Hitachi Ops Center Administrator

10.9.2

REST API Reference Guide

This guide describes the commands used in the REST API to use with Hitachi Ops Center Administrator.

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Preface

Hitachi Ops Center Administrator is an infrastructure management solution that unifies storage management solutions such as storage provisioning, data protection, and storage management; simplifies the management of large-scale data centers by providing smarter software services; and is extensible to provide better programmability and control.

Intended Audience

This document is intended for system administrators, Hitachi Vantara representatives, and authorized service providers who configure and operate Virtual Storage Platform storage systems with Hitachi Ops Center Administrator.

Readers of this document should be familiar with the following:

- RAID storage systems and their basic functions.
- Volume creation and management.
- Pool creation and management.
- Parity group creation and management.

Product version

This document revision applies to Hitachi Ops Center Administrator version 10.9.2 or later.

Release notes

Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document.

Release notes are located on Support Connect at https://knowledge.hitachivantara.com/Documents.

Document conventions

This document uses the following typographic conventions:

Convention	Description
Bold	▪ Indicates text in a window, including window titles, menus, menu options, buttons, fields, and labels. Example: Click **OK**. ▪ Indicates emphasized words in list items.
Italic	▪ Indicates a document title or emphasized words in text. ▪ Indicates a variable, which is a placeholder for actual text provided by the user or for output by the system. Example: `pairdisplay -g group` (For exceptions to this convention for variables, see the entry for angle brackets.)
`Monospace`	Indicates text that is displayed on screen or entered by the user. Example: `pairdisplay -g oradb`
< > angle brackets	Indicates variables in the following scenarios: ▪ Variables are not clearly separated from the surrounding text or from other variables. Example: `Status-<report-name><file-version>.csv` ▪ Variables in headings.
[ ] square brackets	Indicates optional values. Example: [a | b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a | b } indicates that you must choose either a or b.
| vertical bar	Indicates that you have a choice between two or more options or arguments. Examples: [a | b] indicates that you can choose a, b, or nothing. { a | b } indicates that you must choose either a or b.

This document uses the following icons to draw attention to information:

Icon	Label	Description
	Note	Calls attention to additional information.

Icon	Label	Description
	Tip	Provides helpful information, guidelines, or suggestions for performing tasks more effectively.
	Important	Highlights information that is essential to the completion of a task.
	Caution	Warns the user of adverse conditions and/or consequences (for example, disruptive operations, data loss, or a system crash).
	CAUTION	Warns the user of a hazardous situation that, if not avoided, could result in major or minor injury.
	WARNING	Warns the user of a hazardous situation which, if not avoided, could result in death or serious injury.

Conventions for storage capacity values

Physical storage capacity values (for example, disk drive capacity) are calculated based on the following values:

Physical capacity unit	Value
1 kilobyte (KB)	1,000 (10^3) bytes
1 megabyte (MB)	1,000 KB or $1{,}000^2$ bytes
1 gigabyte (GB)	1,000 MB or $1{,}000^3$ bytes
1 terabyte (TB)	1,000 GB or $1{,}000^4$ bytes
1 petabyte (PB)	1,000 TB or $1{,}000^5$ bytes
1 exabyte (EB)	1,000 PB or $1{,}000^6$ bytes

Logical capacity values (for example, logical device capacity, cache memory capacity) are calculated based on the following values:

Logical capacity unit	Value
1 block	512 bytes
1 cylinder	Mainframe: 870 KiB

Logical capacity unit	Value
	Open-systems ▪ OPEN-V: 960 KiB ▪ Others: 720 KiB
1 KiB	1,024 (2^{10}) bytes
1 MiB	1,024 KiB or $1{,}024^2$ bytes
1 GiB	1,024 MiB or $1{,}024^3$ bytes
1 TiB	1,024 GiB or $1{,}024^4$ bytes
1 PiB	1,024 TiB or $1{,}024^5$ bytes
1 EiB	1,024 PiB or $1{,}024^6$ bytes

Accessing product documentation

Product user documentation is available on the Hitachi Vantara Support Website: https://knowledge.hitachivantara.com/Documents. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

Getting help

The Hitachi Vantara Support Website is the destination for technical support of products and solutions sold by Hitachi Vantara. To contact technical support, log on to the Hitachi Vantara Support Website for contact information: https://support.hitachivantara.com/en_us/contact-us.html.

Hitachi Vantara Community is a global online community for Hitachi Vantara customers, partners, independent software vendors, employees, and prospects. It is the destination to get answers, discover insights, and make connections. **Join the conversation today!** Go to community.hitachivantara.com, register, and complete your profile.

Comments

Please send comments to doc.comments@hitachivantara.com. Include the document title and number, including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Vantara LLC.

Thank you!

Chapter 1: Using the Ops Center Administrator REST API

The Ops Center Administrator API is a REST (representational state transfer) interface for administrative tasks to manage storage resources. Ops Center Administrator is a unified software management tool that reduces the complexity of managing storage systems by simplifying the setup, management, and maintenance of storage resources.

REST architecture

REST is a style of software architecture that can be used with many message formats for web services.

REST uses the HTTP protocol along with a uniform resource identifier (URI) to identify a name of a web resource for requests from the client.

Ops Center Administrator REST API has a non-GUI interface to manage storage. It supports JSON requests and responses only.

API functionality and HTTP methods

Supported HTTP methods

HTTP defines a set of methods that define the actions that can be performed on a resource.

The API supports the following HTTP methods:

GET

Retrieves information about an individual resource or retrieves a list of resources of a given type. GET is synchronous, so it returns a response message with information for the given resource.

All GET API calls support filtered queries.

The GET jobs API has a searching and sorting structure: https://ipAddress/v1/jobs?q=query&sort=sorting (where everything after the "?" is optional). Here are a few examples:

- GET jobs with a specific username: https://ipAddress/v1/jobs?q=user:username
- GET jobs with tags: https://ipAddress/v1/jobs/tags?q=tag:server)
- GET jobs with ascending sorting of startDate: https://ipAddress/v1/jobs?sort=startDate:asc

- GET calls can be combined: https://ipAddress/v1/jobs?q=user:username&sort=startDate:asc. This call searches for jobs with user = username and sorts them in ascending order by startDate
- Filters also can be combined with each other using AND or OR operators, and ranges of numbers can be specified using TO: https://ipAddress/v1/jobs?q=(status:(IN_PROGRESS OR SUCCESS) AND startDate:[now-1d TO now])

POST

Adds (creates) and updates a resource.

You need to provide values for all of the attributes of a resource that do not have default values. To override a default value, include the attribute and provide an override value for that attribute in the request body. POST is asynchronous, so it returns a response message with information about the status and job of the request.

In Ops Center Administrator, a POST is asynchronous except when the response message that is returned has just an HTTP status code.

- File storage management resources
- Account domain resources
- Role mapping resources
- Token resources
- Fabric switch resources

PATCH

The PATCH method applies partial modifications to a resource.

DELETE

Deletes a resource. DELETE is asychronous, so it returns a response message with information about the status and job of the request.

The exceptions to DELETE being asynchronous in Ops Center Administrator are when the response message that is returned is a response message has just an HTTP status code.

- File storage management resources
- Account domain resources
- Role mapping resources
- Token resources
- Fabric switch resources

Security and authentication

A security token is required to call the API. There are two options to generate and specify token.

X-Auth-Token header for default local user and users in the registered Active Directory:

1. Call the following API with the header to generate tokens.

   ```
   POST v1/security/tokens
   ```

   In the Authorization header of the request header, specify a base64-encoded character string in which the user ID and password are concatenated with a colon (:).

   `Authorization: Basic` *`authentication_information`*

2. Extract `X-Auth-Token:` *`x_auth_token`* header from the response.
3. Specify the `X-Auth-Token:` *`x_auth_token`* header for the target API.

Authorization header with bearer token for users in the registered Common Service:

The API also can use bearer token with OpenID connect authentication when it works with the Hitachi Ops Center Common Services.

1. Get bearer token from Common Services. See Hitachi Ops Center Common Services REST API Reference Guide for details.
2. Specify `Authorization: Bearer` *`bearer_token`* header for the target API.

Note:

If you use Authorization header with bearer token, you must synchronize the time on the Common Services server with the time on the Ops Center Administrator server. Use NTP to keep the time synchronized between the servers.

Note:

The following APIs are not supported with `Authorization: Bearer` header:

- File storage management resources API
- Token management resources API

Privileges and roles

Access to the storage system is restricted by roles. Roles determine which tasks a user can complete on the storage system. The security administrator can grant access to users by assigning users roles with privileges that are associated to those specific roles.

System administrator

- Addition, administration, and deletion of servers, storage system, and fabric switches, SNMP manager, and tier management.
- Addition, administration, and deletion of parity groups.
- Addition, administration, and deletion of virtual file server resource groups.

- Read-only privileges to monitor everything in Ops Center Administrator.
- Registration of Ops Center Protector in Ops Center Administrator.

Storage administrator

- Addition, administration, and deletion of pools.
- Addition, administration, and deletion of volumes, including creating, attaching to hosts, and data protection.
- Addition, administration, and deletion of port configurations.
- Read-only privileges to monitor everything in Ops Center Administrator.

Security administrator

- Addition, administration, and deletion of remote account domains.
- User role assignment to groups.
- Read-only privileges to monitor everything in Ops Center Administrator.

Monitoring role

Read-only privileges to monitor everything in Ops Center Administrator.

Identifying a resource

The REST API allows you to manage and configure resources on the storage system including common storage systems, disks, parity groups, pool, volumes, ports, and tiers.

To identify a resource you want to manage, enter a resource domain URL in a web browser. All URLs for Ops Center Administrator API have the following base or root, uniform resource identifier (URI):

```
https://management-server/v1
```

where:

management-server is the virtual IP address or resolvable management server name of Ops Center Administrator.

For example, you can use the following URI to display a list of servers and details for each server.

```
https://172.17.35.70/v1/compute/servers
```

Each resource (URI) can only be accessed by users with correct privileges. Privileges are inherited based on the roles that are assigned to users.

HTTP response

When an HTTP request is sent, the server sends back an HTTP response message. The HTTP response message consists of an HTTP header and optional message body. Within the response header is the HTTP status code. The HTTP status code gives a status of the request. The following table contains a list of returned status codes, descriptions, and the type of HTTP request that can generate the status code.

Status code	HTTP name	Description
200	OK	Success.
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
404	Not found	The specified storage system ID is not valid or the storage system does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Status code	HTTP name	Description
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Token management resources

Request	Method	URI	Role
Getting a token (on page 20)	GET	/v1/security/tokens	Storage administrator System administrator Security administrator
Creating a token (on page 23)	POST	/v1/security/tokens	Storage administrator System administrator Security administrator
Deleting a token (on page 26)	DELETE	/v1/security/tokens	Storage administrator System administrator Security administrator

Getting a token

You can get a security token. If not used, the token expires in 1200 seconds, if it is used for a REST call the expiry timer resets. A new token must be acquired after the current one expires.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/tokens
```

The token is passed back in the header.

Request structure

Not applicable.

Response structure

```
{
     "token":{
          "issuedAt":"",
          "expiresAt":"",
          "tenantId":"",
          "user":{
               "name":"",
               "domain":,
               "roles":[
                    {
                         "name":""
                    },
               ],
               "providerId":""
          },
          "_links":{
               "self":{
                    "href":""
               }
          }
     }
}
```

Parameter	Type	Description
issuedAt	String	Date the token was issued.
expiresAt	String	Date the token expires.
tenantId	Integer	ID number of the service catalog with services activated for the user. Default is `0` for all services.
name	String	The user name that is being used to access the domain.
domain	String	The name or address of the domain.
roles	String	Roles determine what a user can and cannot do. The security administrator assigns users specific roles.
providerId	Integer	ID of the authentication provider.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Request example

```
GET https: //172.17.64.116/v1/security/tokens
```

Response example

```
{
    "token": {
        "issuedAt": "2018-02-05T20:44:37Z",
        "expiresAt": "2018-02-05T21:06:05Z",
        "tenantId": "0",
        "user": {
        "name": "sysadmin",
            "domain": null,
            "roles": [
```

```
                {
                    "name": "ROLE_SYSTEM_ADMIN"
                },
                {
                    "name": "ROLE_SECURITY_ADMIN"
                },
                {
                    "name": "ROLE_STORAGE_ADMIN"
                }
            ],
            "providerId": "57503d78-3294-44c6-8c8a-08edd38a08be"
        },
        "_links": {
            "self": {
                "href": "https://172.17.64.111:80/v1/tokens"
            }
        }
    }
}
```

Creating a token

You can create a security token. The expiration time for the generated token is 1200 seconds.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/security/tokens
```

The token is generated and passed back in the header.

Request structure

Not applicable.

Response structure

```
{
    "token": {
        "issuedAt": "",
        "expiresAt": "",
        "tenantId": "",
        "user": {
            "name": "",
            "domain": ,
            "roles": [
                {
                    "name": ""
                },
                {
                    "name": ""
```

```
                },
                {
                    "name": ""
                }
            ],
            "providerId": ""
        },
        "_links": {
            "self": {
                "href": ""
            }
        }
    }
}
```

Parameter	Type	Description
issuedAt	String	Date the token was issued.
expiresAt	String	Date the token expires.
tenantId	Integer	ID number of the service catalog with services activated for the user. Default is `0` for all services.
name	String	The user name that is being used to access the domain.
domain	String	The name or address of the domain.
roles	String	Roles determine what a user can and cannot do. The security administrator assigns users specific roles.
providerId	Integer	ID of the authentication provider.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Request example

```
POST https: //172.17.64.116/v1/security/tokens
```

Response example

```
{
    "token": {
        "issuedAt": "2018-02-05T21:10:46Z",
        "expiresAt": "2018-02-05T21:30:46Z",
        "tenantId": "0",
        "user": {
        "name": "sysadmin",
            "domain": null,
            "roles": [
                {
                    "name": "ROLE_SYSTEM_ADMIN"
                },
                {
                    "name": "ROLE_SECURITY_ADMIN"
                },
                {
                    "name": "ROLE_STORAGE_ADMIN"
                }
            ],
            "providerId": "57503d78-3294-44c6-8c8a-08edd38a08be"
        },
        "_links": {
            "self": {
```

```
                "href": "https://172.17.64.111:80/v1/tokens"
            }
        }
    }
}
```

Deleting a token

You can delete a security token before it expires.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/security/tokens
```

Request structure

Not applicable.

Response structure

Not applicable.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.

Status code	HTTP name	Description
503	Service unavailable	The server is currently unable to receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator cannot connect to the node.

Sending API requests using cURL

You can use cURL in the command line with Ops Center Administrator REST APIs.

Procedure

1. To connect to the Ops Center Administrator instance, using SSH from a terminal window:
   a. `ssh root@10.10.20.88`
   b. Provide the root password when prompted.
2. Run the command: `curl -k -I --Basic https://10.10.20.88/v1/security/tokens -X POST -u sysadmin:<ask your administrator>`

Result

Message: Server: nginx/1.8.1 Date: Fri, 05 Aug 2016 23:06:34 GMT Content-Type: application/hal+json;charset=UTF-8 Transfer-Encoding: chunked Connection: keep-alive X-Content-Type-Options: nosniff X-XSS-Protection: 1; mode=block Cache-Control: no-cache, no-store, max-age=0, must-revalidate Pragma: no-cache Expires: 0 X-Frame-Options: DENY X-Auth-Token: 3a22e682-5023-4a54-9f99-70f264555569 Strict-Transport-Security: max-age=31536000; includeSubdomains

Values to pass on the command line

- Use -k if the connection is insecure.
- Specify the API URI enclosed in single quotes.
- -X specifies the verb (for example, POST, GET, DELETE, PATCH).
- -d specifies the API payload enclosed in single quotes.
- -H specifies each header:value pair. The X-Auth-Token you saved and Content-Type (application/json) headers are passed here.
- Use 'curl -Help' to get info about additional parameters as needed.

For example:

```
curl -k 'API URI' -X {REST verb} -d 'API payload' -H 'header1:value'
-H 'heade2:value'
```

Sample API calls

Attach volume to a server:

```
'{"storageSystemId": "410395","hostModeOptions":
[],"intendedImageType":"LINUX","volumes": [{"volumeId": 649,"lun":
1111}],"ports": [{"serverId": 3,"serverWwns": [],"portIds": ["CL8-
C","CL6-D"]}],"enableZoning": false,"enableLunUnification": false}'
-H 'Content-Type: application/json' -H 'X-Auth-Token:
3a22e682-5023-4a54-9f99-70f264555569'
```

Delete a volume:

```
curl -k https:// 10.10.20.88/v1/storage-systems/410395/volumes/513 -
X DELETE -H 'Content-Type: application/json' -H 'X-Auth-Token:
3a22e682-5023-4a54-9f99-70f264555569'
```

Get all storage systems:

```
curl -k https:// 10.10.20.88/v1/storage-systems -X GET -H 'X-Auth-
Token: 3a22e682-5023-4a54-9f99-70f264555569'
```

Chapter 2: Block storage management resources

This module describes block storage management.

Storage system management

Request	Method	URI	Role
Listing storage systems (on page 30)	GET	/v1/storage-systems	Storage administrator System administrator Security administrator
Getting a storage system (on page 39)	GET	/v1/storage-systems/*storageSystemId*	Storage administrator System administrator Security administrator
Getting storage systems summary (on page 47)	GET	/v1/storage-systems/summary	Storage administrator System administrator Security administrator
Getting storage system license information (on page 50)	GET	/v1/storage-systems/*storageSystemId*/settings/licenses	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Adding a storage system (on page 52)	POST	/v1/storage-systems	System administrator
Updating a storage system (on page 55)	POST	/v1/storage-systems/*storageSystemId*	System administrator
Deleting a storage system (on page 58)	DELETE	/v1/storage-systems/*storageSystemId*	System administrator
Switching the access point to GUM (on page 60)	POST	/v1/storage-systems/*storageSystemId*/switch-access-point	System administrator

Listing storage systems

You can display a list of all storage systems.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems
```

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "resources": [
    {
      "storageSystemId": "",
      "storageSystemName": "",
      "rmiPortNumber": "",
      "accessible": ,
      "model": "",
      "svpIpAddress": "",
      "svpHttpsPortNumber": "",
      "gum1IpAddress": "",
      "gum2IpAddress": "",
      "unified": ,
      "firmwareVersion": "",
      "horcmVersion": "",
      "cacheCapacity": ,
      "totalUsableCapacity": ,
      "allocatedToPool": ,
      "unallocatedToPool": ,
```

```
      "usedCapacity": ,
      "availableCapacity": ,
      "subscribedCapacity": ,
      "unusedDisks": ,
      "unusedDisksCapacity": ,
      "statusMessage": ,
      "gadSummary": ,
      "dataReductionSavingsRate": ,
      "capacityEfficiencyRate": ,
      "migrationTaskCount": ,
      "lastRefreshedTime": ,
      "primaryGumNumber": ,
      "username": "",
      "svpFlashState": "",
      "totalEfficiency": {
        "totalEfficiencyRate": {
          "status": "",
          "value":
        },
        "dataReductionEfficiency": {
          "totalDataReductionRate": {
            "status": "",
            "value":
          },
          "softwareSavingEfficiency": {
            "totalSoftwareSavingRate": {
              "status": "",
              "value":
            },
            "compressionRate": {
              "status": "",
              "value":
            },
            "deduplicationRate": {
              "status": "",
              "value":
            },
            "patternMatchingRate": {
              "status": "",
              "value":
            }
          },
          "fmdSavingEfficiency": {
            "totalFmdSavingRate": {
              "status": "",
              "value":
            },
            "compressionRate": {
              "status": "",
              "value":
            },
```

