and HBlock. The average latency of read and write operations in the system within an acquisition cycle reflects the time that HBlock takes to process read and write requests.	ms	Fine
	W_Latency	Latency when the client writes data to HBlock. The average latency of write operations in the system within an acquisition cycle reflects the time that HBlock takes to process write requests.	ms	Fine
	R_Latency	Latency when the client reads data from HBlock. The average latency of read operations in the system within an acquisition cycle reflects the time that HBlock takes to process read requests.	ms	Fine
	Path_Cap	Total capacity of disks where all HBlock disk paths reside in the system.	bytes	Coarse
	Path_Used	Used capacity of disks where all HBlock disk paths reside in the system.	bytes	Coarse
	Path_Rate	Average usage rate of disks where HBlock disk paths reside in the system, i.e., Path_Used/Path_Cap.	%	Coarse
	Path_Cap_Quota	Available space for HBlock in the system, i.e., the total capacity quota allocated by the user to HBlock for all HBlock disk paths.	bytes	Coarse
	Path_Cap_Quota_Used	Space occupied by HBlock data on disks where all HBlock disk paths reside in the system.	bytes	Coarse
	Path_Cap_Quota_Rate	Average usage rate of HBlock disk path capacity quota in the system, i.e., Path_Cap_Quota_Used/Path_Cap_Quota.	%	Coarse
	Cloud_Bandwidth	The total bandwidth between HBlock and the	B/s	Fine

		cloud.		
	Cloud_U_Bandwidth	Bandwidth when HBlock upload data to cloud.	B/s	Fine
	Cloud_D_Bandwidth	Bandwidth when HBlock download data from cloud.	B/s	Fine
server	CPU_Rate	CPU usage rate of the server.	%	Fine
	Mem_Rate	Memory usage rate of the server.	%	Fine
	Mem_Total	Total memory of the server.	bytes	Fine
	Mem_Used	Memory usage of the server.	bytes	Fine
	IOPS	Total IOPS between the client and HBlock.	None	Fine
	R_IOPS	IOPS when the client reads data from HBlock.	None	Fine
	W_IOPS	IOPS when the client writes data to HBlock.	None	Fine
	Bandwith	Total bandwidth between the client and HBlock.	B/s	Fine
	R_Bandwith	Bandwidth when the client reads data from HBlock.	B/s	Fine
	W_Bandwith	Bandwidth when the client writes data to HBlock.	B/s	Fine
	Latency	Total latency between the client and HBlock. The average read-write latency of the server-associated LUNs during the data acquisition period.	ms	Fine
	W_Latency	Latency when the client writes data to HBlock. The average write latency of the server-associated LUNs during the acquisition period.	ms	Fine
	R_Latency	Latency when the client reads data from HBlock. The average read latency of the server-associated LUNs during the acquisition period.	ms	Fine
	Path_Cap	Total capacity of disks where all HBlock disk paths reside on the HBlock server.	bytes	Coarse
	Path_Used	Used capacity of disks where all HBlock disk paths reside on the HBlock server.	bytes	Coarse
	Path_Rate	Average usage rate of disks where HBlock disk paths reside on the HBlock server, i.e., Path_Used/Path_Cap.	%	Coarse
	Path_Cap_Quota	Available space for HBlock on the HBlock server, i.e., the total capacity quota allocated	bytes	Coarse

		by the user to HBlock for all disk paths.		
	Path_Cap_Quota_Used	Space occupied by HBlock data on disks where all disk paths reside on the HBlock server.	bytes	Coarse
	Path_Cap_Quota_Rate	Average usage rate of HBlock disk path capacity quota on the HBlock server, i.e., Path_Cap_Quota_Used/Path_Cap_Quota.	%	Coarse
	Cloud_Bandwidth	The total bandwidth between HBlock server and the cloud.	B/s	Fine
	Cloud_U_Bandwidth	Bandwidth when HBlock server upload data to cloud.	B/s	Fine
	Cloud_D_Bandwidth	Bandwidth when HBlock server download data from cloud.	B/s	Fine
disk	Path_Cap	Total capacity of disks where HBlock disk paths reside.	bytes	Coarse
	Path_Used	Used capacity of disks where HBlock disk paths reside.	bytes	Coarse
	Path_Rate	Usage rate of disks where HBlock disk paths reside.	%	Coarse
	Path_Cap_Quota	Available space for HBlock, i.e., the capacity quota allocated by the user to HBlock.	bytes	Coarse
	Path_Cap_Quota_Used	Space occupied by HBlock data on disks where HBlock disk paths reside.	bytes	Coarse
	Path_Cap_Quota_Rate	Usage rate of HBlock disk path capacity quota, i.e., Path_Cap_Quota_Used/Path_Cap_Quota.	%	Coarse
LUN	IOPS	Total IOPS between the client and HBlock LUN.	None	Fine
	R_IOPS	IOPS when the client reads data from the HBlock LUN.	None	Fine
	W_IOPS	IOPS when the client writes data to the HBlock LUN.	None	Fine
	Bandwith	Total bandwidth between the client and the HBlock LUN.	B/s	Fine
	R_Bandwith	Bandwidth when the client reads data from the HBlock LUN.	B/s	Fine
	W_Bandwith	Bandwidth when the client writes data to the HBlock LUN.	B/s	Fine
	Latency	Total latency between the client and the HBlock LUN. The average latency of read and	ms	Fine