```
            "patternMatchingRate": {
              "status": "",
              "value":
            }
          }
        },
        "snapshotEfficiencyRate": {
          "status": "",
          "value":
        },
        "provisioningEfficiencyPercentage": {
          "status": "",
          "value":
        },
        "calculationStartTime": "",
        "calculationEndTime": ""
      },
      "compressionAcceleration": ""
    }
  ],
  ...
  "total": ,
  "nextToken":
}
```

Parameter	Type	Description
storageSystemId	String	The ID of the storage system (serial number).
storageSystemName	String	The name of the storage system.
accessible	Boolean	The status of the storage system indicating whether the storage system is available with Ops Center Administrator. If accessible = TRUE, the storage system can be managed with Ops Center Administrator. If accessible = FALSE, the storage system cannot be managed with Ops Center Administrator. This happens when the storage system is first onboarded and the system is initializing the cache details.
model	String	The storage system model.
svpIpAddress	String	The IP address of the service processor (SVP) of the storage system. For storage systems without an SVP, the value is null.

Parameter	Type	Description
svpHttpsPortNumber	Integer	The HTTPS port number of the SVP web servlet.
gum1IpAddress	String	The IP address of the maintenance utility controller 1. For VSP G1000 storage systems, the gum IP address is the IP address of the service processor (SVP).
gum2IpAddress	String	The IP address of the maintenance utility controller 2.
unified	Boolean	Whether the storage system includes NAS modules. If included, they can be configured and managed by Ops Center Administrator.
firmwareVersion	String	The firmware version of the storage system.
horcmVersion	String	The HORCM version of the storage system.
cacheCapacity	Long	The cache capacity in the storage system.
lastRefreshedTime	Long	The time of last update in Epoch time format.
totalUsableCapacity	Long	The total usable capacity in the storage system. This is the sum of all parity group capacities in the system.
allocatedToPool	Long	The sum of all the pool capacities in the system.
unallocatedToPool	Long	The capacity available to create pools in the system. This is the difference between totalUsableCapacity and allocatedToPool.
usedCapacity	Long	The sum of all used capacities in all the pools in the system.
availableCapacity	Long	The available capacities in all pools in the system. This is the difference between allocatedToPool and usedCapacity.
subscribedCapacity	Long	This is the overall capacity of all created volumes that are available in the storage pools of the storage system.
unusedDisks	Integer	The number of disks unused in the storage system, such as disks that are not allocated as hot spare disks and not used for parity group creation.

Parameter	Type	Description
unusedDisksCapacity	Long	The unused disk capacity in the storage system.
statusMessage	String	Displays errors that might occur while adding a storage system; null indicates no errors.
gadSummary	String	The status of GAD. Values are: **1.** Incomplete **2.** Not Available **3.** Complete
dataReductionSavingsRate	Float	The ratio of logical used capacity to the physical used capacity, for all compression and deduplication technologies.
capacityEfficiencyRate	Float	The ratio of Thin Free plus Thin Used to the physical used capacity. Capacity efficiency is only calculated for volumes on Thin, Tiered, and Snap pools. If disk-based compression is in use, either alone or in combination with controller-based compression, the physical used capacity is that resulting from disk-based compression alone. If only controller-based compression is in use, the physical used capacity is that resulting from controller-based compression. If no compression technology is in use, the physical used capacity is the used capacity of the pools.
migrationTaskCount	Integer	The number of migration tasks.
primaryGumNumber	Integer	DKC controller number for VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900. For VSP G/F350, G/F370, G/F700, G/F900 without SVP, the number is changed by the user if a controller is broken. See Switching the access point to GUM (on page 60).
username	String	The user name for the storage system that the user specified during onboarding.

Parameter	Type	Description
svpFlashState	Enum	A state of SVP setting for Flash, either ENABLED or DISABLED. This parameter is only used by the Ops Center Administrator GUI.
totalEfficiency	Object	Ratios regarding total efficiency. For the VSP 5000 series, VSP E series, and the following storage systems, this parameter has all the `totalEfficiency` values: VSP G/F350, G/F370, G/F700, G/F900 with firmware versions 88-03-0x and later. For all other storage systems, this value is null.
totalEfficiencyRate	Object	The ratio of the total saving effect achieved by accelerated compression, capacity saving (compression and deduplication), snapshot, and Hitachi Dynamic Provisioning.
status	String	Status of the calculation process of that particular metric. Values can be CALCULATED, CALCULATION_IN_PROGRESS, and CALCULATED_WITH_EXCEEDED.
value	Float	Ratio of that particular metric.
dataReductionEfficiency	Object	Ratios regarding data reduction efficiency.
totalDataReductionRate	Object	Data reduction ratio before and after accelerated compression and capacity saving (compression and deduplication).
softwareSavingEfficiency	Object	Ratios regarding software saving efficiency.
totalSoftwareSavingRate	Object	The capacity reduction ratio before and after capacity saving.
compressionRate	Object	The capacity compression ratio before and after capacity saving.
deduplicationRate	Object	The capacity deduplication ratio before and after capacity saving.
patternMatchingRate	Object	The capacity reduction ratio before and after capacity saving pattern matching.
fmdSavingEfficiency	Object	Ratios regarding accelerated compression saving.
totalFmdSavingRate	Object	The capacity reduction ratio before and after accelerated compression.

Parameter	Type	Description
compressionRate	Object	The capacity compression ratio before and after accelerated compression.
patternMatchingRate	Object	The capacity reduction ratio before and after accelerated compression pattern matching.
snapshotEfficiencyRate	Object	The efficiency ratio achieved by snapshot.
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by Hitachi Dynamic Provisioning.
calculationStartTime	String	The start date and time for the calculation. The date and time are displayed in UTC.
calculationEndTime	String	The end date and time for the calculation. The date and time are displayed in UTC.
total	Integer	Total number of resources.
rmiPortNumber	Integer	The RMI access port number of a storage system with a virtual SVP.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`
compressionAcceleration	String	Whether the compression accelerator is available or not for a supported storage system Valid values: AVAILABLE, UNAVAILABLE

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Request example

Request with JSON command:

```
https://172.17.64.118/v1/storage-systems
```

Response example

JSON response. For the following storage systems, totalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP G200, G/F400, G/F600, G/F800, VSP N400, VSP N600 and VSP N800.


```
{
  "resources":
  [
    {
      "storageSystemId": "410031",
      "storageSystemName": "RN-SC-41130-HID_SVOS7.3-Gsd-41.130",
      "accessible": true,
      "model": "VSP F600",
      "svpIpAddress": "172.17.41.130",
      "svpHttpsPortNumber": 443,
      "gum1IpAddress": "172.17.41.131",
      "gum2IpAddress": "172.17.41.132",
      "unified": false,
      "firmwareVersion": "83-05-01-40/00",
      "horcmVersion": "01-44-03/01",
      "cacheCapacity": 220922380288,
      "totalUsableCapacity": 296686246549504,
      "allocatedToPool": 35400431173632,
      "unallocatedToPool": 261285815375872,
      "usedCapacity": 6475224711168,
      "availableCapacity": 28925206462464,
      "subscribedCapacity": 459154453954560,
      "unusedDisks": 9,
      "unusedDisksCapacity": 18755262163776,
      "statusMessage": null,
```

```
      "gadSummary": "NOT_AVAILABLE",
      "dataReductionSavingsRate": 1.01,
      "capacityEfficiencyRate": 5.2,
      "migrationTaskCount": 2,
      "lastRefreshedTime": 1564575651404,
      "primaryGumNumber": 1,
      "username": "maintenance",
      "svpFlashState": "ENABLED",
      "totalEfficiency": {
        "totalEfficiencyRate": {
          "status": "CALCULATED",
          "value": 2.21
        },
        "dataReductionEfficiency": {
          "totalDataReductionRate": {
            "status": "CALCULATED",
            "value": 99999.99
          },
          "softwareSavingEfficiency": {
            "totalSoftwareSavingRate": {
              "status": "CALCULATED",
              "value": 1.52
            },
            "compressionRate": {
              "status": "CALCULATED",
              "value": 1.15
            },
            "deduplicationRate": {
              "status": "CALCULATED",
              "value": 1.34
            },
            "patternMatchingRate": {
              "status": "CALCULATED",
              "value": 1.08
            }
          },
          "fmdSavingEfficiency": {
            "totalFmdSavingRate": {
              "status": "CALCULATED",
              "value": 2.21
            },
            "compressionRate": {
              "status": "CALCULATED",
              "value": 2.14
            },
            "patternMatchingRate": {
              "status": "CALCULATION_IN_PROGRESS",
              "value": null
            }
          }
        },
```

```
        "snapshotEfficiencyRate": {
          "status": "CALCULATED",
          "value": 10.37
        },
        "provisioningEfficiencyPercentage": {
          "status": "CALCULATED",
          "value": 170
        },
        "calculationStartTime": "2018-05-15T10:05",
        "calculationEndTime": "2018-05-15T10:38"
      },
      "compressionAcceleration": "AVAILABLE"
    }
    ...
  ],
  "total": 4,
  "nextToken": null
}
```

Getting a storage system

You can display detailed information for a specific storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "storageSystemId": "",
  "storageSystemName": "",
  "rmiPortNumber": "",
  "accessible": ,
  "model": "",
  "svpIpAddress": "",
  "svpHttpsPortNumber": "",
  "gum1IpAddress": "",
  "gum2IpAddress": "",
  "unified": ,
  "firmwareVersion": "",
  "horcmVersion": "",
  "cacheCapacity": ,
```

```
  "totalUsableCapacity": ,
  "allocatedToPool": ,
  "unallocatedToPool": ,
  "usedCapacity": ,
  "availableCapacity": ,
  "subscribedCapacity": ,
  "unusedDisks": ,
  "unusedDisksCapacity": ,
  "statusMessage": ,
  "gadSummary": ,
  "dataReductionSavingsRate": ,
  "capacityEfficiencyRate": ,
  "migrationTaskCount": ,
  "lastRefreshedTime": ,
  "primaryGumNumber": ,
  "username": "",
  "svpFlashState": "",
  "totalEfficiency": {
    "totalEfficiencyRate": {
      "status": "",
      "value":
    },
    "dataReductionEfficiency": {
      "totalDataReductionRate": {
        "status": "",
        "value":
      },
      "softwareSavingEfficiency": {
        "totalSoftwareSavingRate": {
          "status": "",
          "value":
        },
        "compressionRate": {
          "status": "",
          "value":
        },
        "deduplicationRate": {
          "status": "",
          "value":
        },
        "patternMatchingRate": {
          "status": "",
          "value":
        }
      },
      "fmdSavingEfficiency": {
        "totalFmdSavingRate": {
          "status": "",
          "value":
        },
        "compressionRate": {
```

```
          "status": "",
          "value":
        },
        "patternMatchingRate": {
          "status": "",
          "value":
        }
      }
    },
    "snapshotEfficiencyRate": {
      "status": "",
      "value":
    },
    "provisioningEfficiencyPercentage": {
      "status": "",
      "value":
    },
    "calculationStartTime": "",
    "calculationEndTime": ""
  },
  "compressionAcceleration": ""
}
```


Parameter	Type	Description
storageSystemId	String	The ID of the storage system (serial number).
storageSystemName	String	The name of the storage system.
accessible	Boolean	The status of the storage system indicating whether the storage system is available with Ops Center Administrator. If accessible = TRUE, the storage system can be managed with Ops Center Administrator. If accessible = FALSE, storage system cannot be managed with Ops Center Administrator. This happens when the storage system is first onboarded and the system is initializing the cache details.
model	String	The storage system model.
svpIpAddress	String	The IP address of the service processor (SVP) of the storage system. For storage systems without an SVP, the value is null.

Parameter	Type	Description
svpHttpsPortNumber	Integer	The HTTPS port number of the SVP web servlet.
gum1IpAddress	String	The IP address of the maintenance utility controller 1. For VSP G1000 storage systems, the gum IP address is the IP address of the service processor (SVP).
gum2IpAddress	String	The IP address of the maintenance utility controller 2.
unified	Boolean	Whether the storage system includes NAS modules. If included, they can be configured and managed by Ops Center Administrator.
firmwareVersion	String	The firmware version of the storage system.
horcmVersion	String	The HORCM version of the storage system.
cacheCapacity	Long	The cache capacity in the storage system.
lastRefreshedTime	Long	The time of last update in Epoch time format.
totalUsableCapacity	Long	The total usable capacity in the storage system. This is the sum of all parity group capacities in the system.
allocatedToPool	Long	The sum of all the pool capacities in the system.
unallocatedToPool	Long	The capacity available to create pools in the system. This is the difference between totalUsableCapacity and allocatedToPool.
usedCapacity	Long	The sum of all used capacities in all the pools in the system.
availableCapacity	Long	The available capacities in all pools in the system. This is the difference between allocatedToPool and usedCapacity.
subscribedCapacity	Long	This is the overall capacity of all created volumes that are available in the storage pools of the storage system.
unusedDisks	Integer	The number of disks unused in the storage system, such as disks that are not allocated as hot spare disks and not used for parity group creation.

Parameter	Type	Description
unusedDisksCapacity	Long	The unused disk capacity in the storage system.
statusMessage	String	The storage system status; null indicates no errors.
gadSummary	String	The status of GAD. Values are: **1.** Incomplete **2.** Not Available **3.** Complete
dataReductionSavingsRate	Float	The ratio of logical used capacity to the physical used capacity, for all compression and deduplication technologies.
capacityEfficiencyRate	Float	The ratio of Thin Free plus Thin Used to the physical used capacity. Capacity efficiency is only calculated for volumes on Thin, Tiered, and Snap pools. If disk-based compression is in use, either alone or in combination with controller-based compression, the physical used capacity is that resulting from disk-based compression alone. If only controller-based compression is in use, the physical used capacity is that resulting from controller-based compression. If no compression technology is in use, the physical used capacity is the used capacity of the pools.
migrationTaskCount	Integer	The number of migration tasks.
primaryGumNumber	Integer	DKC controller number for VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900. For VSP G/F350, G/F370, G/F700, G/F900 without SVP, the number is changed by the user if a controller is broken. See Switching the access point to GUM (on page 60).
username	String	The user name for the storage system that the user specified during onboarding.

Parameter	Type	Description
svpFlashState	Enum	A state of SVP setting for Flash, either ENABLED or DISABLED. This parameter is only used in the Ops Center Administrator GUI.
totalEfficiency	Object	Ratios regarding total efficiency. For the VSP 5000 series, VSP E series, and the following storage systems, this parameter has all the `totalEfficiency` values: VSP G/F350, G/F370, G/F700, G/F900 with firmware versions 88-03-0x and later. For all other storage systems, this value is null.
totalEfficiencyRate	Object	The ratio of the total saving effect achieved by accelerated compression, capacity saving (compression and deduplication), snapshot, and Hitachi Dynamic Provisioning.
status	String	Status of the calculation process of that particular metric. Values can be CALCULATED, CALCULATION_IN_PROGRESS, and CALCULATED_WITH_EXCEEDED.
value	Float	Ratio of that particular metric.
dataReductionEfficiency	Object	Ratios regarding data reduction efficiency.
totalDataReductionRate	Object	Data reduction ratio before and after accelerated compression and capacity saving (compression and deduplication).
softwareSavingEfficiency	Object	Ratios regarding software saving efficiency.
totalSoftwareSavingRate	Object	The capacity reduction ratio before and after capacity saving.
compressionRate	Object	The capacity compression ratio before and after capacity saving.
deduplicationRate	Object	The capacity deduplication ratio before and after capacity saving.
patternMatchingRate	Object	The capacity reduction ratio before and after capacity saving pattern matching.
fmdSavingEfficiency	Object	The capacity reduction ratio before and after accelerated compression.
compressionRate	Object	The capacity compression ratio before and after accelerated compression.

Parameter	Type	Description
patternMatchingRate	Object	The capacity reduction ratio before and after accelerated compression pattern matching.
snapshotEfficiencyRate	Object	The efficiency ratio achieved by snapshot.
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by Hitachi Dynamic Provisioning.
calculationStartTime	String	The start date and time for the calculation. The date and time are displayed in UTC.
calculationEndTime	String	The end date and time for the calculation. The date and time are displayed in UTC.
rmiPortNumber	Integer	The RMI access port number of a storage system with a virtual SVP.
compressionAcceleration	String	Whether the compression accelerator is available or not for a supported storage system Valid values: AVAILABLE, UNAVAILABLE

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	This is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Request example

```
https://172.17.64.111/v1/storage-systems/410031
```

Response example

For the following storage systems, totalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP G200, G/F400, G/F600, G/F800, VSP N400, VSP N600 and VSP N800.


```
{
  "storageSystemId": "410031",
  "storageSystemName": "RN-SC-41130-HID_SVOS7.3-Gsd-41.130",
  "accessible": true,
  "model": "VSP F600",
  "svpIpAddress": "172.17.41.130",
  "svpHttpsPortNumber": 443,
  "gum1IpAddress": "172.17.41.131",
  "gum2IpAddress": "172.17.41.132",
  "unified": false,
  "firmwareVersion": "83-05-01-40/00",
  "horcmVersion": "01-44-03/01",
  "cacheCapacity": 220922380288,
  "totalUsableCapacity": 296686246549504,
  "allocatedToPool": 35400431173632,
  "unallocatedToPool": 261285815375872,
  "usedCapacity": 6475224711168,
  "availableCapacity": 28925206462464,
  "subscribedCapacity": 459154453954560,
  "unusedDisks": 9,
  "unusedDisksCapacity": 18755262163776,
  "statusMessage": null,
  "gadSummary": "NOT_AVAILABLE",
  "dataReductionSavingsRate": 1.01,
  "capacityEfficiencyRate": 5.2,
  "migrationTaskCount": 2,
  "lastRefreshedTime": 1564575651404,
  "primaryGumNumber": 1,
  "username": "maintenance",
  "svpFlashState": "ENABLED",
  "totalEfficiency": {
    "totalEfficiencyRate": {
      "status": "CALCULATED",
      "value": 2.21
    },
    "dataReductionEfficiency": {
      "totalDataReductionRate": {
        "status": "CALCULATED",
        "value": 99999.99
      },
      "softwareSavingEfficiency": {
        "totalSoftwareSavingRate": {
          "status": "CALCULATED",
          "value": 1.52
        },
```

```
        "compressionRate": {
          "status": "CALCULATED",
          "value": 1.15
        },
        "deduplicationRate": {
          "status": "CALCULATED",
          "value": 1.34
        },
        "patternMatchingRate": {
          "status": "CALCULATED",
          "value": 1.08
        }
      },
      "fmdSavingEfficiency": {
        "totalFmdSavingRate": {
          "status": "CALCULATED",
          "value": 2.21
        },
        "compressionRate": {
          "status": "CALCULATED",
          "value": 2.14
        },
        "patternMatchingRate": {
          "status": "CALCULATION_IN_PROGRESS",
          "value": null
        }
      }
    },
    "snapshotEfficiencyRate": {
      "status": "CALCULATED",
      "value": 10.37
    },
    "provisioningEfficiencyPercentage": {
      "status": "CALCULATED",
      "value": 170
    },
    "calculationStartTime": "2018-05-15T10:05",
    "calculationEndTime": "2018-05-15T10:38"
  },
  "compressionAcceleration": "AVAILABLE"
}
```

Getting storage systems summary

You can display a report of all storage systems in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/summary
```

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
        "totalUsableCapacity": "",
        "allocatedToPool": "",
        "unallocatedToPool": "",
        "usedCapacity": "",
        "availableCapacity": "",
        "subscribedCapacity": "",
        "storageSystemCount":
        "tierSummaryItems":
        [
            {
                "tierName": "",
                "totalCapacity": "",
                "freeCapacity": ""
            },
            ...
        ]
 }
```

Parameter	Type	Description
subscribedCapacity	String	This is the overall capacity of all created volumes that are available in the storage pools of the storage system.
totalUsableCapacity	String	The total usable capacity of all storage systems. This is the sum of all parity group capacities in all systems.
allocatedToPool	String	The sum of all pool capacities in all storage systems.
unallocatedToPool	String	The capacity available to create pools in the system. This is the difference between totalUsableCapacity and allocatedToPool.
storageSystemCount	Integer	Storage system count.
availableCapacity	String	The available capacities in all pools. This is the difference between totalUsableCapacity and usedCapacity.

Parameter	Type	Description
usedCapacity	String	The sum of all used capacity in all the pools across all storage systems.
tierSummaryItems	List	List of the tier items.
tierName	String	The name of the tier.
totalCapacity	String	Total capacity of the specified pool type in the storage system, in bytes.
freeCapacity	String	Capacity available, in bytes.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Request Example

```
https://172.17.64.116/v1/storage-systems/summary
```

Response Example


```
    {
        "totalUsableCapacity": "288965590974464",
        "allocatedToPool": "152762169950208",
        "unallocatedToPool": "136203421024256",
        "usedCapacity": "333428293632",
        "availableCapacity": "152428741656576",
        "subscribedCapacity": "1311474974720",
        "storageSystemCount": 4,
        "tierSummaryItems":
        [
            {
                "tierName": "External",
                "totalCapacity": "9907297124352",
                "freeCapacity": "9907297124352"
```

```
            },
            ...
        ]
    }
```

Getting storage system license information

You can display the license keys for the software features that are enabled on the storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/settings/licenses
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "storageSystemId": "",
  "licenseSettings": [
    {
     "productName": "",
     "productId": "",
     "installed": ,
     "licenseCapacity": {
        "permitted": {
          "unlimited": ,
          "value":
          },
          "usedCapacity": ""
        }
    },
    ...
 ]
}
```

Parameter	Type	Description
storageSystemId	String	ID of the storage system.

Parameter	Type	Description
productName	String	Name of the software application.
productId	String	Product ID of the license.
installed	Boolean	Whether a permanent license is installed.
licenseCapacity	Object	License permitted and used capacity.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Response example

```
{
    "storageSystemId": "444004",
    "licenseSettings": [
        {
            "productName": "Provisioning",
            "productId": "07",
            "installed": true,
            "licenseCapacity": {
                "permitted": {
                    "unlimited": true,
                    "value": null
                },
                "usedCapacity": "37396280246272"
            }
        },
```

```
            ...
        ]
    }
```

Adding a storage system

You can add a storage system. If the storage system includes NAS modules, the file storage is automatically added with the block storage.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems
```

Request structure

The request body structure for storage systems without an SVP is as follows:

```
{
  "password": "",
  "username": "",
  "ipAddress": "",
  "rmiPortNumber":
}
```

Parameter	Required	Type	Description
password	Yes	String	Password.
username	Yes	String	User name.
ipAddress	No	String	IP address of the SVP or GUM. Specify either ipAddress or svpIpAddress.
svpIpAddres s	No	String	IP address of the SVP or GUM. Specify either ipAddress or svpIpAddress. **Note:** This parameter is deprecated and will be removed in a future version. Use the ipAddress parameter instead.
rmiPortNumb er	No	Integer	The RMI access port number of a storage system with a virtual SVP. If not specified, default port number will be used.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
```

```
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the process.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource does not exist.

Example request

For storage systems without an SVP:

```
{
 "password": "mainte",
 "username": "mainte",
 "ipAddress": "10.145.24.12"
}
```

Updating a storage system

You can modify the credentials that are used to manage a storage system in Ops Center Administrator and you can modify the storage system name.

Note: When you update the storage system name, the change will be reflected to some views and REST API responses after the next manual refresh. To reflect it, update the storage system data in Ops Center Administrator by refreshing manually.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId
```

Use the storage system ID as the *storageSystemId*.

Request structure

The request body structure is as follows:

```
{
  "password": "",
  "username": "",
  "storageSystemName": ""
}
```

Parameter	Required	Type	Description
password*	Yes	String	Password of the storage system.
username*	Yes	String	User name of the storage system.

Parameter	Required	Type	Description
storageSystemName *	Yes	String	The name of the storage system.
* Execution needs the storageSystemName or a password and username, but not all three.			

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.

Parameter	Type	Description
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Deleting a storage system

You can delete a storage system from Ops Center Administrator.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/storage-systems/storageSystemId
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
```

```
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Switching the access point to GUM

You can switch the connection to the backend API from one DKC controller (GUM1) to another DKC controller (GUM2) to manage storage systems without an SVP in Ops Center Administrator. If one of the controllers fails and Ops Center Administrator cannot manage the storage system any longer, do this using the other controller.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/switch-access-point
```

Request structure

The request body structure is as follows:

```
{
   "primaryGumNumber":
}
```

Parameter	Required	Type	Description
primaryGumNumber	Yes	Integer	The primary GUM number.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
```

```
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.

Parameter	Type	Description
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP Name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
409	Conflict	The GUM number has already been configured.

Example request

```
{
    "primaryGumNumber": 2
}
```

Manual update

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/refresh
```

Request structure

```
{
 "storageSystemIds":[]
}
```

Parameter	Required	Type	Description
storageSystemIds	Yes	List	IDs of the manually updated storage systems in String

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
{
 "storageSystemIds":["100542","200555"]
}
```

Example Response

```
{
    "jobId": "d1f5bb45-bce4-42e6-a8f7-86fc7c407d89",
    "title": {
        "text": "Refresh storage systems",
        "messageCode": "RefreshStorageSystemsJobTitleMessage",
        "parameters": {}
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1567797062801,
    "endDate": null,
    "parentJobId": null,
    "reports": [],
    "links": [
        {
            "rel": "_self",
            "href": "/v1/jobs/d1f5bb45-bce4-42e6-a8f7-86fc7c407d89"
        }
    ],
    "tags": [
        {
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Disk management

Request	Method	URI	Role
Listing disks (on page 67)	GET	/v1/storage-systems/*storageSystemId*/disks	Storage administrator System administrator Security administrator
Getting disk details (on page 71)	GET	/v1/storage-systems/*storageSystemId*/disks/*diskId*	Storage administrator System administrator Security administrator
Updating disks (on page 74)	POST	/v1/storage-systems/*storageSystemId*/disks/*diskId*	System administrator

Listing disks

You can display a list of all disks in the storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/disks
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "resources": [
    {
      "diskId": "",
      "storageSystemId": "",
      "serialNumber": "",
      "location": "",
      "model": "",
```

```
      "capacityInBytes": ,
      "version": "",
      "speed": ,
      "type": "",
      "purpose": "",
      "parityGroupId": ""
    },
                ...
  ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
diskId	String	ID of the disk.
storageSystemId	String	ID of the storage system.
serialNumber	String	Serial number of the disk.
location	String	The location of the disk in the storage system.
model	String	Model of the disk.
capacityInBytes	Long	Drive capacity in bytes.
version	String	For storage systems with an SVP, returns the version of the disk. For storage systems without an SVP, a NULL value is returned.
speed	Integer	The speed of the disk.
type	String	Disk type: one of the following values: ▪ FMD HDE - Flash Module with compression and encryption support ▪ FMD DC2 - Flash Module Drive Data Compression ▪ FMD - Flash Module Drive ▪ SAS - Serial Attached SCSI ▪ SSD - Solid State Drive SSD(RI) - Solid State Drive (Read Intensive)

Parameter	Type	Description
		▪ SSD NVMe - Solid State Drive Non-Volatile Memory Express ▪ SSD NVMe - Solid State Drive Non-Volatile Memory Express
purpose	String	Disk utility: one of the following values: ▪ DATA - disk is used in a parity group. ▪ SPARE - hot spare disk. ▪ DATA_SWAPPED - data disk which is switched from hot spare. ▪ RESERVED - reserved, is not used for parity group creation. ▪ FREE - the disk is available for parity group creation.
parityGroupId	String	ID of the parity group that the disk belongs to.
total	Long	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

Request with JSON command:

```
https://172.17.64.116/v1/storage-systems/410209/disks
```

Example response

JSON response:


```
{
    "resources":
    [
        {
            "diskId": "6XN8GGEK0000M533SVKB",
            "storageSystemId": "410209",
            "serialNumber": "6XN8GGEK0000M533SVKB",
            "location": "HDD02-00",
            "model": "DKS5C-K300SS",
            "capacityInBytes": 288196762112,
            "version": "7F-55",
            "speed": 15000,
            "type": "SAS",
            "purpose": "DATA",
            "parityGroupId": "1-1"
        },
     {
           "diskId": "KWGLDT8F",
           "storageSystemId": "450179",
           "serialNumber": "KWGLDT8F",
           "location": "HDD00-07",
```

```
            "model": "XXXXXXXXXXXX",
            "capacityInBytes": 600000000000,
            "version": "XX-XX",
            "speed": 0,
            "type": "SSD(RI)",
            "purpose": "DATA",
            "parityGroupId": "1-2"
        },
         ...
    ],
    "total": 72,
    "nextToken": null
}
```

Getting disk details

You can display details about a specific disk in the storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/disks/diskId
```

Use the storage system number as the *storageSystemId*.

Use the ID of the disk as the *diskId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "diskId": "",
  "storageSystemId": "",
  "serialNumber": "",
  "location": "",
  "model": "",
  "capacityInBytes": ,
  "version": "",
  "speed": ,
  "type": "",
  "purpose": "",
  "parityGroupId":
}
```

Parameter	Type	Description
storageSystemId	String	ID of the storage system.
speed	Integer	The speed of the disk.
capacityInBytes	String	Drive capacity in bytes.
version	String	For storage systems with an SVP, returns the version of the disk. For storage systems without an SVP, returns Null.
diskId	String	ID of the disk.
parityGroupId	String	ID of the parity group that the disk belongs to.
purpose	String	Disk utility: one of the following values: ▪ DATA - disk is used in a parity group. ▪ SPARE - hot spare disk. ▪ DATA_SWAPPED - data disk which is switched from a hot spare. ▪ RESERVED - reserved, is not used for parity group creation. ▪ FREE - the disk is available for parity group creation.
model	String	Model of the disk.
serialNumber	String	Serial number of the disk.
location	String	The location of the disk in the storage system.
type	String	Disk type: one of the following values: ▪ FMD HDE - Flash Module with compression and encryption support ▪ FMC DC2 - Flash Module with compression support ▪ FMD - Flash Module Drive ▪ SAS - Serial Attached SCSI ▪ SSD - Solid State Drive ▪ SSD(RI) - Solid State Drive (Read Intensive)

Parameter	Type	Description
		▪ SSD NVMe - Solid State Drive Non-Volatile Memory Express ▪ SSD NVMe - Solid State Drive Non-Volatile Memory Express

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

Request with JSON command:

```
https://172.17.64.116/v1/storage-systems/410209/disks/6XN8GGEK0000M533SVKB
```

Example response

```
{
     "diskId": "6XN8GGEK0000M533SVKB",
     "storageSystemId": "410209",
     "serialNumber": "6XN8GGEK0000M533SVKB",
     "location": "HDD02-00",
     "model": "DKS5C-K300SS",
     "capacityInBytes": 288196762112,
     "version": "7F-55",
     "speed": 15000,
     "type": "SAS",
     "purpose": "DATA",
     "parityGroupId": "1-1"
}
```

Updating disks

You can update the disks in a storage system to reserve a disk as a hot spare. You cannot update disks for VSP G1000, VSP G1500, and VSP F1500 storage systems or VSP 5000 series storage systems.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/disks/diskId
```

Use the storage system ID as the *storageSystemId*.

Use the ID of the disk as the *diskId*.

Request structure

The request body structure is as follows:

```
{
  "hotSpare": ""
}
```

Parameter	Required	Type	Description
hotSpare	Yes	String	Whether a disk is reserved as a spare: Specify `Yes` to reserve a free data disk as a Hot Spare. Specify `No` to set a spare disk as a data disk and make it available for use in parity groups.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
```

```
    "createdDate":,
    "scheduledDate":,
    "startDate": ,
    "endDate": ,
    "parentJobId": ,
    "reports":
    [
    ],
    "links":
    [
       {
          "rel": "_self",
          "href": "/v1/jobs/jobId"
       }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Parity group management resources

The following are parity group and parity group template APIs:

Request	Method	URI	Role
Listing parity groups (on page 78)	GET	/v1/storage-systems/*storageSystemId*/parity-groups	Storage administrator System administrator Security administrator
Getting a parity group in a storage system (on page 83)	GET	/v1/storage-systems/*storageSystemId*/parity-groups/*parityGroupId*	Storage administrator System administrator Security administrator
Listing parity groups summary (on page 87)	GET	/v1/storage-systems/*storageSystemId*/parity-groups/summary	Storage administrator System administrator Security administrator
Listing external parity groups (on page 90)	GET	/v1/storage-systems/*storageSystemId*/external-parity-groups	Storage administrator System administrator Security administrator
Creating external parity groups (on page 93)	POST	/v1/external-parity-group-manager/create	System administrator
Initializing an external parity group (on page 98)	POST	/v1/storage-systems/*storageSystemId*/external-parity-groups/*externalParityGroupId*/initialize	System administrator
Deleting external parity groups (on page 101)	POST	/v1/external-parity-group-manager/delete	System administrator
Getting a specific external parity group in a storage system (on page 105)	GET	/v1/storage-systems/*storageSystemId*/external-parity-groups/*externalParityGroupId*	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Listing external parity groups summary (on page 107)	GET	/v1/storage-systems/*storageSystemId*/external-parity-groups/summary	Storage administrator System administrator Security administrator
Creating a parity group (on page 109)	POST	/v1/storage-systems/*storageSystemId*/parity-groups	System administrator
Enabling compression on a parity group (on page 113)	POST	/v1/storage-systems/*storageSystemId*/parity-groups/*parityGroupId*/compress	System administrator
Initializing a parity group (on page 116)	POST	/v1/storage-systems/*storageSystemId*/parity-groups/*parityGroupId*/initialize	System administrator
Deleting a parity group (on page 120)	DELETE	/v1/storage-systems/*storageSystemId*/parity-groups/*parityGroupId*	System administrator

The following are parity group template APIs:

Request	Method	URI	Role
Getting parity group template (on page 123)	GET	/v1/storage-systems/*storageSystemId*/templates/parity-group	Storage Administrator System Administrator Security Administrator
Creating parity group template (on page 126)	POST	/v1/storage-systems/*storageSystemId*/templates/parity-group	System Administrator

Listing parity groups

You can display a list of all parity groups in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/parity-groups
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
    "resources":
    [
        {
            "parityGroupId": "",
            "storageSystemId": "",
            "raidLevel": "",
            "raidLayout": "",
            "diskSpec":
            {
                "type": "",
                "speed": ,
                "capacityInBytes":
            },
            "totalCapacityInBytes": ,
            "uninitializedCapacityInBytes": ,
            "availableCapacityInBytes": ,
            "physicalCapacityInBytes": ,
            "status": "",
            "encryption": ,
            "compression":,
            "nasBoot":
        },
                                ...
   ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
resources	List	List of parity groups in a storage system.
Id	String	ID of the parity group.

Parameter	Type	Description
storageSystemId	String	ID of the storage system.
raidLevel	String	RAID level. Valid values: RAID1+0, RAID5, or RAID6.
raidLayout	String	RAID layout. This RAID layout should be of the specified RAID level. Valid values: For VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P) For VSP G1000, VSP G1500, VSP F1500, VSP 5000 series: ▪ RAID5: (3D+1P), (7D+1P) ▪ RAID6: (6D+2P), (14D+2P) ▪ RAID1+0: (2D+2D), (2D+2D)x2
diskSpec	Object	Disk type, speed, and capacity of the disks that are used to create the parity group. If a parity group is created outside of Ops Center Administrator and consists of multiple disk types, only one disk type is output in this field.
type	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), or SSD NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.
capacityInBytes	Long	Total capacity, in bytes.
totalCapacityInBytes	Long	Total capacity of the parity group.
uninitializedCapacityInBytes	Long	Free capacity that can be initialized.
availableCapacityInBytes	Long	The capacity of unused volumes in the parity group that can be used for the pool.
physicalCapacityInBytes	Long	Available physical capacity of a parity group, in bytes.

Parameter	Type	Description
status	String	Status of the parity group: ▪ In Use: The parity group is being used by a storage pool. ▪ Available: The parity group is not being used for any storage pools. It is available for pool creation. ▪ Available_Physical: The parity group is not being used for any storage pools. Compression is enabled on the parity group and physical capacity of the parity group is available for pool creation. Not applicable to parity groups that are not enabled for compression. ▪ Uninitialized: The parity group either has no volumes, at least one of the pool volumes is in Blocked status, or one or more partitions is uninitialized and has a size greater than 16,787,456 blocks. ▪ Quick_Formatting: The time taken by the service processor to format the pool volumes in the parity groups. To make the formatting process quick, the drive is not fully verified, the files are still there, and the volume can be rebuilt to gain access to the files again. ▪ Formatting: The full format takes longer than a quick format because the service processor fully scans the hard drive. ▪ Unsupported_Attached: Either one or more volumes has a path to a storage port, or multiple volumes are used for multiple pools. ▪ Unsupported_Inaccessible_Resource_Group: The parity group and at least one of its pool volumes are in different resource groups and the user does not have access to one of the resource groups when using HDvM - SN.
encryption	Boolean	Whether the data is encrypted.
compression	Boolean	Whether the data is compressed. accelerated compression is only supported on FMD DC2 drives.

Parameter	Type	Description
nasBoot	Boolean	Whether a parity group consists of NAS startup volumes. Values are TRUE or FALSE.
total	Long	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/parity-groups
```

JSON response:

```
    {
        "resources":
        [
            {
                "parityGroupId": "1-1",
```

```
                "storageSystemId": "410209",
                "raidLevel": "RAID5",
                "raidLayout": "3D+1P",
                "diskSpec":
                {
                    "type": "SAS",
                    "speed": 10000,
                    "capacityInBytes": 576393524736
                },
                "totalCapacityInBytes": 1729179942912,
                "uninitializedCapacityInBytes": 4718592,
                "availableCapacityInBytes": 1729179942912,
                "physicalCapacityInBytes": 5277649993728,
                "status": "AVAILABLE",
                "encryption": false,
                "compression": false,
                "nasBoot": true
            },
            {
             "parityGroupId": "1-1",
             "storageSystemId": "410209",
             "raidLevel": "RAID5",
             "raidLayout": "3D+1P",
             "diskSpec": {
                 "type": "SSD(RI))",
                 "speed": 0,
                 "capacityInBytes": 600000000000
             },
             "totalCapacityInBytes": 1729179942912,
             "uninitializedCapacityInBytes": 0,
             "availableCapacityInBytes": 0,
             "physicalCapacityInBytes": 1729179942912,
             "status": "IN_USE",
             "encryption": false,
             "compression": false,
             "nasBoot": false
         }                                          ...
          ],
        "total": 12,
        "nextToken": null
          }
```


Getting a parity group in a storage system

You can view detailed information about a specific parity group in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/parity-groups/parityGroupId
```

Use the storage system ID as the *storageSystemId*.

Use the parity group ID as the *parityGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
        "parityGroupId": "",
        "storageSystemId": "",
        "raidLevel": "",
        "raidLayout": "",
        "diskSpec":
        {
            "type": "",
            "speed": ,
            "capacityInBytes":
        },
        "totalCapacityInBytes": ,
        "uninitializedCapacityInBytes": ,
        "availableCapacityInBytes": ,
        "physicalCapacityInBytes": ,
        "status": "",
        "encryption": ,
        "compression": ,
        "nasBoot":
}
```

Parameter	Type	Description
Id	String	ID of the parity group.
storageSystemId	String	ID of the storage system.
raidLevel	String	RAID level. Valid values: RAID1+0, RAID5, or RAID6.
raidLayout	String	RAID layout. This RAID layout should be of the specified RAID level. Valid values:

Parameter	Type	Description
		For VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P) For VSP G1000, VSP G1500, VSP F1500, VSP 5000 series: ▪ RAID5: (3D+1P), (7D+1P) ▪ RAID6: (6D+2P), (14D+2P) ▪ RAID1+0: (2D+2D), (2D+2D)x2
diskSpec	Object	Disk type, speed, and capacity of the disks that are used to create the parity group. If a parity group is created outside of Ops Center Administrator and consists of multiple disk types, only one disk type is output in this field.
type	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), or SSD NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.
capacityInBytes	Long	Total capacity, in bytes.
totalCapacityInBytes	Long	Total capacity of the parity group.
uninitializedCapacityInBytes	Long	Free capacity that is available to be initialized.
availableCapacityInBytes	Long	The capacity of unused volumes in the parity group that can be used for the pool.
physicalCapacityInBytes	Long	Available physical capacity of a parity group, in bytes.

Parameter	Type	Description
status	String	Status of the parity group: ▪ In Use: The parity group is being used by a storage pool. ▪ Available: The parity group is not being used for any storage pools. It is available for pool creation. ▪ Uninitialized: The parity group either has no volumes, at least one of the pool volumes is in Blocked status, or one or more partitions is uninitialized and has a size greater than 16,787,456 blocks. ▪ Quick-Formatting: The time taken by the service processor to format the pool volumes in the parity groups. To make the formatting process quick, the drive is not fully verified, the files are still there, and the volume can be rebuilt to gain access to the files again. ▪ Formatting: The full format takes longer than a quick format because the service processor fully scans the hard drive. ▪ Externalized: The parity groups assigned to the external storage system. ▪ Unsupported_Attached: At least one of the volumes has a path to a storage port or volumes are used for multiple pools. ▪ Unsupported_Inaccessible_Resource_Group: The parity group and at least one of its pool volumes are in different resource groups and the user does not have access to one of the resource groups when using HDvM - SN.
encryption	Boolean	Whether the data is encrypted.
compression	Boolean	Whether or not the data is compressed. accelerated compression is only supported on FMD DC2 drives.
nasBoot	Boolean	Whether a parity group consists of NAS startup volumes. Values are TRUE or FALSE.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/parity-groups/1-9
```

Example response

```
{
        "parityGroupId": "1-9",
        "storageSystemId": "410209",
        "raidLevel": "RAID5",
        "raidLayout": "3D+1P",
        "diskSpec":
        {
            "type": "SAS",
            "speed": 7200,
            "capacityInBytes": "3916143603200"
        },
        "totalCapacityInBytes": 11748430577664,
        "uninitializedCapacityInBytes": 4718592,
        "availableCapacityInBytes": 0,
        "physicalCapacityInBytes": 5277649993728,
        "status": "IN_USE",
        "encryption": false,
        "compression": false
        "nasBoot": false
  }
```

Listing parity groups summary

You can display a summary of parity group items.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/parity-groups/summary
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
    "parityGroupSummaryItems":
    [
        {
            "diskType": "",
            "speed": "",
            "size": "",
            "tierName": "",
            "numberOfAvailableDisks": ,
            "numberOfExistingHotSpares": ,
            "totalCapacity": ,
            "totalFreeParityGroupCapacity": ,
            "numberOfParityGroups":
        },
   ...
   ]
}
```

Parameter	Type	Description
parityGroupSummaryItems	List	List of parity group items in a storage system.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.
size	Long	Size of the volume, in bytes.
tierName	String	Custom name of the tier, such as Diamond, Platinum, Gold, Silver, Bronze, or External.

Parameter	Type	Description
numberOfAvailableDisks	Integer	The number of available disks for parity group creation.
numberOfExistingHotSpares	Integer	Based on best practices, the number of existing hot spare disks needed for the disk type.
totaCapacity	Long	Total capacity of all parity groups for the disk type.
totalFreeParityGroupCapacity	Long	Capacity available of all parity groups for the disk type.
numberOfParityGroups	Integer	The number of parity groups for the disk type.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/storage-systems/410209/parity-groups/summary
```