		write operations of the LUN within an acquisition cycle reflects the time that the HBlock LUN takes to process read and write requests.		
	W_Latency	Latency when the client writes data to the HBlock LUN. The average latency of write operations of the LUN within an acquisition cycle reflects the time that the HBlock LUN takes to process write requests.	ms	Fine
	R_Latency	Latency when the client reads data from the HBlock LUN. The average latency of read operations in the system within an acquisition cycle reflects the time that the HBlock LUN takes to process read requests.	ms	Fine
	Cloud_Bandwidth	The total bandwidth between HBlock LUN and the cloud.	B/s	Fine
	Cloud_U_Bandwidth	Bandwidth when HBlock LUN upload data to cloud.	B/s	Fine
	Cloud_D_Bandwidth	Bandwidth when HBlock LUN download data from cloud.	B/s	Fine
	Wait_Upload	The amount of data to be uploaded from HBlock LUN to the cloud.	bytes	Fine
pool (only supported by cluster mode)	IOPS	Total IOPS between the client and HBlock.	None	Fine
	R_IOPS	IOPS when the client reads data from the HBlock.	None	Fine
	W_IOPS	IOPS when the client writes data to HBlock.	None	Fine
	Bandwidth	Total bandwidth between the client and HBlock.	B/s	Fine
	R_Bandwidth	Bandwidth when the client reads data from HBlock.	B/s	Fine
	W_Bandwidth	Bandwidth when the client writes data to HBlock.	B/s	Fine
	Latency	Total latency between the client and HBlock. The average latency of read and write operations in the system within an acquisition cycle reflects the time that HBlock takes to process read and write requests.	ms	Fine
	W_Latency	Latency when the client writes data to HBlock. The average latency of write	ms	Fine

		operations in the system within an acquisition cycle reflects the time that HBlock takes to process write requests.		
	R_Latency	Latency when the client reads data from HBlock. The average latency of read operations in the system within an acquisition cycle reflects the time that HBlock takes to process read requests.	ms	Fine
	Path_Cap	Total capacity of HBlock disk paths, i.e., total capacity of disks where all disk paths reside in the storage pool.	bytes	Rough
	Path_Used	Used capacity of HBlock disk paths, i.e., used capacity of disks where all disk paths reside in the storage pool.	bytes	Rough
	Path_Rate	Average usage rate of HBlock disk paths in the storage pool, i.e., Path_Used/Path_Cap.	%	Rough
	Path_Cap_Quota	Available space for HBlock, i.e., total capacity quota allocated by the user to HBlock on disks where all HBlock disk paths reside in the storage pool.	bytes	Rough
	Path_Cap_Quota_Used	Space occupied by HBlock data on disks where all HBlock disk paths reside in the storage pool.	bytes	Rough
	Path_Cap_Quota_Rate	Average usage rate of HBlock disk path capacity quota in the storage pool, i.e., Path_Cap_Quota_Used/Path_Cap_Quota.	%	Rough