Example response

```
{
    "parityGroupSummaryItems":[
       {
           "diskType": "SSD(RI)",
           "speed": "0",
```

```
            "size": 600000000000,
            "tierName": "Platinum",
            "numberOfAvailableDisks": 0,
            "numberOfExistingHotSpares": 0,
            "totalCapacity": 8645899714560,
            "totalFreeCapacity": 1152786628608,
            "numberOfParityGroups": 5
        },
         {
             "diskType": "SAS",
             "speed": "7200",
             "size": "3916143603200",
             "tierName": "Bronze",
             "numberOfAvailableDisks": 3,
             "numberOfExistingHotSpares": 1,
             "totalCapacity": 11748425859072,
             "totalFreeParityGroupCapacity": 11748425859072,
             "numberOfParityGroups": 5
         },
    ...
    ]
}
```

Listing external parity groups

External parity groups are parity groups in a storage system that are connected to an onboarded storage system. The ability to view external parity groups helps manage multiple storage systems using a single storage system. You can display a list of external parity groups in a storage system that has been registered with Storage Navigator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/external-parity-groups
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "resources": [
    {
      "externalParityGroupId": "",
      "storageSystemId": "",
      "availableCapacity": ,
      "capacity": ,
```

```
      "externalStorageSystemId": "",
      "externalStorageVendor": "",
      "externalStorageProduct": ""
    },
   ...
   ]
   "total": ,
   "nextToken":
}
```

Parameter	Type	Description
resources	List	List of external parity groups in a storage system.
externalParityGroupId	String	ID of the parity group on external volumes.
parityGroupStatus	String	The status of the parity group. The status can be: ▪ `IN_USE`: The parity group is being used by a storage pool. ▪ `AVAILABLE`: The parity group is not being used for any storage pools. It is available for pool creation and expansion. ▪ `UNINITIALIZED`: The parity group either has no volumes, at least one of the pool volumes is in Blocked status, or one or more partitions is uninitialized and has a size greater than 16,777,216 blocks. ▪ `FORMATTING`: The volumes in the external parity groups are being formatted.

Parameter	Type	Description
		▪ `UNSUPPORTED_ATTACHED`: At least one of volumes has a path to a storage port or volumes are used for multiple pools. ▪ `UNSUPPORTED_INACCESSIBLE_RESOURCE_GROUP`: The parity group and at least one of its pool volumes are in different resource groups and the user does not have access to one of the resource groups when using Storage Navigator or Hitachi Command Suite.
uninitializedCapacity	Long	Free capacity that can be initialized in bytes.
ddmEnabled	Boolean	Whether the parity group is of type DDM. Values are true or false.
externalParityGroupId	String	ID of the parity group on external volumes.
storageSystemId	String	ID of the storage system.
availableCapacity	Long	Unused capacity of the resource, in bytes.
capacity	Long	Total capacity of the system drive, in bytes.
externalStorageSystemId	String	ID of the external storage system.
externalStorageVendor	String	Name of the external storage system.
externalStorageProduct	String	Model of the external storage system.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/storage-systems/410209/external-parity-groups
```

JSON response:

```
{
  "resources": [
    {
      "externalParityGroupId": "1-1",
      "storageSystemId": "410209",
      "availableCapacity": 1729179942912,
      "capacity": 1729179942912,
      "externalStorageSystemId": "420007",
      "externalStorageVendor": "EMC",
      "externalStorageProduct": "Symmetrix"
    },
    ...
   ]
   "total": 4,
   "nextToken": null
}
```

Creating external parity groups

External parity groups are parity groups in a storage system that are connected to an onboarded storage system. You can create and initialize external parity groups.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/external-parity-group-manager/create
```

Request structure

```
{
    "storageSystemId": "",
    "externalDevices": [
        {
            "externalDeviceId": "",
```

```
            "externalPaths": [
                {
                    "portId": "",
                    "externalWwn": "",
                    "externalIscsiInformation": {
                        "iscsiName": "",
                        "ipAddress": ""
                    },
                    "externalLun": ""
                 }
            ]
        }
    ],
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	The storage system ID.
externalDevices	Yes	List	The list of the external devices.
externalDeviceId	No	String	The external device ID.
externalPaths	No	List	The list of the external paths. If you do not specify a path, the method automatically selects an available path.
portId	No	String	The storage port ID of the internal storage system. This parameter is required when you specify `externalPaths`.
externalWwn	No	String	The WWN of the external storage system's storage port. The `externalWwn` or `externalIscsiInformation` parameter is required when you specify `externalPaths`.
externalIscsiInformation	No	Object	iSCSI information for the external storage system's storage port. The `externalWwn` or `externalIscsiInformation` parameter is required when you specify `externalPaths`.
iscsiName	No	String	The iSCSI storage port target name of the external storage system. This parameter is required when you specify `externalIscsiInformation`.

Parameter	Required	Type	Description
ipAddress	No	String	The storage port's IP address of the external storage system. This parameter is required when you specify `externalIscsiInformation`.
externalLun	No	Integer	The LUN ID. This parameter is required when you specify `externalPaths`.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad Request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "storageSystemId": "410209",
    "externalDevices": [
        {
        "externalDeviceId": " XYZ 50405F7702BC",
        "externalPaths": [
            {
                "portId": "CL1-E",
                "externalWwn": "50060E80125F7700",
                "externalIscsiInformation": null,
                "externalLun": 12
            },
            {
                "portId": "CL1-E",
                "externalWwn": "50060E80125F7710",
                "externalIscsiInformation": null,
                "externalLun": 12
            }
        ]
        }
    ]
}
```

Example response

```
{
    "jobId": "cb01b71a-36f0-41ae-9060-2d82517eb857",
    "title": {
        "text": "Create external parity groups. Storage System:"410209"",
        "messageCode": "CreateExternalParityGroupsTitleMessage",
        "parameters":
        {
```

```
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1455837568839,
    "endDate": null,
    "parentJobId": null,
    "reports":
    [
    ],
    "links":
    [
    {
        "rel": "_self",
        "href": "/v1/jobs/cb01b71a-36f0-41ae-9060-2d82517eb857"
    }
    ],
    "tags":
    [
    ],
    "isSystem": false
}
```

Initializing an external parity group

External parity groups are parity groups in a storage system that are connected to an onboarded storage system. You can initialize an external parity group.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/{storageSystemId}/external-parity-groups/
{externalParityGroupId}/initialize
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
```

```
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.

Parameter	Type	Description
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad Request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example

```
{
    "jobId": "cb01b71a-36f0-41ae-9060-2d82517eb859",
    "title": {
```

```
        "text": "Initialize external parity group",
        "messageCode": "InitializeExternalParityGroupJobTitleMessage",
        "parameters":
        {
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1455837568839,
    "endDate": null,
    "parentJobId": null,
    "reports":
    [
    ],
    "links":
    [
    {
        "rel": "_self",
        "href": "/v1/jobs/cb01b71a-36f0-41ae-9060-2d82517eb859"
    }
    ],
    "tags":
    [
    ],
    "isSystem": false
}
```

Deleting external parity groups

External parity groups are parity groups in a storage system that are connected to an onboarded storage system. You can delete external parity groups.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/external-parity-group-manager/delete
```

Request structure

```
{
    "storageSystemId": "",
    "externalParityGroupIds": [""],
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	The storage system ID.

Parameter	Required	Type	Description
externalParityGroupId	Yes	String	The list of the external parity group IDs to be deleted.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.

Parameter	Type	Description
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad Request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "storageSystemId": "410209",
    "externalParityGroupIds": [ "1-45", "1-46" ],
}
```

Example response

```
{
    "jobId": "cb01b71a-36f0-41ae-9060-2d82517eb857",
    "title": {
        "text": "Delete external parity groups. Storage System:"410209"",
        "messageCode": "DeleteExternalParityGroupsTitleMessage",
        "parameters":
        {
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1455837568839,
    "endDate": null,
    "parentJobId": null,
    "reports":
    [
    ],
    "links":
    [
    {
        "rel": "_self",
        "href": "/v1/jobs/cb01b71a-36f0-41ae-9060-2d82517eb857"
    }
    ],
    "tags":
```

```
    [
    ],
    "isSystem": false
}
```

Getting a specific external parity group in a storage system

You can display detailed information about a specific external parity group in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/external-parity-groups/
externalParityGroupId
```

Use the storage system ID as the *storageSystemId*.

Use the external parity group ID as the *externalParityGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
      "externalParityGroupId": "",
      "storageSystemId": "",
      "availableCapacity": "",
      "capacity": "",
      "externalStorageSystemId": "",
      "externalStorageVendor": "",
      "externalStorageProduct": ""
}
```

Parameter	Type	Description
externalParityGroupId	String	ID of the parity group on external volumes.

Parameter	Type	Description
parityGroupStatus	String	The status of the parity group. The status can be: ▪ `IN_USE`: The parity group is being used by a storage pool. ▪ `AVAILABLE`: The parity group is not being used for any storage pools. It is available for pool creation and expansion. ▪ `UNINITIALIZED`: The parity group either has no volumes, at least one of the pool volumes is in Blocked status, or one or more partitions is uninitialized and has a size greater than 16,777,216 blocks. ▪ `FORMATTING`: The volumes in the external parity groups are being formatted. ▪ `UNSUPPORTED_ATTACHED`: At least one of volumes has a path to a storage port or volumes are used for multiple pools. ▪ `UNSUPPORTED_INACCESSIBLE_RESOURCE_GROUP`: The parity group and at least one of its pool volumes are in different resource groups and the user does not have access to one of the resource groups when using Storage Navigator or Hitachi Command Suite.
uninitializedCapacity	Long	Free capacity that can be initialized in bytes.
ddmEnabled	Boolean	Whether the parity group is of type DDM. Values are true or false.
storageSystemId	String	ID of the storage system.
availableCapacity	Long	Unused capacity of the resource, in bytes.
capacity	Long	Total capacity of the system drive, in bytes.
externalStorageSystemId	String	ID of the external storage system.

Parameter	Type	Description
externalStorageVendor	String	Name of the external storage system.
externalStorageProduct	String	Model of the external storage system.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/storage-systems/410209/external-parity-groups/1-1
```

JSON response:

```
{
      "externalParityGroupId": "1-1",
      "storageSystemId": "410209",
      "availableCapacity": "1729179942912",
      "capacity": "1729179942912",
      "externalStorageSystemId": "420007",
      "externalStorageVendor": "EMC",
      "externalStorageProduct": "Symmetrix"
}
```

Listing external parity groups summary

You can display a summary of external parity groups.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/external-parity-groups/
summary
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "totalCapacity": ,
  "totalFreeCapacity": ,
  "numberOfExternalParityGroups":
}
```

Parameter	Type	Description
totalCapacity	Long	Total capacity of all external parity groups available for a storage system.
totalFreeCapacity	Long	Free capacity of all external parity groups available for a storage system.
numberOfExternalParityGroups	Integer	The number of external parity groups.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/external-parity-groups/summary
```

Example response

```
{
  "totalCapacity": 2881966571520,
  "totalFreeCapacity": 2881966571520,
  "numberOfExternalParityGroups": 2
}
```

Creating a parity group

You can create a parity group with the requested RAID configuration by using the specified disks. Additionally, you can also create and format the logical device (LDEV) on the parity group, so that the parity group is ready for pool creation. You cannot create parity groups on VSP G1000, VSP G1500, or VSP F1500 storage systems or on VSP 5000 series storage systems. To set encryption on the parity groups on VSP G1000, VSP G1500, VSP F1500 or VSP 5000 series, set it in Storage Navigator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/parity-groups
```

You can only view an external parity group but you are not able to create it using the API.

Use the storage system ID as the *storageSystemId*.

Request structure

The request body structure is as follows:

```
{
    "diskIds":[""],
    "raidLevel":"",
    "raidLayout":"",
    "encryption":""
}
```

Parameter	Required	Type	Description
diskIds	Yes	Integer	List of diskIds that are used to create the parity group.
raidLevel	Yes	String	RAID level. Valid values: RAID0, RAID1, RAID1+0, RAID0+1, RAID2, RAID3, RAID4, RAID5, or RAID6.
raidLayout	Yes	String	The RAID layout of the specified RAID level. For VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D +2P)
encryption	No	Boolean	Whether the data is encrypted. To set an encryption on the parity group, set the encryption parameter to true.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
```

```
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.

Parameter	Type	Description
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

The request with JSON command:

```
{"diskIds": [ "PVKEAR6B", "PVKB5TLB", "PVK075SB", "S0M1MR870000B422JRR6" ],
"raidLevel": "RAID5","raidLayout": "3D+1P","encryption": true}
```

Example request

```
https://172.17.64.109/storage-systems/410209/parity-groups
```

Example response

```
{
        "jobId": "cb01b71a-36f0-41ae-9060-2d82517eb858",
```

```
        "title":
        {
            "text": "Creating parity group",
            "messageCode": "CreateParityGroupJobTitleMessage",
            "parameters":
            {
            }
        },
        "user": "sysadmin",
        "status": "IN_PROGRESS",
        "startDate": 1455837568839,
        "endDate": null,
        "parentJobId": null,
        "reports":
        [
        ],
        "links":
        [
            {
                "rel": "_self",
                "href": "/v1/jobs/cb01b71a-36f0-41ae-9060-2d82517eb858"
            }
        ],
        "tags":
        [
        ],
        "isSystem": false
    }
```


Enabling compression on a parity group

You can enable data compression on FMD DC2 disks to use more virtual capacity in a parity group than the actual usable capacity.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/parity-groups/parityGroupId/
compress
```

Use the storage system ID as the *storageSystemId*.

Use the parity group ID as the *parityGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/storage-systems/410209/parity-groups/1-9/compress
```

Initializing a parity group

You can create and initialize pool volumes on a parity group if the pool volumes have not been created. You can also format any pool volumes that are in the blocked state.

This API is supported only when the parity group status is available or uninitialized.

- The parity group status is `Uninitialized`. This occurs when the parity group has no volumes, at least one of the pool volumes is in Blocked state, or one or more partitions is uninitialized and has a size greater than 16,787,456 blocks.
- The parity group status is `Available` but the available capacity is much less than the total capacity. This occurs when the pool volumes on the parity group do not account for the entire parity group capacity and there are unused partitions on the parity group.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/parity-groups/parityGroupId/
initialize
```

Use the storage system ID as the *storageSystemId*.

Use the parity group ID as the *parityGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

```
https://172.17.64.108/v1/storage-systems/410209/parity-groups/1-2/initialize
```

Example response


```
{
 "jobId": "a88bd309-fe36-4d68-b3b3-342d1edf20e8",
  "title": {
     "text": "Initialize parity group",
     "messageCode": "InitializeParityGroupSystemJobPreTitleMessage",
     "parameters": {}
    },
    "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129643172,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/a88bd309-fe36-4d68-b3b3-342d1edf20e8"
        }
    ],
   "tags": [],
   "isSystem": false
}
```

Deleting a parity group

You can delete a parity group from a supported storage system except VSP G1000, VSP G1500, VSP F1500 or VSP 5000 series models. When you delete a parity group, the disks that are in the parity group are no longer in use. You can then remove the storage system or reconfigure the storage system with another RAID configuration.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/storage-systems/storageSystemId/parity-groups/
parityGroupId
```

Use the storage system ID as the *storageSystemId*.

Use the parity group ID as the *parityGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
```

```
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.

Parameter	Type	Description
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/parity-groups/1-9
```

Example response

```
{
        "jobId": "c2aba251-b4a5-44d1-a846-54d32c2c33ff",
        "title":
        {
            "text": "Delete parity group",
            "messageCode": "DeleteParityGroupJobTitleMessage",
            "parameters":
            {
            }
        },
        "user": "sysadmin",
        "status": "IN_PROGRESS",
        "startDate": 1455838105134,
        "endDate": null,
        "parentJobId": null,
```

```
        "reports":
        [
        ],
        "links":
        [
            {
                "rel": "_self",
                "href": "/v1/jobs/c2aba251-b4a5-44d1-a846-54d32c2c33ff"
            }
        ],
        "tags":
        [
        ],
        "isSystem": false
    }
```

Getting parity group template

You can display a list of the possible methods for creating parity groups on the storage system, based on best practices. Use one or more methods from this list to configure parity groups. Alternatively, you can configure parity groups by selecting disks and allocating them to parity groups. For VSP G1000, VSP G1500, VSP F1500 or VSP 5000 series, you cannot get parity group templates.

For each disk type, this API returns the various RAID options for creating parity groups. For each RAID option, it shows how many parity groups can be created and the available usable capacity. It also identifies the best RAID configuration for every disk type and the number of spare disks that must be assigned based on best practices.

Additionally, this API returns the number of total disks for a given disk type that are available and the number of spare disks that are already allocated.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/templates/parity-group
```

Use the storage system ID as the *storageSystemId.*

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
    "parityGroupTemplateItems":
    [
        {
            "diskType": "",
```

```
            "speed": ,
            "size": "",
            "totalNumberOfDisks": ,
            "numberOfAvailableDisks": ,
            "numberOfNewHotSpares": ,
            "numberOfExistingHotSpares": ,
            "raidOptions":
            [
                {
                    "raidLayout": "",
                    "raidLevel": "",
                    "numberOfDisksForRaidLayout": ,
                    "numberOfParityGroups": ,
                    "usableCapacity": "",
                    "isDefault":,
                    "numberOfUnusedDisks":
                },
              ]
                                    }
    ]
}
```

Parameter	Type	Description
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	The speed of the disk.
size	String	Size of the resource, in bytes.
totalNumberOfDisks	Integer	Total number of specific disk type.
numberOfAvailableDisks	Integer	The number of available disks for parity group creation.
numberOfNewHotSpares	Integer	Based on best practices, the number of additional hot spare disks needed for the disk type.
numberOfExistingHotSpares	Integer	The number of existing hot spare disks of the specific disk type.
raidOptions	List	List of RAID option parity group template items.
raidLevel	String	RAID level. Valid values: RAID1+0, RAID5, or RAID6.
raidLayout	String	RAID layout. This RAID layout should be of the specified RAID level. Valid values:

Parameter	Type	Description
		For VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P)
numberOfDisksForRaidLayout	Integer	The number of disks that are used to create a parity group with the RAID layout.
numberOfParityGroups	Integer	The maximum number of parity groups that can be created for the RAID layout.
usableCapacity	Long	Usable capacity of the parity group, in bytes.
isDefault	Boolean	True if RAID layout is the best RAID layout for the disk type.
numberOfUnusedDisks	Integer	The number of disks that are left unused after creating parity groups with this RAID layout.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/templates/parity-group
```

Example response

```
{
    "parityGroupTemplateItems":
 [
      {
           "diskType": "SSD(RI)",
           "speed": 0,
           "size": 600000000000,
           "totalNumberOfDisks": 24,
           "numberOfAvailableDisks": 0,
           "numberOfNewHotSpares": 1,
           "numberOfExistingHotSpares": 0,
           "raidOptions": [
              ...
           ]
       },
       {
           "diskType": "SAS",
           "speed": 7200,
           "size": "3916143603200",
           "totalNumberOfDisks": 24,
           "numberOfAvailableDisks": 3,
           "numberOfNewHotSpares": 0,
           "numberOfExistingHotSpares": 1,
           "raidOptions":
           [
               {
                   "raidLayout": "6D+1P",
                   "raidLevel": "RAID5",
                   "numberOfDisksForRaidLayout": 7,
                   "numberOfParityGroups": 0,
                   "usableCapacity": "0",
                   "isDefault": false,
                   "numberOfUnusedDisks": 3
               }
    ]
       }
  ]
}
```

Creating parity group template

You can configure parity groups that are based on best practices when adding new disks to a storage system. You can specify the RAID configuration and the number of parity groups to be created for each disk type in the storage system. For VSP G1000, VSP G1500, VSP F1500 or VSP 5000 series models, you cannot create a parity group template using this API.

This API does the following:

- Based on the total number of disks of each disk type, it identifies the number of spare disks to be reserved and the number of spare disks to be allocated.
- Creates the required number of parity groups.
- If the RAID level and layout are not specified, Ops Center Administrator creates and formats the pool volumes for each parity group.

Configuring parity groups with this API allows you to use a template that is based on the following best practices:

Best practice 1: Hot spare disk

Ops Center Administrator determines the ratio of hot spare disks per disk type and the selection of hot spare disks from the following supported types:

- SSD: 1 per 32
- SSD(RI): 1 per 32
- FMD: 1 per 24
- FMD DC2: 1 per 24
- SAS: 1 per 32

Best practice 2: RAID configuration and layout

Ops Center Administrator gives a best-practice RAID configuration and the number of disks per disk type, speed, and model based on the following information:

- SATA, SSD, SSD(RI), FMD, SAS, FMD DC2: RAID 6: 6D+2
- SAS 15K, SAS 10K: RAID 6: 6D+2
- SAS 7.2K RAID 6: 14D+2

Best practice 3: Disk selection

Disks are selected to create an individual parity group. The disks should be identical in terms of disk type, speed, and capacity.

Best practice 4: Logical device (LDEV) creation

Create LDEVs on parity groups that can be used as pool volumes for data protection pools.

The API supports the following workflow for configuring parity groups:

For each disk type:

- Get the disk and identify the total number of disks needed based on best practice 1.
- Calculate the number of hot spare disks needed based on best practice 1.
- Assign the hot spare disks based on best practice 1.

For every different speed for the chosen disk type:

- Determine the RAID type and layout based on best practice 2 or user input, if provided.
- Based on the layout, calculate the number of parity groups to be created and the size of each parity group for this disk type and speed.

For each parity group to be created:

- Select the disk based on best practice 3.
- Create the parity group.
- Create LDEVs on the parity group based on best practice 4.
- Initialize and format LDEVs.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/templates/parity-group
```

Use the storage system ID as the *storageSystemId*.

Request structure

The request body structure is as shown:

```
{
"createParityGroupItems":
[
{
"diskType":"",
"speed":,
"size":,
"encryption":,
"raidLevel":"",
"raidLayout":"",
"numberOfParityGroups":
}
]
}
```

Parameter	Required	Type	Description
diskType	Yes	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, SCM NVMe, or FMD DC2, the speed is 0.
size	Yes	Long	Size of the resource, in bytes.
encryption	No	Boolean	Whether the data is encrypted. To set an encryption on the parity group, set the encryption parameter to true.

Parameter	Required	Type	Description
raidLevel	Yes	String	RAID level. Valid values: RAID0, RAID1, RAID1+0, RAID0+1, RAID2, RAID3, RAID4, RAID5, or RAID6.
raidLayout	Yes	String	The RAID layout of the specified RAID level. For VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P) and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P)
numberOfParityGroups	Yes	Integer	The number of parity groups to be created. This should be less than or equal to the maximum number of parity groups that can be created for the RAID layout with the specified disk type.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
```

```
        {
           "rel": "_self",
           "href": "/v1/jobs/jobId"
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Parameter	Type	Description
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/templates/parity-group
```

Example request

```
{
"createParityGroupItems":
[
{
"diskType":"SAS",
"speed":10000,
"size":1729286481408,
"encryption":false,
"raidLevel":"RAID6",
"raidLayout":"6D+2P",
```

```
"numberOfParityGroups":1
}
]
}
```

Pool management resources

The following are pool management APIs:

Request	Method	URI	Role
Listing pools (on page 133)	GET	/v1/storage-systems/*storageSystemId*/storage-pools	Storage administrator System administrator Security administrator
Getting a specific pool (on page 146)	GET	/v1/storage-systems/*storageSystemId*/storage-pools/*storagePoolId*	Storage administrator System administrator Security administrator
Getting pool summaries (on page 158)	GET	/v1/storage-systems/*storageSystemId*/storage-pools/summary	Storage administrator System administrator Security administrator
Creating a pool (on page 160)	POST	/v1/storage-systems/*storageSystemId*/storage-pools	Storage administrator
Updating a pool (on page 167)	POST	/v1/storage-systems/*storageSystemId*/storage-pools/*storagePoolId*	Storage administrator
Deleting a pool (on page 174)	DELETE	/v1/storage-systems/*storageSystemId*/storage-pools/*storagePoolId*	Storage administrator

The following are pool management template APIs:

Request	Method	URI	Role
Getting pool templates (on page 177)	GET	/v1/storage-systems/*storageSystemId*/templates/pool	Storage Administrator System Administrator Security Administrator
Getting a specific pool template (on page 180)	GET	/v1/storage-systems/*storageSystemId*/templates/pool/*storagePoolId*	Storage Administrator System Administrator Security Administrator
Creating pool template (on page 183)	POST	/v1/storage-systems/*storageSystemId*/templates/pool	Storage Administrator
Updating a pool template (on page 190)	POST	/v1/storage-systems/*storageSystemId*/templates/pool/*storagePoolId*	Storage Administrator

Listing pools

You can display a list all the pools in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/storage-pools
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
"resources": [
        {
            "storagePoolId": ,
            "storageSystemId": "",
            "label": "",
```

```
            "capacityInBytes": ,
            "usedCapacityInBytes": ,
            "availableCapacityInBytes": ,
            "usedSubscribedCapacityInBytes": ,
            "logicalCapacityInBytes": ,
            "usedLogicalCapacityInBytes": ,
            "availableLogicalCapacityInBytes": ,
            "suspendSnapshot": ,
            "type": "",
            "utilizationThreshold1": ,
            "utilizationThreshold2": ,
            "subscriptionLimit": {
                "unlimited": ,
                "value":
            },
            "usedSubscription": ,
            "availableSubscription": {
                "unlimited": ,
                "value":
            },
            "status": "",
            "parityGroups": [
                {
                    "id": "",
                    "encryption": ,
                    "compression":
                }
            ],
            "externalParityGroupIds": [],
            "tiers": [
                {
                    "tier": "",
                    "capacity": ,
                    "usedCapacity": ,
                    "usage": {
                        "unlimited": ,
                        "value":
                    },
                    "bufferSpace": {
                        "newPageAssignment": {
                            "unlimited": ,
                            "value":
                        },
                        "tierRelocation": {
                            "unlimited": ,
                            "value":
                        }
                    },
                    "performanceUtilization": {
                        "unlimited": ,
                        "value":
```

```
                }
            }
        ],
        "tieringMode": "",
        "monitoringMode": "",
        "monitoringCycle": "",
        "monitoringPeriodStart": "",
        "monitoringPeriodEnd": "",
        "activeFlashEnabled": ,
        "relocationSpeed": ,
        "ddmEnabled": ,
        "encrypted": "",
        "fmcCompressed": "",
        "deduplicationEnabled": ,
        "compressionDetails": {
            "compressionRate": ,
            "deduplicationRate": ,
            "savingsPercentage":
        },
        "fmcCompressionDetails": {
            "expansionRate": ,
            "compressionRate": ,
            "savingsPercentage":
        },
        "deduplicationSystemDataCapacityInBytes": ,
        "nasBoot": ,
        "dataReductionSavingsRate": ,
        "capacityEfficiencyRate": ,
        "totalEfficiency": {
          "totalEfficiencyRate": {
            "status": "",
            "value":
          },
          "dataReductionEfficiency": {
            "totalDataReductionRate":  {
              "status": "",
              "value":
            },
            "softwareSavingEfficiency": {
              "totalSoftwareSavingRate":  {
                "status": "",
                "value":
              },
              "compressionRate":  {
                "status": "",
                "value":
              },
              "deduplicationRate":  {
                "status": "",
                "value":
              },
```

```
                  "patternMatchingRate":  {
                    "status": "",
                    "value":
                  }
                },
                "fmdSavingEfficiency": {
                  "totalFmdSavingRate":  {
                    "status": "",
                    "value":
                  },
                  "compressionRate":  {
                    "status": "",
                    "value":
                  },
                  "patternMatchingRate":  {
                    "status": "",
                    "value":
                  }
                }
              },
              "snapshotEfficiencyRate":  {
                "status": "",
                "value":
              },
              "provisioningEfficiencyPercentage":  {
                "status": "",
                "value":
              },
              "calculationStartTime": "",
              "calculationEndTime": ""
            }
    ...
   ]
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
storagePoolId	String	ID of the storage pool.
storageSystemId	String	ID of the storage system.
Label	String	Name of the storage pool.
capacityInBytes	Long	Total pool capacity.
usedCapacityInBytes	Long	Current used capacity in the pool.

Parameter	Type	Description
availableCapacityInBytes	Long	Unused capacity in the pool.
usedSubscribedCapacityInBytes	Long	Used subscribed capacity for this pool.
logicalCapacityInBytes	Long	Total pool logical capacity.
usedLogicalCapacityInBytes	Long	Used logical capacity for this pool.
availableLogicalCapacityInBytes	Long	Unused logical capacity in the pool.
suspendSnapshot	Boolean	Whether the usedCapacity of the pool is greater than utilizationThreshold2. If TRUE, the snapshots inside the pool are suspended. Their status is PSUE and the S-VOL will never accept read/write operations. If FALSE, you can write to the snapshot.
type	String	Pool type: ▪ THIN ▪ TIERED ▪ SNAP
utilizationThreshold1	Integer	Pool utilization thresholds in percentage (Low). "0" is always displayed in Snap Pool.
utilizationThreshold2	Integer	Pool utilization thresholds in percentage (High).
subscriptionLimit	Object	If a subscription limit is set, unlimited is false and value indicates the limit. If a subscription limit is not set, unlimited is true.
unlimited	Boolean	Whether there is a subscription limit. Values are TRUE or FALSE.
value	Integer	The subscription limit value set for a pool. When the subscription limit is set, you cannot configure another DP-VOL if the new DP-VOL capacity will cause the subscription limit to be exceeded.
usedSubscription	Integer	Current subscribed capacity in this pool.
availableSubscription	String	The rate of subscription available for the pool, derived by "subscriptionLimit" - "usedSubscription".

Parameter	Type	Description
unlimited	Boolean	Whether there is a limit on available capacity. Values are TRUE or FALSE.
value	Integer	The rate of subscription available for the pool, derived by "subscriptionLimit" - "usedSubscription". Null if the subscription is unlimited.
status	String	Pool status: Valid values: NORMAL, FULL, SUSPENDED, FAILED.
parityGroups	String	List of parity groups that belong to this pool.
id	String	ID of the parity groups.
encryption	Boolean	Whether the parity group is encrypted. Values are TRUE or FALSE.
compression	Boolean	Whether the parity group is compressed Values are TRUE or FALSE.
externalParityGroupIds	List	List of external parity groups that belong to this pool.
tiers	List	List of tiers, with details for each.
tier	String	The tier type. Valid values: Platinum, Gold, Silver, Bronze, External.
capacity	String	Capacity of the tier, in bytes.
usedCapacity	String	Tier capacity that is in use.
usage	Object	Tier usage.
unlimited	Boolean	Whether a limit is set.
value	Integer	
bufferSpace	Object	Tier buffer space.
newPageAssignment	Object	The buffer space for new page assignments.
unlimited	Boolean	Whether the buffer space for new page assignments is limited. Values are TRUE or FALSE.
value	Integer	
tierRelocation	Object	The buffer space for tier relocation.
unlimited	Boolean	Whether a limit is set.

Parameter	Type	Description
value	Integer	
performanceUtilization	Object	Tier performance usage percentage.
unlimited	Boolean	Whether the buffer space for new page assignments is limited. Values are TRUE or FALSE.
value	Integer	
tieringMode	String	Tiering mode for a Tiered pool. Values: MANUAL, AUTOMATIC, NONE, UNKNOWN. The value for a non-Tiered pool should be NONE. This value is only available for storage systems with an SVP.
monitoringMode	String	Monitoring mode for a Tiered pool. Values: PERIODICAL, CONTINUOUS, PERIODICAL_WITH_ACTIVE_FLASH, CONTINUOUS_WITH_ACTIVE_FLASH, NONE. The value for a non-Tiered pool is NONE.
monitoringCycle	String	A cycle time during which I/O monitoring is performed on a tiered pool. The value is in the ISO8601 duration format. This value is only available for storage systems with an SVP.
monitoringPeriodStart	String	The instant that monitoring begins in storage system local time, with no adjustment for daylight savings. This value is only available for storage systems with an SVP.
monitoringPeriodEnd	String	The instant that monitoring ends in storage system local time, with no adjustment for daylight savings. This value is only available for storage systems with an SVP.
activeFlashEnabled	Boolean	Whether active flash is enabled. To enable active flash, one of the tiers must be Platinum and disk types: FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or FMD HDE. You also need to enable the active flash license.
relocationSpeed	String	Relocation speed for a tiered pool. This value is only available for storage systems with an SVP.

Parameter	Type	Description
ddmEnabled	Boolean	Whether the pool is of type DDM. Values are TRUE or FALSE.
encrypted	Boolean	Whether the data is encrypted. Valid values: YES, NO, PARTIAL, or UNKNOWN.
fmcCompressed	String	Whether the data is compressed. accelerated compression is only supported on FMD DC2 drives.
deduplicationEnabled	Boolean	Whether "Deduplication and Compression" capacity saving is available.
compressionDetails	Object	The following attributes are displayed: compressionRate, deduplicationRate, and savingsPercentage.
compressionRate	Float	The ratio of data compression using only controller-based compression.
deduplicationRate	Float	Rate of deduplication. Shows how much the capacity is reduced by deduplication.
savingsPercentage	Integer	Displays the percentage of capacity reduced by capacity saving against the amount before the reduction.
fmcCompressionDetails	Object	Detailed information regarding FMD DC2 compression. If "fmcCompressed" is true, then this parameter is available.
expansionRate	Float	The ratio of the total capacity of FMD pool volumes with respect to the total capacity of FMD pool volumes assured for writing.
compressionRate	Float	The ratio of data compression using only accelerated compression.
savingsPercentage	Float	Displays the percentage of the capacity reduced by accelerated compression against the amount before the reduction. This does not display a percentage value until the data is compressed. If the savingsPercentage for a pool is not high enough, you can provision additional pool volumes to the pool from the parity groups using FMD drives.
nasBoot	Boolean	Whether a pool consists of NAS boot volumes. Values are TRUE or FALSE.

Parameter	Type	Description
deduplicationSystemDataCapacityInBytes	String	System data capacity that is reserved when "deduplicationEnabled" is true. System data capacity is the capacity of the managed area reserved by the storage system when the deduplication function is enabled.
dataReductionSavingsRate	Float	The ratio of logical used capacity to the physical used capacity, for all compression and deduplication technologies.
capacityEfficiencyRate	Float	The ratio of Thin Free plus Thin Used to the physical used capacity. Capacity efficiency is only calculated for volumes on Thin, Tiered, and Snap pools. If disk-based compression is in use, either alone or in combination with controller-based compression, the physical used capacity is that resulting from disk-based compression alone. If only controller-based compression is in use, the physical used capacity is that resulting from controller-based compression. If no compression technology is in use, the physical used capacity is the used capacity of the pools.
totalEfficiency	Object	Percentages regarding total efficiency. For VSP E series, and the following storage systems with firmware versions from 88-03-0x or later: VSP G/F350, G/F370, G/F700, G/F900, this parameter has all the totalEfficiency values. For all other storage systems, this value is null.
totalEfficiencyRate	Object	The ratio of the total saving effect achieved by accelerated compression, capacity saving (compression and deduplication), snapshot, and Dynamic Provisioning.
status	String	Status of the calculation process of that particular metric. Values can be CALCULATED, CALCULATION_IN_PROGRESS, and CALCULATED_WITH_EXCEEDED.
value	Float	Ratio of that particular metric.

Parameter	Type	Description
dataReductionEfficiency	Object	Ratios regarding data reduction efficiency.
totalDataReductionRate	Object	Data reduction ratio before and after accelerated compression and capacity saving (compression and deduplication).
softwareSavingEfficiency	Object	Ratios regarding software saving efficiency.
totalSoftwareSavingRate	Object	The capacity reduction ratio before and after capacity saving.
compressionRate	Object	The capacity compression ratio before and after capacity saving.
deduplicationRate	Object	The capacity deduplication ratio before and after capacity saving.
patternMatchingRate	Object	The capacity reduction ratio before and after capacity saving pattern matching.
fmdSavingEfficiency	Object	Ratios regarding accelerated compression saving.
totalFmdSavingRate	Object	The capacity reduction ratio before and after accelerated compression.
compressionRate	Object	The capacity compression ratio before and after accelerated compression.
patternMatchingRate	Object	The capacity reduction ratio before and after accelerated compression pattern matching.
snapshotEfficiencyRate	Object	The efficiency ratio achieved by snapshot.
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by Hitachi Dynamic Provisioning.
calculationStartTime	String	The start date and time for the calculation. The date and time are displayed in UTC.
calculationEndTime	String	The end date and time for the calculation. The date and time are displayed in UTC.
total	Integer	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of

Parameter	Type	Description
		resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/storage-systems/410209/storage-pools
```

Example response

JSON response. For the following storage systems, totalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP G200, G/F400, G/F600, G/F800, VSP N400, VSP N600 and VSP N800.


```
{
"resources": [
        {
           "storagePoolId": 3,
           "storageSystemId": "410209",
           "label": "AutoTieredPool-1",
           "capacityInBytes": 3453896097792,
           "usedCapacityInBytes": 0,
           "availableCapacityInBytes": 3453896097792,
           "usedSubscribedCapacityInBytes": 37497077760,
           "logicalCapacityInBytes": 3453896097792,
```

```
        "usedLogicalCapacityInBytes": 0,
        "availableLogicalCapacityInBytes": 3453896097792,
        "type": "TIERED",
        "utilizationThreshold1": 20,
        "utilizationThreshold2": 90,
        "subscriptionLimit": {
            "unlimited": false,
            "value": 101
        },
        "usedSubscription": 1,
        "availableSubscription": {
            "unlimited": false,
            "value": 100
        },
        "status": "NORMAL",
        "parityGroups": [
            {
                "id": "1-2",
                "encryption": false,
                "compression": false
            }
        ],
        "externalParityGroupIds": [],
        "tiers": [
            {
                "tier": "Silver",
                "capacity": 3453896097792,
                "usedCapacity": 0,
                "usage": {
                    "unlimited": false,
                    "value": 0
                },
                "bufferSpace": {
                    "newPageAssignment": {
                        "unlimited": false,
                        "value": 8
                    },
                    "tierRelocation": {
                        "unlimited": false,
                        "value": 2
                    }
                },
                "performanceUtilization": {
                    "unlimited": false,
                    "value": 0
                }
            }
        ],
        "tieringMode": "MANUAL",
        "monitoringMode": "PERIODICAL",
        "activeFlashEnabled": false,
```

```
            "encrypted": "NO",
            "fmcCompressed": "NO",
            "deduplicationEnabled": false,
            "compressionDetails": null,
            "fmcCompressionDetails":  null,
            "deduplicationSystemDataCapacityInBytes": 0,
            "nasBoot": false,
            "dataReductionSavingsRate": null,
            "capacityEfficiencyRate": null,
            "totalEfficiency": {
              "totalEfficiencyRate": {
                "status": "CALCULATED_WITH_EXCEEDED",
                "value": 99999.99
              },
              "dataReductionEfficiency": {
                "totalDataReductionRate":  {
                  "status": "CALCULATED",
                  "value": 99999.99
                },
                "softwareSavingEfficiency": {
                  "totalSoftwareSavingRate":  {
                    "status": "CALCULATED",
                    "value": 1.52
                  },
                  "compressionRate":  {
                    "status": "CALCULATED",
                    "value": 1.15
                  },
                  "deduplicationRate":  {
                    "status": "CALCULATED",
                    "value": 1.34
                  },
                  "patternMatchingRate":  {
                    "status": "CALCULATED",
                    "value": 1.08
                  }
                },
                "fmdSavingEfficiency": {
                  "totalFmdSavingRate":  {
                    "status": "CALCULATED",
                    "value": 2.21
                  },
                  "compressionRate":  {
                    "status": "CALCULATED",
                    "value": 2.14
                  },
                  "patternMatchingRate":  {
                    "status": "CALCULATION_IN_PROGRESS",
                    "value": null
                  }
                }
```

```
              },
              "snapshotEfficiencyRate":  {
                "status": "CALCULATED",
                "value": 10.37
              },
              "provisioningEfficiencyPercentage":  {
                "status": "CALCULATED",
                "value": 170
              },
              "calculationStartTime": "2018-05-15T10:05",
              "calculationEndTime": "2018-05-15T10:38"
      }
    ]
    "total": ,
    "nextToken":
}
```

Getting a specific pool

You can display detailed information about a specific pool.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/storage-pools/storagePoolId
```

Use the storage system ID as the *storageSystemId*.