5.6 Alarm List

Alarm Rule Name	Alarm Level	Alarm Condition	Automatic Resolution Condition	Alarm Expiration Condition	Allow Manual Resolving	Alert Email Sending Frequency
PathIOError	Major	The disk path status is error.	The disk path status is normal.	● The disk path is removed. ● The disk path is removed from the storage pool. ● The server where the disk path located is removed.	Yes	One time a day
DiskWriteSlow	Warning	The disk where the disk path resides is slow to write.	The disk where the disk path resides returns to normal.	● The disk path is removed. ● The disk path is removed from the storage pool. ● The server where the disk path located is removed.	Yes	One time a day
LicenseWillExpire	Warning	The current time (the system time of the server where the alarm module is located) is <= 15 days and > 0 days from the expiration time of the last imported license.	The current time (the system time of the server where the alarm module is located) is > 15 days from the expiration time of the alarm license.	● The license has expired. ● A new license (license with a different ID) has been imported.	Yes	One time a day
LicenseExpired	Critical	The current time (the system time of the server where the	The current time (the system time of the server	A new license (license with a	Yes	Send one time

		alarm module is located) is <= 0 days from the expiration time of the last imported license.	where the alarm module is located) is > 0 days from the expiration time of the alarm license.	different ID) is imported.		
LicenseMaintenanceWillExpire	Warning	The current time (the system time of the server where the alarm module is located) is <= 15 days and > 0 days from the maintenance expiration time of the last imported license.	The current time (the system time of the server where the alarm module is located) is > 15 days from the maintenance expiration date of the alarm license.	● The license has expired. ● A new license (license with a different ID) has been imported.	Yes	One time a day
LicenseMaintenanceExpired	Warning	The current time (the system time of the server where the alarm module is located) is <= 0 days from the maintenance expiration time of the last imported license.	The current time (the system time of the server where the alarm module is located) is > 0 days from the maintenance expiration date of the alarm license.	A new license is imported.	Yes	Send one time
TrialVersionWillExpire	Warning	No valid license is currently imported, and the current time (the system time of the server where the alarm module is located) is <= 15 days and >= 0 days away from the trial period expiration time.	There are no conditions for resolving and can only be resolved manually.	A new license is imported.	Yes	One time a day
ResourceUsageApproachingLimit	Major	Total local LUN capacity >= 80% of license capacity	Total local LUN capacity < 75% of license capacity	A new license is imported.	Yes	Send one time
AlarmNumberApproachingLimit	Critical	The number of unresolved alarms >= 8000	Number of alarms < 7500	None	Yes	One time a day
FailToSendAlarmEmail	Critical	Alarm email failed to be sent.	Alarm email sent successfully.	● The email configuration is deleted. ● The email sending setting is disabled.	Yes	One time a day
CapacityQuotaUsageExceedsThreshold	Warning	Path_Cap_Quota_Rate of disks associated with disk	Path_Cap_Quota_Rate of disks associated with the	● The name of a storage pool is	Yes	One time a day

		paths in a storage pool is greater than or equal to 80%. Path_Cap_Quota_Rate of the disk associated with disk paths at the disk path level is greater than or equal to 80%. **Note**: If no capacity quota is set for disk paths, capacity quota = total disk capacity.	disk paths in the storage pool is lower than 75%, or Path_Cap_Quota_Rate of the disks associated with disk paths at the disk path level is lower than 75%. **Note**: If no capacity quota is set for disk paths capacity quota = total disk capacity.	changed. ● All disk paths in the storage pool are removed.		
CapacityQuotaUsageApproachLimit	Critical	The total disk quota usage of disk paths in a base storage pool is greater than or equal to 95%.	The total disk quota usage of disk paths in a base storage pool is lower than 90%.	The storage pool name has been modified.	Yes	One time a day
CapacityQuotaUsageApproachLimit	Warning	The total disk quota usage of disk paths in a non-base storage pool is greater than or equal to 95%, or the disk quota usage of disk paths is greater than or equal to 95%.	The total disk quota usage of disk paths in a non-base storage pool is lower than 90%, or the disk quota usage of disk paths is lower than 90%.	● The storage pool name has been modified. ● All disk paths in the storage pool are removed	Yes	One time a day
DiskUsageExceedsThreshold	Warning	Path_Rate of disks where disk paths are located in a storage pool is greater than or equal to 80%, or Path_Rate of disks where disk paths are located in is greater than or equal to 80%.	Path_Rate of the disks where disk paths are located in in a storage pool is lower than 75%, or Path_Rate of disks where disk paths are located in is lower than 75%.	● The storage pool name has been modified. ● All disk paths in the storage pool are removed	Yes	One time a day
InsufficientFDForLUNToWrite	Warning	The number of available fault domains and the number of health disk paths in the cache storage pool or storage pool where the LUN resides do not meet the minimum number of replicas of a LUN.	The number of available fault domains and the number of health disk paths in the warning alarm storage pool meets the minimum number of replicas of a LUN.	● The LUN is deleted. ● The LUN deletion failed. ● The LUN recovered failed. ● The LUN is being	Yes	One time a day