Use the storage pool ID as the *storagePoolId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
        {
            "storagePoolId": ,
            "storageSystemId": "",
            "label": "",
            "capacityInBytes": ,
            "usedCapacityInBytes": ,
            "availableCapacityInBytes": ,
            "usedSubscribedCapacityInBytes": ,
            "logicalCapacityInBytes": ,
            "usedLogicalCapacityInBytes": ,
            "availableLogicalCapacityInBytes": ,
```

```
            "type": "",
            "utilizationThreshold1": ,
            "utilizationThreshold2": ,
            "subscriptionLimit": {
                "unlimited": ,
                "value":
            },
            "usedSubscription": ,
            "availableSubscription": {
                "unlimited": ,
                "value":
            },
            "status": "",
            "parityGroups": [
                {
                    "id": "",
                    "encryption": ,
                    "compression": ,
                    "compressionSupported":
                }
            ],
            "externalParityGroupIds": [],
            "tiers": [
                {
                    "tier": "",
                    "capacity": ,
                    "usedCapacity": ,
                    "usage": {
                        "unlimited": ,
                        "value":
                    },
                    "bufferSpace": {
                        "newPageAssignment": {
                            "unlimited": ,
                            "value":
                        },
                        "tierRelocation": {
                            "unlimited": ,
                            "value":
                        }
                    },
                    "performanceUtilization": {
                        "unlimited": ,
                        "value":
                    }
                }
            ],
            "tieringMode": "",
            "monitoringMode": "",
            "monitoringCycle": "",
            "monitoringPeriodStart": "",
```

```
            "monitoringPeriodEnd": "",
            "activeFlashEnabled": ,
            "relocationSpeed": "",
            "ddmEnabled": ,
            "encrypted": "",
            "fmcCompressed": "",
            "deduplicationEnabled": ,
            "compressionDetails": {
                "compressionRate": ,
                "deduplicationRate": ,
                "savingsPercentage":
            },
            "fmcCompressionDetails": {
                "expansionRate": ,
                "compressionRate": ,
                "savingsPercentage":
            },
            "deduplicationSystemDataCapacityInBytes": ,
            "nasBoot": ,
            "dataReductionSavingsRate": ,
            "suspendSnapshot": ,
            "capacityEfficiencyRate": ,
            "totalEfficiency": {
              "totalEfficiencyRate": {
                "status": "",
                "value":
              },
              "dataReductionEfficiency": {
                "totalDataReductionRate":  {
                  "status": "",
                  "value":
                },
                "softwareSavingEfficiency": {
                  "totalSoftwareSavingRate":  {
                    "status": "",
                    "value":
                  },
                  "compressionRate":  {
                    "status": "",
                    "value":
                  },
                  "deduplicationRate":  {
                    "status": "",
                    "value":
                  },
                  "patternMatchingRate":  {
                    "status": "",
                    "value":
                  }
                },
                "fmdSavingEfficiency": {
```

```
                "totalFmdSavingRate":  {
                  "status": "",
                  "value":
                },
                "compressionRate":  {
                  "status": "",
                  "value":
                },
                "patternMatchingRate":  {
                  "status": "",
                  "value":
                }
              }
            },
            "snapshotEfficiencyRate":  {
              "status": "",
              "value":
            },
            "provisioningEfficiencyPercentage":  {
              "status": "",
              "value":
            },
            "calculationStartTime": "",
            "calculationEndTime": ""
          }

}
```


Parameter	Type	Description
storagePoolId	String	ID of the storage pool.
storageSystemId	String	ID of the storage system.
label	String	Name of the storage pool.
capacityInBytes	Long	Total capacity, in bytes.
usedCapacityInBytes	Long	Current used capacity in the pool.
availableCapacityInBytes	Long	Unused capacity in the pool.
usedSubscribedCapacityInBytes	Long	Used subscribed capacity for this pool.
logicalCapacityInBytes	Long	Total pool logical capacity.
usedLogicalCapacityInBytes	Long	Used logical capacity for this pool.

Parameter	Type	Description
availableLogicalCapacityInBytes	Long	Unused logical capacity in the pool.
suspendSnapshot	Boolean	Whether the usedCapacity of the pool is greater than utilizationThreshold2. If TRUE, the snapshots inside the pool are suspended. Their status is PSUE and the S-VOL will never accept read/write operations. If FALSE, you can write to the snapshot. If the pool is TIERED or SNAP, a NULL value is returned.
type	String	Pool type: ▪ THIN ▪ TIERED ▪ SNAP
utilizationThreshold1	Integer	Pool utilization thresholds in percentage (Low). "0" is always displayed in Snap Pool.
utilizationThreshold2	Integer	Pool utilization thresholds in percentage (High).
subscriptionLimit	Object	If a subscription limit is set, unlimited is false and value indicates the limit. If a subscription limit is not set, unlimited is true.
unlimited	Boolean	Whether there is a subscription limit. Values are TRUE or FALSE.
usedSubscription	Integer	Current subscribed capacity in this pool.
availableSubscription	String	Available capacity of this pool.
unlimited	Boolean	Whether there is a limit on available capacity. Values are TRUE or FALSE.
status	String	Pool status: Valid values: NORMAL, FULL, SUSPENDED, FAILED.
parityGroups	String	List of parity groups that belong to this pool.
Id	String	ID of the parity group.
encryption	Boolean	Whether the parity group is encrypted. Values are TRUE or FALSE.
compression	Boolean	Whether the parity group is compressed. Values are TRUE or FALSE.

Parameter	Type	Description
compressionSupported	Boolean	Whether the parity group supports drive-based compression on FMD drives.
externalParityGroupIds	List	List of external parity groups that belong to this pool.
tiers	List	List of tiers, with details for each.
tier	String	The tier type. Valid values: Platinum, Gold, Silver, Bronze, External.
capacity	String	Capacity of the tier, in bytes.
usedCapacity	String	Tier capacity that is in use.
usage	Object	Percent usage of the tier.
unlimited	Boolean	Whether a limit is set.
bufferSpace	Object	Tier buffer space.
newPageAssignment	Object	The buffer space for new page assignments.
unlimited	Boolean	Whether the buffer space for a new page assignment is limited. Values are TRUE or FALSE.
tierRelocation	Object	The buffer space allocated for tier relocation.
unlimited	Boolean	Whether a limit is set.
performanceUtilization	Object	Tier performance usage percentage.
unlimited	Boolean	Whether the buffer space for a new page assignment is limited. Values are TRUE or FALSE.
tieringMode	String	Tiering mode for a Tiered pool. Values: MANUAL, AUTOMATIC, NONE, UNKNOWN. The value for a non-Tiered pool should be NONE. This value is only available for storage systems with an SVP.
activeFlashEnabled	Boolean	Whether active flash is enabled. To enable active flash, one of the tiers must be Platinum and disk types: FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or FMD HDE. You also need to enable the active flash license.
ddmEnabled	Boolean	Whether the pool is of type DDM. Valid values are TRUE or FALSE.

Parameter	Type	Description
encrypted	Boolean	Whether the data is encrypted. Valid values: YES, NO, PARTIAL, or UNKNOWN.
fmcCompressed	String	Whether the data is compressed. accelerated compression is only supported on FMD DC2 drives.
deduplicationEnabled	Boolean	Whether "Deduplication and Compression" capacity saving is available.
compressionDetails	Object	The following attributes are displayed: compressionRate, deduplicationRate, and savingsPercentage.
compressionRate	Float	The ratio of data compression using only accelerated compression.
deduplicationRate	Float	Rate of deduplication. Shows how much the capacity is reduced by deduplication.
savingsPercentage	Integer	Displays the percentage of capacity reduced by capacity saving against the amount before the reduction.
fmcCompressionDetails	Object	Detailed information regarding FMD DC2 compression. If "fmcCompressed" is true, then this parameter is available.
expansionRate	Float	The ratio of the total capacity of FMD pool volumes with respect to the total capacity of FMD pool volumes assured for writing.
compressionRate	Float	The ratio of data compression using only accelerated compression.
savingsPercentage	Float	Displays the percentage of the capacity reduced by accelerated compression against the amount before the reduction. This does not display a percentage value until the data is compressed. If the savingsPercentage for a pool is not high enough, you can provision additional pool volumes to the pool from the parity groups using FMD drives.
deduplicationSystemDataCapacityInBytes	String	System data capacity that is reserved when "deduplicationEnabled" is true. System data capacity is the capacity of the managed area reserved by the storage system when the deduplication function is enabled.

Parameter	Type	Description
nasBoot	Boolean	Whether a pool consists of NAS boot volumes. Values are TRUE or FALSE.
dataReductionSavingsRate	Float	The ratio of logical used capacity to the physical used capacity, for all compression and deduplication technologies.
capacityEfficiencyRate	Float	The ratio of Thin Free plus Thin Used to the physical used capacity. Capacity efficiency is only calculated for volumes on Thin, Tiered, and Snap pools. If disk-based compression is in use, either alone or in combination with controller-based compression, the physical used capacity is that resulting from disk-based compression alone. If only controller-based compression is in use, the physical used capacity is that resulting from controller-based compression. If no compression technology is in use, the physical used capacity is the used capacity of the pools.
totalEfficiency	Object	Percentages regarding total efficiency. For VSP E series, and the following storage systems with firmware versions from 88-03-0x or later: VSP G/F350, G/F370, G/F700, G/F900, this parameter has all the totalEfficiency values. For all other storage systems, this value is null.
totalEfficiencyRate	Object	The ratio of the total saving effect achieved by accelerated compression, capacity saving (compression and deduplication), snapshot, and Hitachi Dynamic Provisioning.
status	String	Status of the calculation process of that particular metric. Values can be CALCULATED, CALCULATION_IN_PROGRESS, and CALCULATED_WITH_EXCEEDED.
value	Float	Ratio of that particular metric.
dataReductionEfficiency	Object	Ratios regarding data reduction efficiency.

Parameter	Type	Description
totalDataReductionRate	Object	Data reduction ratio before and after accelerated compression and capacity saving (compression and deduplication).
softwareSavingEfficiency	Object	Ratios regarding software saving efficiency.
totalSoftwareSavingRate	Object	The capacity reduction ratio before and after capacity saving.
compressionRate	Object	The capacity compression ratio before and after capacity saving.
deduplicationRate	Object	The capacity deduplication ratio before and after capacity saving.
patternMatchingRate	Object	The capacity reduction ratio before and after capacity saving pattern matching.
fmdSavingEfficiency	Object	Ratios regarding accelerated compression saving.
totalFmdSavingRate	Object	The capacity reduction ratio before and after accelerated compression.
compressionRate	Object	The capacity compression ratio before and after accelerated compression.
patternMatchingRate	Object	The capacity reduction ratio before and after accelerated compression pattern matching.
snapshotEfficiencyRate	Object	The efficiency ratio achieved by snapshot.
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by Hitachi Dynamic Provisioning.
calculationStartTime	String	The start date and time for the calculation. The date and time are displayed in UTC.
calculationEndTime	String	The end date and time for the calculation. The date and time are displayed in UTC.
relocationSpeed	String	Relocation speed for a tiered pool. This value is only available for storage systems with an SVP.
monitoringMode	String	Monitoring mode for a Tiered pool. Values: PERIODICAL, CONTINUOUS, PERIODICAL_WITH_ACTIVE_FLASH, CONTINUOUS_WITH_ACTIVE_FLASH, NONE. The value for a non-Tiered pool is NONE.

Parameter	Type	Description
monitoringCycle	String	A cycle time during which I/O monitoring is performed on a tiered pool. The value is in the ISO8601 duration format. This value is only available for storage systems with an SVP.
monitoringPeriodStart	String	The instant that monitoring begins in storage system local time, with no adjustment for daylight savings. This value is only available for storage systems with an SVP.
monitoringPeriodEnd	String	The instant that monitoring ends in storage system local time, with no adjustment for daylight savings. This value is only available for storage systems with an SVP.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/storage-systems/410209/storage-pools/3
```

Example response

JSON response. For the following storage systems, totalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP G200, G/F400, G/F600, G/F800, VSP N400, VSP N600 and VSP N800.

```
{
    "storagePoolId": 0,
    "storageSystemId": "410209",
    "label": "SSD-Pool",
```

```
    "capacityInBytes": 19500160253952,
    "usedCapacityInBytes": 0,
    "availableCapacityInBytes": 19500160253952,
    "usedSubscribedCapacityInBytes": 1277165568,
    "logicalCapacityInBytes": 19500160253952,
    "usedLogicalCapacityInBytes": 0,
    "availableLogicalCapacityInBytes": 19500160253952,
    "type": "TIERED",
    "utilizationThreshold1": 70,
    "utilizationThreshold2": 80,
    "subscriptionLimit": {
        "unlimited": true,
        "value": null
    },
    "usedSubscription": 0,
    "availableSubscription": {
        "unlimited": true,
        "value": null
    },
    "status": "NORMAL",
    "parityGroups": [
        {
            "id": "1-2",
            "encryption": false,
            "compression": false,
            "compressionSupported": false
        },
        {
            "id": "1-12",
            "encryption": false,
            "compression": false,
            "compressionSupported": false
        }
    ],
    "externalParityGroupIds": [],
    "tiers": [
        {
            "tierId": 1,
            "tier": "Platinum",
            "capacity": 5666915745792,
            "usedCapacity": 0,
            "usage": {
                "unlimited": false,
                "value": 0
            },
            "bufferSpace": {
                "newPageAssignment": {
                    "unlimited": false,
                    "value": 8
                },
                "tierRelocation": {
```

```
                    "unlimited": false,
                    "value": 2
                }
            },
            "performanceUtilization": {
                "unlimited": false,
                "value": 0
            }
        },
        {
            "tierId": 3,
            "tier": "Silver",
            "capacity": 13833244508160,
            "usedCapacity": 0,
            "usage": {
                "unlimited": false,
                "value": 0
            },
            "bufferSpace": {
                "newPageAssignment": {
                    "unlimited": false,
                    "value": 8
                },
                "tierRelocation": {
                    "unlimited": false,
                    "value": 2
                }
            },
            "performanceUtilization": {
                "unlimited": false,
                "value": 0
            }
        }
    ],
    "tieringMode": "AUTOMATIC",
    "monitoringMode": "CONTINUOUS",
    "monitoringCycle": "PT24H",
    "monitoringPeriodStart": "00:00",
    "monitoringPeriodEnd": "23:59",
    "relocationSpeed": "STANDARD",
    "activeFlashEnabled": false,
    "ddmEnabled": false,
    "encrypted": "NO",
    "fmcCompressed": "NO",
    "deduplicationEnabled": false,
    "compressionDetails": null,
    "fmcCompressionDetails": null,
    "deduplicationSystemDataCapacityInBytes": 0,
    "nasBoot": false,
    "dataReductionSavingsRate": 0,
    "capacityEfficiencyRate": 0,
```

```
    "suspendSnapshot": null,
    "totalEfficiency": null
}
```

Getting pool summaries

You can display a summary of pools based on their type: THIN, TIERED, or SNAP.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/storage-pools/summary
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
   "summariesByType":
   [
        {
           "poolType": "",
           "totalCapacity": ,
           "usedCapacity": ,
           "availableCapacity": ,
           "usedSubscribedCapacity": ,
           "poolCount": ,
        },
        .....
   ]
}
```

Parameter	Type	Description
poolType	String	Pool type can be of the following values or the name of a tier that is available in the storage system. ▪ THIN ▪ TIERED ▪ SNAP

Parameter	Type	Description
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
usedSubscribedCapacity	String	Subscribed used capacity across all the pools of the specified type on that storage system.
totalCapacity	String	Total capacity of the specified pool type in the storage system, in bytes.
poolCount	Integer	Number of pools in the pool type that is available on the storage system.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/storage-systems/410209/storage-pools/summary
```

JSON response:

```
{
   "summariesByType":
   [
```

```
        {
           "poolType": "THIN",
           "totalCapacity": "23819314003968",
           "usedCapacity": "3748436901888",
           "availableCapacity": "20070877102080",
           "usedSubscribedCapacity": "167136337068032"
           "poolCount": 4
        },
   ]
}
```

Creating a pool

You can create a pool with a list of parity groups. All parity groups must belong to the same storage system and the pool type.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/storage-pools
```

Use the storage system ID as the *storageSystemId*.

Request structure

The request body structure is as follows:

```
{
   "label":" ",
   "type":"",
   "tieringMode": "",
   "monitoringMode"; "",
   "monitoringCycle": "",
   "monitoringPeriodStart": "",
   "monitoringPeriodEnd": "",
   "relocationSpeed": "",
   "activeFlashEnabled":,
   "ddmEnabled":,
   "utilizationThreshold1": ,
   "utilizationThreshold2":,
   "subscriptionLimit": {
     "value" : ,
     "unlimited":
   },
   "parityGroupIds":[""],
   "externalParityGroupsIds" [""]
   "suspendSnapshot": ,
   "tiers": [
     {
        "bufferSpace": {
          "newPageAssignment": ,
```

```
          "tierRelocation":
        },
        "bufferSpace": {
          "newPageAssignment": ,
          "tierRelocation":
        },
        "bufferSpace": {
          "newPageAssignment": ,
          "tierRelocation":
        }
      }
    ]
  }
```

Parameter	Required	Type	Description
label	Yes	String	The pool name.
type	Yes	String	The pool type: THIN, TIERED, or SNAP.
activeFlashEnabled	No	Boolean	Whether active flash is enabled. To enable it, one of the tiers must be a Platinum tier and one of the disk type: FMD, SSD, SSD(RI), FMD DC2, FMD HDE, or SSD NVMe. You also need to install the active flash license.
bufferSpace	No	Object	The default rates (rate to capacity of a tier) of buffer space used for new page assignments and tier relocation. Can be specified up to 3 times. The first, second, and third bufferSpace object setting will be applied to the first, second, and third tier, respectively.
ddmEnabled	No	Boolean	Whether there is a DDM pool creation request. Valid values are TRUE or FALSE.
tieringMode	No	String	Tiering mode for tiered pools. Values: AUTOMATIC or MANUAL. This is set to AUTOMATIC if no value is specified. Setting this value is only available for storage systems with an SVP.
monitoringMode	No	String	Monitoring mode for a Tiered pool. Values: PERIODICAL or CONTINUOUS. This is set to CONTINUOUS if no value is specified.

Parameter	Required	Type	Description
monitoringCycle	No	String	A cycle time during which I/O monitoring is performed on a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 duration format. Possible values are: "PT24H", "PT8H", "PT4H", "PT2H", "PT1H" or "PT30M" for 24 hours, 8 hours, 4 hours, 2 hours, 1 hour and 30 minutes respectively. If a value is not specified, "PT24H" will be set as default value. This value is only available for storage systems with an SVP.
monitoringPeriodStart	No	String	The instant when monitoring begins in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "00:00" will be set as default value. This value is only available for storage systems with an SVP.
monitoringPeriodEnd	No	String	The instant when monitoring ends in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "23:59" will be set as default value. This value cannot be less than monitoringPeriodStart value. This value is only available for storage systems with an SVP.
newPageAssignment	No	Integer	The percentage of buffer space of a tier assigned to new pages. This value must be between 0 and 50.
tierRelocation	No	Integer	The percentage of buffer space of a tier assigned for relocation. This value must be between 2 and 40. If not specified 2 (%) will be used as a default value for each tier.

Parameter	Required	Type	Description
relocationSpeed	No	String	Relocation speed for a tiered pool. If not specified STANDARD is used as a default value. Possible values are SLOWEST, SLOWER, STANDARD, FASTER or FASTEST. This value is only available for storage systems with an SVP.
utilizationThreshold1	No	Integer	Pool utilization thresholds in percentage (Low). When type is SNAP, this parameter is ignored. The range is between 1 - 100. If the utilizationThreshold1 is not specified, Ops Center Administrator sets it to 70%.
utilizationThreshold2	No	Integer	Pool utilization thresholds in percentage (High). The range is between 1 - 100. The value for utilizationThreshold2 must be greater than the value for utilizationThreshold1. If utilizationThreshold2 is not specified, Ops Center Administrator sets it to 80%.
subscriptionLimit	No	Object	This is the maximum volume capacity subscription that is allowed on a given storage pool. The allowed values are between 1 - 65534. To set an unlimited subscription limit, set unlimited = true. This parameter cannot be set for pools which is deduplication disabled or has volumes with capacity saving enabled for VSP 5000 series storage systems with firmware versions from 90-01-4x or later. If the subscriptionLimit is not specified, Hitachi Ops Center Administrator sets it to unlimited for storage systems VSP 5000 series with firmware versions 90-01-4x or later, and to 100% for others.

Parameter	Required	Type	Description
			This parameter cannot be set for VSP G370, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
parityGroupIds	No*	List	The list of parity group IDs that belong to this pool.
externalParityGroupIds	No*	List	The list of external parity group IDs that belong to this pool.
suspendSnapshot	No	Boolean	Set to TRUE by default.
* : You must specify either `parityGroupIds` or `externalParityGroupIds`, or you can specify both.			

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
```

```
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/storage-pools
```

Example request

```
{
"label":"ExternalPool",
"type":"TIERED",
"tieringMode": "MANUAL" ,
"monitoringMode": "PERIODICAL" ,
"monitoringCycle": "PT24H" ,
"monitoringPeriodStart": "00:00" ,
"monitoringPeriodEnd": "23:59" ,
"relocationSpeed": "SLOWER" ,
"activeFlashEnabled":true,
"ddmEnabled": false,
"utilizationThreshold1": 90,
"utilizationThreshold2":95,
"subscriptionLimit": {
"value" : 100,
"unlimited": false
},
"parityGroupIds":["5-1"]
"externalParityGroupIds":["2-3"],
"tiers": [
   {
      "tier": "Silver",
      "bufferSpace": {
```

```
        "newPageAssignment": {
           "value": 8
        },
        "tierRelocation": {
           "value": 2
        }
      }
   }
 ]
}
```