				suspended. ● The LUN is suspended. ● The LUN failed to be suspended. ● The name of the storage pool is changed.		
DiskPathHealthStatusWarning	Warning	Disk path health status changes to Warning.	Disk path health status returns to normal.	● Disk path removed. ● The disk path is removed from the storage pool. ● Disk path health status changes to "Error".	Yes	One time a day
DiskPathHealthStatusError	Major	Disk path health status changes to Error.	Disk path health status returns to normal.	● The disk path is removed. ● The disk path is removed from the storage pool.	Yes	One time a day
DataServiceHealthStatusWarning	Warning	Data service health status changes to Warning.	Data service health status returns to normal.	● The server is removed. ● The disk path is removed. ● The disk path is removed from the storage pool. ● The health	Yes	One time a day

				status of the disk path changes to Error. ● The name of a storage pool is changed.		
DataServiceHealthStatusError	Major	Data service health status changes to Error.	Data service health status returns to normal.	● The server is removed. ● The disk path is removed. ● The disk path is removed from the storage pool. ● The name of a storage pool is changed.	Yes	One time a day
ProtocolServiceAbnormal	Major	Protocol resolution service exception.	Protocol resolution service returns to normal.	● Server removed. ● The target is deleted. ● The target is migrated.	Yes	One time a day
FaultDomainWarning	Warning	Fault domain status changes to Warning.	Fault domain status returns to normal.	● Server is removed. ● Disk path is removed. ● Fault domain health status changes to "Error". ● The name of the storage pool is	Yes	One time a day

				changed or the name of any node in the full path name of the fault domain is changed. ● All disk paths in the fault domain are removed.		
FaultDomainError	Major	Fault domain status changes to Error	Fault domain status returns to normal.	● Server removed. ● Disk path removed. ● The disk path is removed from the storage pool. ● The name of the storage pool is changed or the name of any node in the full path name of the fault domain is changed. ● All disk paths in the fault domain are removed.	Yes	One time a day
CannotConnectToCloud	Critical	Disconnected from the cloud for more than 10 minutes.	The LUN successfully reads data from the HBlock server to the cloud or writes data	● The LUN is deleted.	Yes	One time a day

			from the cloud once.	• The LUN deletion failed. • The LUN recovered failed. • The LUN failed to be suspended. • The LUN is suspended. • The sever has been removed. • The target is migrated.		
CloudAccountAbnormal	Critical	Failed to read data from the cloud or write data to the cloud: frozen overdue fees, frozen overdue fees, or illegally frozen fees.	Successfully read data from the cloud or successfully write data to the cloud.	• The LUN is deleted. • The LUN deletion failed. • The LUN recovered failed. • The LUN failed to be suspended. • The LUN is suspended.	Yes	One time a day
LUNCloudDataConflict	Critical	The cloud data corresponding to the LUN has a more recent version than the local version.	The cloud data version corresponding to the LUN is all older than the local version.	• The LUN is deleted. • The LUN deletion failed. • The LUN	Yes	One time a day

				recovered failed. ● The LUN failed to be suspended. ● The LUN is suspended.		
LUNCloudHeartbeatConflict	Critical	A heartbeat from a non local cluster appears in the cloud of the LUN.	A heartbeat from the local cluster appears in the cloud of the LUN.	● The LUN is deleted. ● The LUN deletion failed. ● The LUN recovered failed. ● The LUN failed to be suspended. ● The LUN is suspended.	Yes	One time a day
LUNDataResidue	Warning	Forcefully delete the LUN. The LUN data is left over: ● Local leftover data: Due to a local disk failure, the LUN data cannot be synchronized for deletion. ● Cloud leftover data: When deleting the cloud data, the data cannot be synchronized for deletion because the cloud data storage location is inaccessible	The alarm cannot be cleared automatically and can only be cleared manually.	● Local data leftover: The data directory is removed from the machine. ● Cloud data leftover: It won't be cleared automatically. After cleaning up the residual cloud data, the alert	Yes	One time a day

		(including network connection failures, account abnormalities, etc.).		can be cleared manually.		
InitiatorConnectionFailed	Warning	Due to the client's fault, HBlock was unable to receive the client's heartbeat, causing HBlock to believe that the connection with the client was disconnected and immediately raise an alarm. Except in cases where the client actively disconnects.	The client has successfully connected to target.	● The target where the IQN of the alarm is located has been deleted. ● The target is migrated.	Yes	One time a day
InsufficientSpaceonInstallationPath	Critical	The remaining space of the file system on the disk where the installation directory is located is less than or equal to 4 GiB.	The remaining space of the file system on the disk where the installation directory is located is greater than 5 GiB.	The server is removed.	Yes	One time a day
BaseServiceAbnormal	Critical	An alarm is generated when any of the following situations occur: ● The metadata management service is abnormal: There are two stor:mdm services in the cluster, and only either of them can fail. An alarm is generated when a fault occurs. ● The failover control service is abnormal: There are two stor:fc services in the	The matching alarm instance has been restored to the following levels: ● The metadata management service stor:mdm has been restored to normal on the alarming machine. ● The failover control service stor:fc has been restored to normal on the alarming machine. ● The log service	Base services on the alarming machine are migrated successfully.	Yes	One time a day

		cluster and only either of them can fail. An alarm is generated when a fault occurs. ● The log service is abnormal: There are three stor:ls services in the cluster, and only one of them can fail. An alarm is generated when a fault occurs. ● The coordination service is abnormal: There are three stor:cs services in the cluster, and only one of them can fail. An alarm is generated when a fault occurs.	stor:ls has been restored to normal on the alarming machine. ● The coordination service stor:cs has been restored to normal on the alarming machine.machine.			
InsufficientSpaceonMetaDir	Critical	The remaining space of the file system on the disk where the base service data directory is located is less than or equal to 4GiB.	The remaining space of the file system on the disk where the base service data directory is located is greater than 5GiB.	The service begins to migrate.	Yes	One time a day
LUNDataLowRedundancy	Warning	LUN data low redundancy percentage (including cache pool and final pool data) > 10%, persisting for more than 10 minutes (low redundancy percentage remains below or equal to 10% within the 10-minute window).	UN data low redundancy percentage (including cache pool and final pool data) = 0%.	● The LUN is deleted. ● The LUN deletion failed.	Yes	One time a day
LUNDataCorrupted	Major	LUN data Error percentage (including cache pool and	LUN data Error percentage (including cache pool and	● The LUN is deleted.	Yes	One time a day

		final pool data) > 0%.	final pool data) = 0%.	• The LUN deletion failed.		
PoolDataLowRedundancy	Major	Base storage pool data low redundancy percentage > 10%, persisting for more than 10 minutes (low redundancy percentage remains below or equal to 10% within the 10-minute window).	Base storage pool data low redundancy percentage = 0%.	The storage pool name has been modified.	Yes	One time a day
PoolDataLowRedundancy	Warning	Non-base storage pool data low redundancy percentage > 10%, persisting for more than 10 minutes (low redundancy percentage remains below or equal to 10% within the 10-minute window).	Non-base storage pool data low redundancy percentage = 0%.	• The storage pool name has been modified. • The storage pool is deleted.	Yes	One time a day
PoolDataCorrupted	Critical	Base storage pool data Error percentage > 0%.	Base storage pool data Error percentage = 0%.	The storage pool name has been modified.	Yes	One time a day
PoolDataCorrupted	Warning	Non-base storage pool data Error percentage > 0%.	Non-base storage pool data Error percentage = 0%.	• The storage pool name has been modified. • The storage pool is deleted.	Yes	One time a day

5.7 OOS Endpoint and Region

The endpoints of Object Storage Network, Object Storage Network 2, Hongkong and other regions are different.