Updating a pool

You can update a pool, such as renaming or expanding the pool by adding parity groups, changing the threshold and subscription limits for the pool, and changing the pool type from THIN to TIERED. However, you can not delete or update any parameters on pools created on external parity groups.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/storage-pools/storagePoolId
```

Use the storage system ID as the *storageSystemId*.

Use the storage pool ID as the *storagePoolId*.

Request structure

The request body structure is shown below:

```
{
   "label":" ",
   "type":"",
   "tieringMode": "",
   "monitoringMode"; "",
   "monitoringCycle": "",
   "monitoringPeriodStart": "",
   "monitoringPeriodEnd": "",
   "relocationSpeed": "",
   "activeFlashEnabled" :,
   "ddmEnabled":,
   "utilizationThreshold1": ,
   "utilizationThreshold2":,
   "subscriptionLimit": {
     "value" : ,
     "unlimited":
   },
   "parityGroupIds":[""],
   "externalParityGroupsIds" [""]
   "suspendSnapshot": ,
```

```
  "tiers": [
    {
      "bufferSpace": {
        "newPageAssignment": ,
        "tierRelocation":
      },
      "bufferSpace": {
        "newPageAssignment": ,
        "tierRelocation":
      },
      "bufferSpace": {
        "newPageAssignment": ,
        "tierRelocation":
      }
    }
  ]
}
```

Parameter	Required	Type	Description
label	Yes	String	The pool name.
poolType	No	String	The pool type: THIN, TIERED, and SNAP.
moveToResourceGroup	No	Boolean	Whether to move parity group LDEVs to the pool's resource group or not.
activeFlashEnabled	No	Boolean	Whether active flash is enabled. To enable it, one of the tiers must be a Platinum tier and one of the disk type: FMD, SSD, SSD(RI), FMD DC2, FMD HDE, or SSD NVMe. You also need to install the active flash license.
bufferSpace	No	Object	The default rates (rate to capacity of a tier) of buffer space used for new page assignments and tier relocation. Can be specified up to 3 times. The first, second, and third bufferSpace object setting will be applied to the first, second, and third tier, respectively.
ddmEnabled	No	Boolean	Whether there is a DDM pool creation request. Valid values are TRUE or FALSE.

Parameter	Required	Type	Description
tieringMode	No	String	Tiering mode for tiered pools. Values: AUTOMATIC or MANUAL. This is set to AUTOMATIC if no value is specified. Setting this value is only available for storage systems with an SVP.
monitoringMode	No	String	Monitoring mode for a Tiered pool. Values: PERIODICAL or CONTINUOUS. This is set to CONTINUOUS if no value is specified.
monitoringCycle	No	String	A cycle time during which I/O monitoring is performed on a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 duration format. Possible values are: "PT24H", "PT8H", "PT4H", "PT2H", "PT1H" or "PT30M" for 24 hours, 8 hours, 4 hours, 2 hours, 1 hour and 30 minutes respectively. If a value is not specified, "PT24H" will be set as default value. This value is only available for storage systems with an SVP.
monitoringPeriodStart	No	String	The instant when monitoring begins in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "00:00" will be set as default value. This value is only available for storage systems with an SVP.
monitoringPeriodEnd	No	String	The instant when monitoring ends in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "23:59" will be set as default value. This value cannot be less than monitoringPeriodStart value. This value is only available for storage systems with an SVP.

Parameter	Required	Type	Description
newPageAssignment	No	Integer	The percentage of buffer space of a tier assigned to new pages. This value must be between 0 and 50.
tierRelocation	No	Integer	The percentage of buffer space of a tier assigned for relocation. This value must be between 2 and 40. If not specified 2 (%) will be used as a default value for each tier.
relocationSpeed	No	String	Relocation speed for a tiered pool. If not specified STANDARD is used as a default value. Possible values are SLOWEST, SLOWER, STANDARD, FASTER or FASTEST. This value is only available for storage systems with an SVP.
utilizationThreshold1	No	Integer	Pool utilization thresholds in percentage (Low). When type is SNAP, this parameter is ignored. The range is between 1 - 100. If the utilizationThreshold1 is not specified, Ops Center Administrator sets it to 70%.
utilizationThreshold2	No	Integer	Pool utilization thresholds in percentage (High). The range is between 1 - 100. The value for utilizationThreshold2 must be greater than the value for utilizationThreshold1. If utilizationThreshold2 is not specified, Ops Center Administrator sets it to 80%.
subscriptionLimit	No	Object	This is the maximum volume capacity subscription that is allowed on a given storage pool. The allowed values are between 1 - 65534. To set an unlimited subscription limit, set unlimited = true. This parameter cannot be set for pools which is deduplication disabled or has volumes with capacity saving enabled for VSP 5000 series storage systems with firmware versions from 90-01-4x or later.

Parameter	Required	Type	Description
			If the subscriptionLimit is not specified, Hitachi Ops Center Administrator sets it to unlimited for storage systems VSP 5000 series with firmware versions 90-01-4x or later, and to 100% for others. This parameter cannot be set for VSP G370, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
parityGroupIds	No*	List	The list of parity group IDs that belong to this pool.
externalParityGroupIds	No*	List	The list of external parity group IDs that belong to this pool.
suspendSnapshot	No	Boolean	Set to TRUE by default.
* : You must specify either `parityGroupIds` or `externalParityGroupIds`, or you can specify both.			

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
```

```
        {
           "rel": "_self",
           "href": "/v1/jobs/jobId"
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Parameter	Type	Description
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/storage-systems/410209/storage-pools/14
```

Example request

```
{
"label":"ExternalPool",
"type":"TIERED",
"tieringMode": "MANUAL" ,
"monitoringMode": "PERIODICAL" ,
"monitoringCycle": "PT24H" ,
"monitoringPeriodStart": "00:00" ,
"monitoringPeriodEnd": "23:59" ,
"relocationSpeed": "SLOWER" ,
"activeFlashEnabled":true,
"moveToResourceGroup": false,
"utilizationThreshold1": 90,
"utilizationThreshold2":95,
"subscriptionLimit": {
"value" : 100,
```

```
"unlimited": false
},
"parityGroupIds":["5-1"]
"externalParityGroupIds":["2-3"],
"tiers": [
   {
      "tier": "Silver",
      "bufferSpace": {
        "newPageAssignment": {
           "value": 8
        },
        "tierRelocation": {
           "value": 2
        }
      }
   }
 ]
}
```

Deleting a pool

You can delete a pool from a storage system.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/storage-systems/storageSystemId/storage-pools/
storagePoolId
```

Use the storage system ID as the *storageSystemId*.

Use the storage pool ID as the *storagePoolId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
```

```
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).

Parameter	Type	Description
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Getting pool templates

You can list all the different pool size options that are available to expand a given pool. You must specify either the tier name or the capacity, diskType, raidLevel, raidLayout, and speed.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/templates/pool
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The request body structure is as follows:

```
{
  "label": ,
  "utilizationThreshold1": ,
  "utilizationThreshold2": ,
  "subscriptionLimit": {
    "unlimited": ,
    "value":
  },
  "suspendSnapshot": ,
  "tiers": [
    {
      "name": "",
      "templateSubTiers": [
        {
          "description": "",
          "diskType": "",
          "speed": ,
          "capacity": "",
          "raidLevel": "",
```

```
        "raidLayout": "",
        "availableSizesInBytes": [
          ""
        ]
}
```

Parameter	Type	Description
label	String	Name of the storage pool.
utilizationThreshold1	String	Pool utilization thresholds in percentage (Low).
utilizationThreshold2	String	Pool utilization thresholds in percentage (High).
subscriptionLimit	String	Maximum subscription of volume capacity allowed on this pool. If there is an unlimited subscription limit, unlimited = true. Always NULL for VSP G/F350, G/F370, G/F700, G/F900.
suspendSnapshot	Boolean	Whether the usedCapacity of the pool is greater than utilizationThreshold2. If TRUE, the snapshots inside the pool are suspended. Their status is PSUE and the S-VOL will never accept read/write operations. If FALSE, you can write to the snapshot.
tiers	String	Tiers that belong in the pool.
name	String	Name of the tier.
description	String	Short description of the pool.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.
capacity	Long	Capacity of the tier in bytes.
raidLevel	String	RAID level. Valid values: RAID1+0, RAID5, or RAID6.
raidLayout	String	RAID layout. This RAID layout should be of the specified RAID level. Valid values:

Parameter	Type	Description
		For VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P) For VSP G1000, VSP G1500, VSP F1500, VSP 5000 series: ▪ RAID5: (3D+1P), (7D+1P) ▪ RAID6: (6D+2P), (14D+2P) ▪ RAID1+0: (2D+2D), (2D+2D)x2
availableSizesInBytes	Long	Available sizes to use for creating and updating the pool.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/templates/pool
```

Example response

```
{
    "label": "SSD-Pool",
    "utilizationThreshold1": 70,
    "utilizationThreshold2": 80,
    "subscriptionLimit": null,
    "tiers": [
```

```
        {
            "name": "Platinum",
            "tierId": 1,
            "templateSubTiers": []
        },
        {
            "name": "Gold",
            "tierId": 2,
            "templateSubTiers": []
        },
        {
            "name": "Silver",
            "tierId": 3,
            "templateSubTiers": []
        },
        {
            "name": "Bronze",
            "tierId": 4,
            "templateSubTiers": []
        }
    ],
    "warning": null,
    "suspendSnapshot": null
}
```

Getting a specific pool template

You can list the different pool sizes that can be created for a specific storage pool, based on the available resources and applying best practices.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/templates/pool/storagePoolId
```

Use the storage system ID as the *storageSystemId*.

Use the storage pool ID as the *storagePoolId*.

Request structure

Not applicable.

Response structure

```
{
  "label": "",
  "utilizationThreshold1":  ,
  "utilizationThreshold2":  ,
  "subscriptionLimit": {
    "value":  ,
    "unlimited":
```

```
  },
  "suspendSnapshot": ,
  "tiers": [
    {
      "templateSubTiers": [
        {
          "availableSizesInBytes": [
            ""
          ],
          "diskType": "",
          "speed":  ,
          "capacity": {
            "bytes":
          },
          "raidLevel": "",
          "raidLayout": "",
          "description": ""
        }
      ],
      "name": ""
    }
  ]
}
```

Parameter	Type	Description
label	String	Name of the storage pool.
utilizationThreshold1	String	Pool utilization thresholds in percentage (Low).
utilizationThreshold2	String	Pool utilization thresholds in percentage (High).
subscriptionLimit	String	Maximum subscription of volume capacity allowed on this pool. If there is an unlimited subscription limit, unlimited = true. Always NULL for VSP G/F350, G/F370, G/F700, G/F900.
suspendSnapshot	Boolean	Whether the usedCapacity of the pool is greater than utilizationThreshold2. If TRUE, the snapshots inside the pool are suspended. Their status is PSUE and the S-VOL will never accept read/write operations. If FALSE, you can write to the snapshot. If the pool is TIERED or SNAP, a NULL value is returned.

Parameter	Type	Description
tiers	String	Tiers that belong in the pool.
availableSizesInBytes	String	Unused capacity of the volume that is attached to the host.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.
capacity	String	Capacity of the tier in bytes.
raidLevel	String	RAID level, such as RAID 5 or RAID 6.
raidLayout	String	RAID layout.
description	String	Short description of the pool.
name	String	Name of the tier.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

```
https://172.17.64.109/v1/storage-systems/410209/templates/pool/1
```

Example response

```
{
    "label": "SSD-Pool",
    "utilizationThreshold1": 70,
    "utilizationThreshold2": 80,
```

```
    "subscriptionLimit": null,
    "tiers": [
        {
            "name": "Platinum",
            "tierId": 1,
            "templateSubTiers": []
        },
        {
            "name": "Gold",
            "tierId": 2,
            "templateSubTiers": []
        },
        {
            "name": "Silver",
            "tierId": 3,
            "templateSubTiers": []
        },
        {
            "name": "Bronze",
            "tierId": 4,
            "templateSubTiers": []
        }
    ],
    "warning": null,
    "suspendSnapshot": null
}
```

Creating pool template

Using best practices, you can create a pool of a specified size and tier. If more than one tier is requested, a tiered pool is created. The tier `name` and the available pool size, `sizeToUseInBytes`, are the required parameters . Other disk parameters, such as, `speed`, `capacity`, `raidLevel`, `raidLayout`, and `diskType` are ignored, if specified.

The pool size must be one of the possible sizes returned by the GET pool template API.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/templates/pool
```

Use the storage system ID as the *storageSystemId*.

Request structure

The request body structure is as follows:

```
{
  "tieringMode": "",
  "monitoringMode"; "",
  "monitoringCycle": "",
```

```
 "monitoringPeriodStart": "",
 "monitoringPeriodEnd": "",
 "relocationSpeed": "",
  "utilizationThreshold1": ,
  "utilizationThreshold2": ,
  "subscriptionLimit": {
    "unlimited": ,
    "value":
  },
  "htiPool": ,
  "poolTemplateSubTiers": [
    {
      "capacity": {
        "bytes":
      },
      "diskType": "",
      "raidLevel": "",
      "raidLayout": "",
      "speed": ,
      "sizeToUseInBytes": "",
      "name": "",
      "bufferSpace": {
        "newPageAssignment":,
        "tierRelocation":
      }
    }
  ],
  "label": ""
  "suspendSnapshot":
}
```

Parameter	Required	Type	Description
subscriptionLimit	No	Object	This is the maximum volume capacity subscription that is allowed on a given storage pool. The allowed values are between 1 - 65534. To set an unlimited subscription limit, set unlimited = true. This parameter cannot be set for pools which is deduplication disabled or has volumes with capacity saving enabled for VSP 5000 series storage systems with firmware versions from 90-01-4x or later.

Parameter	Required	Type	Description
			If the subscriptionLimit is not specified, Hitachi Ops Center Administrator sets it to unlimited for storage systems VSP 5000 series with firmware versions 90-01-4x or later, and to 100% for others. This parameter cannot be set for VSP G370, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
utilizationThreshold1	No	Integer	Pool utilization thresholds in percentage (Low). The range is between 1 - 100. If the utilizationThreshold1 is not specified, Ops Center Administrator sets it to 70%.
utilizationThreshold2	No	Integer	Pool utilization thresholds in percentage (High). The range is between 1 - 100. The value for utilizationThreshold2 must be greater than the value for utilizationThreshold1. If utilizationThreshold2 is not specified, Ops Center Administrator sets it to 80%.
htiPool	No	Boolean	Determines whether the pool is an HTI pool. Set this to be true when you want the pool to be an HTI pool.
diskType	Yes	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
raidLevel	Yes	String	RAID level. Valid values: RAID0, RAID1, RAID1+0, RAID0+1, RAID2, RAID3, RAID4, RAID5, or RAID6.
raidLayout	Yes	String	The RAID layout of the specified RAID level. For VSP E series, VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P)

Parameter	Required	Type	Description
			For VSP G1000, VSP G1500, VSP F1500, VSP 5000 series: ▪ RAID5: (3D+1P), (7D+1P) ▪ RAID6: (6D+2P), (14D+2P) ▪ RAID1+0: (2D+2D), (2D+2D)x2
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, SCM NVMe, or FMD DC2, the speed is 0.
sizeToUseInBytes	Yes	String	The size to be used in creating and updating the pool (Based on all availableSizesInBytes).
name	Yes	String	Name of the tier, such as Platinum, Gold, Silver, Bronze, or External.
label	No	String	Name of the storage pool. This should be a unique name for the storage pool.
tieringMode	No	String	Tiering mode for tiered pools. Values: AUTOMATIC or MANUAL. This is set to AUTOMATIC if no value is specified. Setting this value is only available for storage systems with an SVP.
monitoringMode	No	String	Monitoring mode for a Tiered pool. Values: PERIODICAL or CONTINUOUS. This is set to CONTINUOUS if no value is specified.
monitoringCycle	No	String	A cycle time during which I/O monitoring is performed on a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 duration format. Possible values are: "PT24H", "PT8H", "PT4H", "PT2H", "PT1H" or "PT30M" for 24 hours, 8 hours, 4 hours, 2 hours, 1 hour and 30 minutes respectively. If a value is not specified, "PT24H" will be set as default value. This value is only available for storage systems with an SVP.

Parameter	Required	Type	Description
monitoringPeriodStart	No	String	The instant when monitoring begins in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "00:00" will be set as default value. This value is only available for storage systems with an SVP.
monitoringPeriodEnd	No	String	The instant when monitoring ends in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "23:59" will be set as default value. This value cannot be less than monitoringPeriodStart value. This value is only available for storage systems with an SVP.
newPageAssignment	No	Integer	The percentage of buffer space of a tier assigned to new pages. This value must be between 0 and 50.
tierRelocation	No	Integer	The percentage of buffer space of a tier assigned for relocation. This value must be between 2 and 40. If not specified 2 (%) will be used as a default value for each tier.
relocationSpeed	No	String	Relocation speed for a tiered pool. If not specified STANDARD is used as a default value. Possible values are SLOWEST, SLOWER, STANDARD, FASTER or FASTEST. This value is only available for storage systems with an SVP.
suspendSnapshot	No	Boolean	Set to TRUE by default.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
```

```
      "messageCode": "",
      "parameters":
       {
       }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Updating a pool template

Using best practices, you can update a pool of a specified size and tier. If more than one tier is requested, a tiered pool is created. You must specify either the tier name or the capacity, diskType, raidLevel, raidLayout, and speed.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/templates/pool/storagePoolId
```

Use the storage system ID as the *storageSystemId*.

Use the storage pool ID as the *storagePoolId*.

Request structure

The request body structure is as follows:

```
{
  "tieringMode": "",
  "monitoringMode"; "",
  "monitoringCycle": "",
  "monitoringPeriodStart": "",
  "monitoringPeriodEnd": "",
  "relocationSpeed": "",
   "utilizationThreshold1": ,
   "utilizationThreshold2": ,
   "subscriptionLimit": {
     "unlimited": ,
     "value":
```