5.7.1 Object Storage Network

For Object Storage Network, the OOS Endpoint is oos-cn.ctyunapi.cn, region is cn.
Note: For Object Storage Network, if your data is stored in a certain region, it is recommended that you can directly use the region endpoint. The Endpoint list is as follows (the Endpoint list is only a description of the access information of the region Endpoint, and is not related to the region status):

Area	OOS API Endpoint	Region
ZhengZhou	oos-hazz.ctyunapi.cn	hazz
ShenYang	oos-lnsy.ctyunapi.cn	lnsy
ChengDu	oos-sccd.ctyunapi.cn	sccd
WuLuMuQi	oos-xjwlmq.ctyunapi.cn	xjwlmq
LanZhou	oos-gslz.ctyunapi.cn	gslz
QingDao	oos-sdqd.ctyunapi.cn	sdqd
GuiYang	oos-gzgy.ctyunapi.cn	gzgy
WuHan	oos-hbwh.ctyunapi.cn	hbwh
WuHu	oos-ahwh.ctyunapi.cn	ahwh
ShenZhen	oos-gdsz.ctyunapi.cn	gdsz
SuZhou	oos-jssz.ctyunapi.cn	jssz
SH2	oos-sh2.ctyunapi.cn	sh2

5.7.2 Object Storage Network 2

For Object Storage Network 2, the OOS Endpoint is oos-cn2.ctyunapi.cn, region is cn2.
Note: For Object Storage Network 2, if your data is stored in a certain region, it is recommended that you can directly use the region endpoint. The Endpoint list is as follows (the Endpoint list is only a description of the access information of the region Endpoint, and is not related to the region status):

Area	OOS API Endpoint	Region
NeiMeng1	oos-nm1.ctyunapi.cn	nm1
HangZhou1	oos-hz1.ctyunapi.cn	hz1

5.7.3 Hongkong Node

Hongkong nodes has two modes: high quality network and normal network. For Hongkong high quality network, OOS Endpoint is oos-cnhk-hqnet.ctyunapi.cn, region is cnhk-hqnet. For Hongkong normal network, OOS Endpoint is oos-cnhk-nqnet.ctyunapi.cn, region is cnhk-nqnet.

5.7.4 Other Region

Note: Other regions only support V2 signature, V4 signature is not supported.
Endpoint list for other regions is as follows.
region status):

Area	OOS API Endpoint	Region
BeiJing2	oos-bj2.ctyunapi.cn	bj2
NeiMeng2	oos-nm2.ctyunapi.cn	nm2
HangZhou	oos-hz.ctyunapi.cn	hz
JiangSu	oos-js.ctyunapi.cn	js
BeiJing	oos-hq-bj.ctyunapi.cn	hq-bj
ShangHai	oos-hq-sh.ctyunapi.cn	hq-sh

5.8 Operating System Monitoring Metrics Which HBlock can Push

Category	Monitoring Metric	Description
server	hblock_cpu_seconds_user	User time.
	hblock_cpu_seconds_nice	Nice time.
	hblock_cpu_seconds_system	System time.
	hblock_cpu_seconds_idle	Idle time.
	hblock_cpu_seconds_iowait	I/O waiting time.
	hblock_cpu_seconds_irq	Hard interrupt time.
	hblock_cpu_seconds_softirq	Soft interrupt time.
	hblock_cpu_seconds_steal	The time spent forcibly waiting for another virtual CPU to finish processing.
	hblock_cpu_guest_seconds_user	The CPU time spent running a virtual machine. When the system runs a virtual machine in a virtualized environment, this field counts the CPU time used by the virtual machine.
	hblock_cpu_guest_seconds_nice	The CPU time spent running low priority virtual machines. Similar to the guest field, this field calculates the CPU time used to run low priority virtual machines.
	hblock_memory_MemTotal_bytes	Total memory sizes of the system.
	hblock_memory_MemFree_bytes	Unused memory size of the system.
	hblock_memory_MemAvailable_bytes	The available memory size of the system.
	Meminfo metrics for operating systems such as hblock_cemory_Buffers_bytes	Other meminfo indicators. After enabling pushgate function, you can view the specific indicator names on Promethus.
	hblock_memory_oom_kill	The number of oom killers occurring in the operating system.
load	hblock_load1	The average load in the past minute.
	hblock_load5	The average load in the past 5 minutes.
	hblock_load15	The average load in the past 15 minutes.
interface	hblock_network_receive_bytes	The total number of bytes received by the interface.
	hblock_network_transmit_bytes	The total number of bytes sent by the interface.
	hblock_network_receive_packets	The number of packets received by the interface.
	hblock_network_transmit_packets	The number of packets sent by the interface.
	hblock_network_receive_errs	The number of erroneous packets that occurred

		during the interface reception process.
	hblock_network_transmit_errs	The number of erroneous packets that occurred during the interface sending process.
	hblock_network_receive_drop	The number of packets discarded during interface reception.
	hblock_network_transmit_drop	The number of packets discarded during the interface sending process.
	hblock_network_bandwidth	The interface bandwidth.
	hblock_network_status	Interface status, such as: ● down: 0 ● up: 1 ● unknown: 2 ● notpresent: 3 ● lowerlayerdown: 4 ● testing: 5 ● dormant: 6
	hblock_network_up_count	Interface up times.
	hblock_network_down_count	Interface down times.
tcp	hblock_netstat_tcp_RetransSegs	The number of TCP retransmitted packets.
	hblock_netstat_tcp_OutSegs	The number of TCP output packets.
	hblock_netstat_tcp_InSegs	The number of packets received by TCP.
	hblock_netstat_tcp_ActiveOpens	The current number of TCP connections in ActiveOpen status.
	hblock_netstat_tcp_CurrEstab	The current number of TCP connections in CurrEstab status.
	hblock_netstat_tcp_PassiveOpens	The number of TCP connections in the current PassiveOpens status.
	hblock_sockstat_tcp_mem	The number of TCP connections in the current mem status.
	hblock_sockstat_tcp_alloc	The current number of TCP connections in alloc status.
	hblock_sockstat_tcp_inuse	The current number of TCP connections in the inuse status.
	hblock_sockstat_tcp_orphan	The number of TCP connections in the current orphan status.
	hblock_sockstat_tcp_tw	The number of TCP connections in the current tw status.
disk	hblock_disk_read_bytes	The amount of data read from the disk.
	hblock_disk_written_bytes	The amount of data written to the disk.

	hblock_disk_reads_completed	The number of disk read requests.
	hblock_disk_read_time_seconds	Time of disk read request.
	hblock_disk_writes_completed	The number of disk write requests.
	hblock_disk_write_time_seconds	Time of disk write request.
	hblock_disk_io_time_seconds	The time for disk processing of I/O operations.
	hblock_disk_io_time_weighted_seconds	Weighted time for disk processing of I/O operations.
	hblock_disk_io_now	The actual number of I/O requests on the currently running disk.
fileSystem	hblock_fileSystem_size_bytes	Total file system capacity.
	hblock_fileSystem_free_bytes	Remaining capacity of file system.
	hblock_fileSystem_free_inode_count	Number of idle inodes.
	hblock_fileSystem_total_inode_count	Total number of inodes.
	hblock_fileSystem_readonly	Is the file system read-only.
	hblock_os_boot_time_seconds	The last startup time of the server.
OS	hblock_os_boot_time_seconds	The last boot time of the server.
Cloud	hblock_cloud_wait_upload_bytes	Data to be uploaded to the cloud.
	hblock_cloud_upload_size_bytes	Data already uploaded to the cloud.
	hblock_cloud_download_size_bytes	Data already downloaded from the cloud.
LUN	hblock_blockDevice_read_count	I/O read count (including successful and failed reads).
	hblock_blockDevice_read_fail_count	Number of I/O read failures.
	hblock_blockDevice_read_time_seconds	I/O read cumulative time (including successful and failed reads).
	hblock_blockDevice_read_fail_time_seconds	Cumulative time of I/O read failures.
	hblock_blockDevice_read_bytes	Size of successfully read I/O data.
	hblock_blockDevice_write_count	I/O write count (including successful and failed writes).
	hblock_blockDevice_write_fail_count	Number of I/O write failures.
	hblock_blockDevice_write_time_seconds	Cumulative time of I/O writes (including both successful and failed writes).
	hblock_blockDevice_write_fail_time_seconds	Cumulative time of I/O write failures.
	hblock_blockDevice_write_bytes	Size of successfully written I/O data.
diskpath	hblock_dataDir_total_bytes	The total capacity of the disk where the disk path resides.
	hblock_dataDir_avail_bytes	The available capacity of the disk where the disk path resides.
	hblock_dataDir_quota_total_bytes	The capacity quota of the disk where the disk path

		resides.
	hblock_dataDir_quota_used_bytes	The total amount of data that has be written to the disk path by HBlock.
status	hblock_status_system	System status: ● 0: Working ● 1: Upgrading ● 2: Uninstalling ● 3: Unknown
	hblock_status_data	System data health status, unit is %.
	hblock_status_license	Software license status: ● 0: Subscription license is effective. ● 1: Perpetual license is effective. ● 2: The license has not been imported. ● 3: Perpetual license has expired. ● 4: Subscription license has expired.
	hblock_status_licenseExpiredTime	License expiration time, Unix timestamp.
	hblock_status_poolDomain	Status of each fault domain in the storage pool: ● 0: Healthy ● 1: Warning ● 2: Error ● 3: Unknown
	hblock_status_baseService	Base service status: ● 0: Normal ● 1: Abnormal ● 2: Unknown
	hblock_status_dataService	Data service status: ● 0: Healthy ● 1: Warning ● 2: Error ● 3: Unknown

5.9 Cluster Topology File

A cluster topology displays the topological structure of all nodes within a cluster, including their names, statuses, and compositions. You can create a cluster topology file and import it during initialization. The topology file is a JSON file in the UTF-8 encoding format.

Note:

- When the parent node is root, the child node can be room, rack, or server.
- When the parent node is room, the child node can be rack or server.
- When the parent node is rack, the child node can only be server.
- When the parent node is server, the child node can only be path.

Parameter		Description	Required
name		The name of a root node. Type: String The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit. The default value is default.	No
type		Type of a root node. Type: String Value: root. The default value is root.	No
childNodes		A collection of child node information. Parameters vary with child node type. Type: Array	Yes
The child node type is room	name	The name of a child node. Type: String The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes
	type	Type of child node. Type: String Value: room.	Yes
	description	Description of a child node. Type: String The value is a sting of 1 to 50 characters.	No
	childNodes	A collection of child node information. Parameters vary with child node type. A child	No

		node can be either rack or server. e: Array	
The child node type is rack	name	The name of a child node. Type: String The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit.	Yes
	type	Type of child node. Type: String Value: rack.	Yes
	description	Description of a child node. Type: String The value is a sting of 1 to 50 characters.	No
	childNodes	A collection of child node information. The child node can only be server. Type: Array	No
The child node type is server	name	The name of a child node. Type: String The value is a string of 1 to 63 case-sensitive characters. It can contain letters, digits, dots (.), hyphens (-), and underscores (_). Only supports starting with a letter or a digit. The default value is server ID.	No
	type	Type of child node. Type: String Value: server, indicating server type.	Yes
	description	Description of a child node. Type: String The value is a sting of 1 to 50 characters.	No
	ip	IP address of the HBlock server. The value is IPv4 or [IPv6] address.	Yes
	apiPort	Manage API ports. Type: Integer The value is an integer that ranges from 1 to 65535. The default value is 1443. The setting must be the same as the API port number set when HBlock is installed on the server.	No
	childNodes	A collection of child node information. The child node type is path.	Yes

The child node type is path	name	The name of a child node. Type: String Value: Specifies the disk path.	Yes
	type	Type of child node. Type: String Value: path.	Yes
	capacityQuota	Specifies the capacity quota of the disk path, that is, for each disk path added to server, the total amount of data that can be written by HBlock. Once the space used by HBlock reaches the quota, data writing is immediately blocked, and no more space is allowed to be used beyond the quota. Type: long integer Value: Less than the total capacity of the disk where the disk path resides. A negative integer means unlimited writing and 0 means write inhibit. Writes are not limited by default. **Note:** If the same disk path appears multiple times, the capacity quota of the first occurrence will be used.	No

Example of a topology file:

```
{
  "name": "default",
  "childNodes": [
    {
      "name": "room1",
      "type": "room",
      "childNodes": [
        {
          "type": "server",
          "name": "server1",
          "ip": "192.168.0.1",
          "apiPort": 1443,
          "childNodes": [
            {
              "name": "/mnt/storage01",
```

```
            "type": "path",
            "capacityQuota": 96636764160
          },
          {
            "name": "/mnt/storage02",
            "type": "path"
          }
        ]
      },
      {
        "type": "server",
        "name": "server2",
        "ip": "192.168.0.2",
        "apiPort": 1443,
        "childNodes": [
          {
            "name": "/mnt/storage01",
            "type": "path",
            "capacityQuota": 96636764160
          }
        ]
      },
      {
        "type": "server",
        "name": "server3",
        "ip": "192.168.0.3",
        "apiPort": 1443,
        "childNodes": [
          {
            "name": "/mnt/storage01",
            "type": "path"
          },
          {
            "name": "/mnt/storage02",
            "type": "path"
          }
        ]
      }
    ]
  }
]
```

```
}
```