```
  },
  "htiPool": ,
  "poolTemplateSubTiers": [
    {
      "capacity": {
        "bytes":
      },
      "diskType": "",
      "raidLevel": "",
      "raidLayout": "",
      "speed": ,
      "sizeToUseInBytes": "",
      "name": "",
      "bufferSpace": {
        "newPageAssignment":,
        "tierRelocation":
      }
    }
  ],
  "label": ""
  "suspendSnapshot":
}
```

Parameter	Required	Type	Description
bufferSpace	No	Object	The default rates (rate to capacity of a tier) of buffer space used for new page assignments and tier relocation.
utilizationThreshold1	No	Integer	Pool utilization thresholds in percentage (Low). The range is between 1 - 100. If the utilizationThreshold1 is not specified, Ops Center Administrator sets it to 70%.
utilizationThreshold2	No	Integer	Pool utilization thresholds in percentage (High). The range is between 1 - 100. The value for utilizationThreshold2 must be greater than the value for utilizationThreshold1. If utilizationThreshold2 is not specified, Ops Center Administrator sets it to 80%.
subscriptionLimit	No	Object	This is the maximum volume capacity subscription that is allowed on a given storage pool. The allowed values are between 1 - 65534. To set an unlimited subscription limit, set unlimited = true.

Parameter	Required	Type	Description
			This parameter cannot be set for pools which is deduplication disabled or has volumes with capacity saving enabled for VSP 5000 series storage systems with firmware versions from 90-01-4x or later. If the subscriptionLimit is not specified, Hitachi Ops Center Administrator sets it to unlimited for storage systems VSP 5000 series with firmware versions 90-01-4x or later, and to 100% for others. This parameter cannot be set for VSP G370, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
htiPool	No	Boolean	Determines whether the pool is a HTI pool. Set this to be true when you want the pool to be an HTI pool.
capacity	No	String	Capacity of the tier in bytes.
diskType	Yes	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
raidLevel	No	String	RAID level, such as RAID 5 or RAID 6.
raidLayout	No	String	RAID layout
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, SCM NVMe, or FMD DC2, the speed is 0.
sizeToUseInBytes	Yes	String	The size to be used in creating and updating the pool (Based on all availableSizesInBytes).
name	No	String	Name of the tier.
label	No	String	Name of the storage pool. This should be a unique name for the storage pool.
moveToResourceGroup	No	Boolean	Whether to move parity group ldevs to the pool's resource group or not.

Parameter	Required	Type	Description
tieringMode	No	String	Tiering mode for tiered pools. Values: AUTOMATIC or MANUAL. This is set to AUTOMATIC if no value is specified. Setting this value is only available for storage systems with an SVP.
monitoringMode	No	String	Monitoring mode for a Tiered pool. Values: PERIODICAL or CONTINUOUS. This is set to CONTINUOUS if no value is specified.
monitoringCycle	No	String	A cycle time during which I/O monitoring is performed on a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 duration format. Possible values are: "PT24H", "PT8H", "PT4H", "PT2H", "PT1H" or "PT30M" for 24 hours, 8 hours, 4 hours, 2 hours, 1 hour and 30 minutes respectively. If a value is not specified, "PT24H" will be set as default value. This value is only available for storage systems with an SVP.
monitoringPeriodStart	No	String	The instant when monitoring begins in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "00:00" will be set as default value. This value is only available for storage systems with an SVP.
monitoringPeriodEnd	No	String	The instant when monitoring ends in storage system local time, with no adjustment for daylight savings for a tiered pool when tieringMode is set to "AUTOMATIC". The input value is in the ISO8601 times format. If the value is not specified, "23:59" will be set as default value. This value cannot be less than monitoringPeriodStart value. This value is only available for storage systems with an SVP.
newPageAssignment	No	Integer	The percentage of buffer space of a tier assigned to new pages. This value must be between 0 and 50.

Parameter	Required	Type	Description
tierRelocation	No	Integer	The percentage of buffer space of a tier assigned for relocation. This value must be between 2 and 40. If not specified 2 (%) will be used as a default value for each tier.
relocationSpeed	No	String	Relocation speed for a tiered pool. If not specified STANDARD is used as a default value. Possible values are SLOWEST, SLOWER, STANDARD, FASTER or FASTEST. This value is only available for storage systems with an SVP.
suspendSnapshot	No	Boolean	Set to TRUE by default.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
```

```
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
404	Not found	The specified storage system ID is not valid or the storage system does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Volume management resources

Request	Method	URI	Role
Listing volumes (on page 200)	GET	/v1/storage-systems/*storageSystemId*/volumes	Storage administrator System administrator Security administrator
Getting volume details (on page 211)	GET	/v1/storage-systems/*storageSystemId*/volumes/*volumeId*	Storage administrator System administrator Security administrator
Getting a volumes summary (on page 223)	GET	/v1/storage-systems/*storageSystemId*/volumes/summary	Storage administrator System administrator Security administrator

The following requests can be used when you want to create, update, delete, or attach volumes in a pool in the storage system.

Request	Method	URI	Role
Creating a volume (on page 224)	POST	/v1/storage-systems/*storageSystemId*/volumes	Storage administrator
Updating a volume (on page 229)	POST	/v1/storage-systems/*storageSystemId*/volumes/*volumeId*	Storage administrator
Deleting a volume (on page 234)	DELETE	/v1/storage-systems/*storageSystemId*/volumes/*volumeId*	Storage administrator
Deleting volumes (on page 237)	POST	/v1/volume-manager/delete	Storage administrator
Detaching volumes (on page 241)	POST	/v1/volume-manager/detach	Storage administrator
Edit volume LUN path (on page 282)	POST	/v1/volume-manager/edit-lun-paths	Storage administrator
Getting auto-selection paths (on page 288)	GET	/v1/volume-manager/auto-path-select	Storage administrator System administrator Security administrator
Getting host groups (on page 291)	GET	/v1/storage-systems/*storageSystemId*/host-groups	Storage administrator System administrator Security administrator
Getting host group information (on page 296)	GET	/v1/storage-systems/*storageSystemId*/host-groups/*hostGroupId*	Storage administrator System administrator Security administrator
Editing a host group (on page 301)	PATCH	/v1/storage-systems/*storageSystemId*/host-groups/*hostGroupId*	Storage administrator

Request	Method	URI	Role
			System administrator
Adding a mutual CHAP user of a host group (on page 304)	PATCH	/v1/storage-systems/*storageSystemId*/host-groups/*hostGroupId*	Storage administrator System administrator Security administrator
Updating a mutual CHAP user of a host group (on page 308)	PATCH	/v1/storage-systems/*storageSystemId*/host-groups/*hostGroupId*	Storage administrator System administrator Security administrator
Deleting a mutual CHAP user of a host group (on page 312)	PATCH	/v1/storage-systems/*storageSystemId*/host-groups/*hostGroupId*	Storage administrator System administrator Security administrator
Shredding volumes (on page 316)	POST	/v1/volume-manager/shred	Storage administrator
Interrupting volume shredding (on page 320)	POST	/v1/volume-manager/shred/interrupt	Storage administrator

The following requests can be used when you want to make bulk volume management requests:

Request	Method	URI	Role
Creating multiple volumes (on page 245)	POST	/v1/volume-manager/create	Storage administrator
Attaching volumes (on page 251)	POST	/v1/volume-manager/attach	Storage administrator
Attaching and protecting volumes (on page 258)	POST	/v1/volume-manager/attach-protect	Storage administrator
Creating, attaching, and protecting volumes (on page 264)	POST	/v1/volume-manager/create-attach-protect	Storage administrator
Updating multiple volumes (on page 274)	POST	/v1/volume-manager/update	Storage Administrator
Detaching volumes from multiple servers (on page 279)	POST	/v1/volume-manager/detach-from-multiple-servers	Storage administrator

Listing volumes

You can display a list of all volumes in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volumes
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable

Response structure

The response body structure is as shown:

```
{
  "resources": [
      {
          "volumeId": ,
          "storageSystemId": "",
          "storageSystemName": "",
          "resourceGroupId": ,
          "resourceGroupName": "",
          "poolId": "",
```

```
        "poolName": "",
        "label": "",
        "size": ,
        "usedCapacity": ,
        "availableCapacity": ,
        "utilization": ,
        "attributes": [""],
        "status": "",
        "type": "",
        "provisioningStatus": "",
        "portIds": [""],
        "hostGroupNames": [""],
        "luns": [],
        "numberOfLunPaths": ,
        "attachedVolumeServerSummary": [
            {
                "serverId": ,
                "paths": [
                    {
                        "storagePortId": "",
                        "storageSystemId": "",
                        "lun": ,
                        "hostGroupId": "",
                        "name": "",
                        "hostMode": "",
                        "wwns": [""],
                        "hostModeOptions": [""],
                        "iscsiTargetInformation": {},
                        "preferredPath":
                    },
                    ...
                ]
            },
            ...
        ],
        "dataProtectionSummary": {
            "replicationType": [""],
            "volumeType": [""],
            "replicationGroupIdMap": {},
            "hasFailures": ,
            "secondaryVolumeCount": ,
            "secondaryVolumeFailures":
        },
        "gadSummary": {
            "vsmId": "",
            "virtualLdevId": ,
            "volumeType": "",
            "pairStatus": "",
            "consistencyId":,
            "mirrors" : [
            {
```

```
                "mirrorId": ,
                "volumeType": "",
                "pairStatus": "",
                "consistencyId":
            },
            ...
        },
        "dkcDataSavingType": "",
        "virtualStorageMachineInformation": {
            "virtualStorageMachineId": "",
            "storageSystemId": "",
            "model": "",
            "virtualVolumeId":
        },
        "migrationSummary": {
            "ownerTaskId": ,
            "migrationType": ""
        },
        "aluaEnabled": ,
        "tieringPolicy": {
            "id": ,
            "name": "",
            "userDefined":
        },
        "t10PiEnabled":,
        "compressionAcceleration": ,
        "commandDevice": {
          "securityEnabled": ,
          "userAuthenticationEnabled": ,
          "deviceGroupSettingEnabled":
        }
    },
    ...
  ],
  "total": ,
  "nextToken": ""
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
storageSystemId	String	ID of the storage system.
storageSystemName	String	The name of the storage system.
resourceGroupId	Integer	ID of the resource group.
resourceGroupName	String	Name of the resource group.

Parameter	Type	Description
poolId	String	ID of the pool from which the resource is allocated.
poolName	String	Name of the pool from which the resource is allocated.
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage= (usedCapacity/size) *100.
attributes	List	List of the attributes of the volume. Valid values: ▪ THIN: a volume for thin provisioning. ▪ CMD: a volume used as a command device. ▪ VVOL: a secondary volume for creating snapshots. ▪ GUARD: a volume for Data Retention Utility. ▪ MIGRATION_RESERVED: a volume for the data migration. ▪ HA: a primary or secondary volume for High Availability. ▪ HA_RESERVED: a reserved volume for High Availability. ▪ NAS_TYPE_USER: a volume used as a user LU of the storage system includes NAS modules. ▪ ALUA: a volume of which ALUA mode is enabled. ▪ T10PI: a volume of which T10PI mode is enabled. ▪ COMPRESSION: a volume of which compression is enabled.

Parameter	Type	Description
		▪ DEDUPLICATION: a volume of which deduplication is enabled. ▪ DRS: a volume of which DRS is enabled.
status	String	Volume status. Valid values: NORMAL, BLOCKED, BUSY, SHREDDING, UNKNOWN, or NONE.
type	String	Type of pool from which the volume is allocated. Valid values: THIN, TIERED, or SNAP.
provisioningStatus	String	Provisioning status of a volume. Valid values: ATTACHED, UNATTACHED, or UNMANAGED.
portIds	List	List of the storage port IDs.
hostGroupNames	List	List of the host group names.
luns	List	List of the LUN IDs.
numberOfLunPaths	Integer	The number of paths from WWNs or iSCSI names to volumes (excluding paths where LUN security is disabled).
attachedVolumeServerSummary	List	Volume provisioning summary details.
serverId	Integer	ID of the server.
paths	List	Paths that exist on the volume.
storagePortId	Long	ID of the storage port.
storageSystemId	String	ID of the storage system.
lun	Integer	ID of the LUN.
hostModeOptions	List of Integers	Host mode options for the volume.
name	String	Name of the resource.
hostMode	String	Host mode set for the volume.
wwns	List	List of WWNs of connected hosts. NULL for iSCSI path.
hostGroupId	Long	ID of the host group.

Parameter	Type	Description
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
preferredPath	Boolean	Whether the LU path (host group) is preferred or not.
dataProtectionSummary	Object	List of the data protection attributes of the volume.
replicationType	String	Volume replication type. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
volumeType	Set	Type of volume in the replication. Valid values: P-VOL, S-VOL, or UNPROTECTED.
replicationGroupIdMap	Object	Replication group ID map. Consisting of the replication group ID and the replication group name for each of the replication group the volume belongs to.
hasFailures	Boolean	Whether the volume has replication failures.
secondaryVolumeCount	Integer	Count of secondary volume pairs protecting the primary volume.
secondaryVolumeFailures	Integer	Count of failed volume pairs where this volume is an S-VOL.
gadSummary	Object	List of the GAD attributes of the volume. If there is no GAD pair, a NULL value is returned.
vsmId	String	ID number of the virtual storage machine (VSM).
virtualLdevID	String	ID number of the virtual volume.

Parameter	Type	Description
volumeType	String	Volume type. Valid values: Active-Primary, Active-Secondary **Note:** This parameter is deprecated and will be removed in a future version. Use the `volumeType` parameter of the `mirrors` object instead.
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ UNKNOWN: a volume pair is in unknown status. ▪ NONE: a volume is not paired. **Note:** This parameter is deprecated and will be removed in a future version. Use the `pairStatus` parameter of the `mirrors` object instead.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. **Note:** This parameter is deprecated and will be removed in a future version. Use the `consistencyId` parameter of the `mirrors` object instead.
mirrors	Object	List of the GAD attributes per mirror of the volume.

Parameter	Type	Description
volumeType	String	Volume type. Valid values: ACTIVE_PRIMARY, ACTIVE_SECONDARY, NOT_AVAILABLE
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: the volume is in paired status. ▪ PSUS: the volume pair is in suspended status for the primary volume. ▪ SSUS: the volume pair is in suspended status for the secondary volume. ▪ COPY: the volume pair is in data synchronizing status. ▪ PSUE: the volume pair is in suspended status with error. ▪ SSWS: the volume pair is in suspended status for swapping the secondary volume.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. For storage systems without an SVP, a NULL value is returned.
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSIO N, and NONE
virtualStorageMachineInform ation	Object	Displays the virtual storage machine information for the volume. A value of NULL is returned if there are no VSMs.
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	The serial number of the VSM to which the volume belongs.
model	String	The model of the VSM to which the volume belongs.

Parameter	Type	Description
virtualVolumeId	Long	The virtual volume ID. If the virtual volume is not defined, a value of NULL is returned.
migrationSummary	Object	List of migration attributes for the volume.
ownerTaskId	String	The ID of the owner migration task.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE
aluaEnabled	Boolean	Whether or not ALUA mode of the volume is enabled.
tieringPolicy	Object	Tiering policy information
id	Integer	Tier level between 0 and 31.
name	String	Name of the tier. This value is editable outside of Hitachi Ops Center Administrator for tier level 6 and higher.
userDefined	Boolean	True for tier levels 6 and higher. False, otherwise.
t10PiEnabled	Boolean	Whether or not T10PI mode of the volume is enabled.
compressionAcceleration	String	Whether the compression accelerator is enabled for the volume. Valid values: ENABLED, DISABLED, -
commandDevice	Object	Command device settings for the volume. The value of this parameter is null in case of storage systems without SVP or not command device.
securityEnabled	Boolean	Whether or not the command device security setting is enabled.
userAuthenticationEnabled	Boolean	Whether or not user authentication for the command device is enabled.
deviceGroupSettingEnabled	Boolean	Whether or not device group information authentication for the command device is enabled.

Note: The API does not return the NAA ID of the volume.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://172.17.64.116/v1/storage-systems/41020/volumes
```

Example response


```
{
  "resources": [
      {
          "volumeId": 0,
          "storageSystemId": "41020",
          "storageSystemName": "RN-SC-41020-HID_SVOS7.3-Gsd",
          "resourceGroupId": 0,
          "resourceGroupName": "meta_resource",
          "poolId": "3",
          "poolName": "test-pool",
          "label": "test-aua",
          "size": 2147483648,
          "usedCapacity": 0,
          "availableCapacity": 2147483648,
          "utilization": 0,
          "attributes": [
              "THIN"
          ],
          "status": "NORMAL",
          "type": "THIN",
```

```
        "provisioningStatus": "ATTACHED",
        "portIds": [
            "CL1-E",
            "CL3-F"
        ],
        "hostGroupNames": [
            "DocServer",
            "windows16"
        ],
        "luns": [
            1,
            2
        ],
        "numberOfLunPaths": 2,
        "attachedVolumeServerSummary": [
            {
                "serverId": null,
                "paths": [
                    {
                        "storagePortId": "CL3-F",
                        "storageSystemId": "41020",
                        "lun": 1,
                        "hostGroupId": "CL3-F-6",
                        "name": "windows16",
                        "hostMode": "WIN",
                        "wwns": [
                            "1000000533267214"
                        ],
                        "hostModeOptions": [],
                        "iscsiTargetInformation": null,
                        "preferredPath": true
                    },
                    ...
                ]
            },
            {
                "serverId": 2,
                "paths": [
                    {
                        "storagePortId": "CL1-E",
                        "storageSystemId": "41020",
                        "lun": 2,
                        "hostGroupId": "CL1-E-12",
                        "name": "DocServer",
                        "hostMode": "SOLARIS",
                        "wwns": [
                            "5000000000000000"
                        ],
                        "hostModeOptions": [],
                        "iscsiTargetInformation": null,
                        "preferredPath": true
```

```
                    },
                    ...
                ]
            }
        ],
        ...
        "gadSummary": {
            "vsmId": "7",
            "virtualLdevId": "2657",
            "volumeType": "ACTIVE_PRIMARY",
            "pairStatus": "PAIR",
            "consistencyId": 15,
            "mirrors" : [
               {
                 "mirrorId": 0,
                 "volumeType": "ACTIVE_SECONDARY",
                 "pairStatus": "PAIR",
                 "consistencyId": 15
               },
               {
                 "mirrorId": 1,
                 "volumeType": "ACTIVE_PRIMARY",
                 "pairStatus": "COPY",
                 "consistencyId": 17
               }
            ]
        ...
        "virtualStorageMachineInformation": {
           "virtualStorageMachineId": "41503-VSPF700",
           "storageSystemId": "41010",
           "model": "VSP F700",
           "virtualVolumeId": 0
       },
        ...,
        "compressionAcceleration": "ENABLED",
        "commandDevice": {
          "securityEnabled": true,
          "userAuthenticationEnabled": false,
          "deviceGroupSettingEnabled": false
        }
      }
      ...
  ],
  "total": ,
  "nextToken": ""
}
```


Getting volume details

You can display the detailed information for a specific volume in the storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volumes/volumeId
```

Use the storage system ID as the *storageSystemId*.

Use the volume ID as the *volumeId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "volumeId": ,
  "storageSystemId": "",
  "storageSystemName": "",
  "resourceGroupId": ,
  "resourceGroupName": "",
  "poolId": "",
  "poolName": "",
  "label": "",
  "size": ,
  "usedCapacity": ,
  "availableCapacity": ,
  "utilization": ,
  "attributes": [""],
  "status": "",
  "type": "",
  "provisioningStatus": "",
  "portIds": [""],
  "hostGroupNames": [""],
  "luns": [],
  "numberOfLunPaths": ,
  "attachedVolumeServerSummary": [
    {
      "serverId": ,
      "paths": [
        {
          "storagePortId": "",
          "storageSystemId": "",
          "lun": ,
          "hostGroupId": "",
          "name": "",
          "hostMode": "",
          "wwns": [""],
          "hostModeOptions": [""],
          "iscsiTargetInformation": {},
          "preferredPath":
```

```
        },
        ...
      ]
    },
    ...
  ],
  "dataProtectionSummary": {
    "replicationType": [""],
    "volumeType": [""],
    "replicationGroupIdMap": {},
    "hasFailures": ,
    "secondaryVolumeCount": ,
    "secondaryVolumeFailures":
  },
  "gadSummary": {
    "vsmId": "",
    "virtualLdevId": ,
    "volumeType": "",
    "pairStatus": "",
    "consistencyId":,
    "mirrors" : [
      {
        "mirrorId": ,
        "volumeType": "",
        "pairStatus": "",
        "consistencyId":
      },
      ...
    ]
  },
  "dkcDataSavingType": "",
  "virtualStorageMachineInformation": {
    "virtualStorageMachineId": "",
    "storageSystemId": "",
    "model": "",
    "virtualVolumeId": ,
  },
  "migrationSummary": {
    "ownerTaskId": ,
    "migrationType": ""
  },
  "aluaEnabled": ,
  "tieringPolicy": {
    "id": ,
    "name": "",
    "userDefined":
  },
  "t10PiEnabled":,
  "compressionAcceleration": ,
  "commandDevice": {
    "securityEnabled": ,
```

```
    "userAuthenticationEnabled": ,
    "deviceGroupSettingEnabled":
  }
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
storageSystemId	String	ID of the storage system.
storageSystemName	String	The name of the storage system.
resourceGroupId	Integer	ID of the resource group.
resourceGroupName	String	Name of the resource group.
poolId	String	ID of the pool from which the resource is allocated.
poolName	String	Name of the pool from which the resource is allocated.
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage= (usedCapacity/size) *100.
attributes	List	List of the attributes of the volume. Valid values: ▪ THIN: a volume for thin provisioning. ▪ CMD: a volume used as a command device. ▪ VVOL: a secondary volume for creating snapshots. ▪ GUARD: a volume for Data Retention Utility. ▪ MIGRATION_RESERVED: a volume for the data migration.

Parameter	Type	Description
		▪ HA: a primary or secondary volume for High Availability. ▪ HA_RESERVED: a reserved volume for High Availability. ▪ NAS_TYPE_USER: a volume used as a user LU of the storage system includes NAS modules. ▪ ALUA: a volume of which ALUA mode is enabled. ▪ T10PI: a volume of which T10PI mode is enabled. ▪ COMPRESSION: a volume of which compression is enabled. ▪ DEDUPLICATION: a volume of which deduplication is enabled. ▪ DRS: a volume of which DRS is enabled.
status	String	Volume status. Valid values: NORMAL, BLOCKED, BUSY, SHREDDING, UNKNOWN, or NONE.
type	String	Type of pool from which the volume is allocated. Valid values: THIN, TIERED, or SNAP.
provisioningStatus	String	Provisioning status of a volume. Valid values: ATTACHED, UNATTACHED, or UNMANAGED.
portIds	List	List of the storage port IDs.
hostGroupNames	List	List of the host group names.
luns	List	List of the LUN IDs.
numberOfLunPaths	Integer	The number of paths from WWNs or iSCSI names to volumes (excluding paths where LUN security is disabled).
attachedVolumeServerSummary	List	Volume provisioning summary details.
serverId	Integer	ID of the server.
paths	List	Paths that exist on the volume.

Parameter	Type	Description
storagePortId	Long	ID of the storage port.
storageSystemId	String	ID of the storage system.
lun	Integer	ID of the LUN.
hostModeOptions	List of Integers	Host mode options for the volume.
name	String	Name of the resource.
hostMode	String	Host mode set for the volume.
wwns	List	List of WWNs of connected hosts. NULL for iSCSI path.
hostGroupId	Long	ID of the host group.
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
preferredPath	Boolean	Whether the LU path (host group) is preferred or not.
dataProtectionSummary	Object	List of the data protection attributes of the volume.
replicationType	String	Volume replication type. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
volumeType	Set	Type of volume in the replication. Valid values: P-VOL, S-VOL, or UNPROTECTED.
replicationGroupIdMap	Object	Replication group ID map. Consisting of the replication group ID and the replication group name for each of the replication group the volume belongs to.

Parameter	Type	Description
hasFailures	Boolean	Whether the volume has replication failures.
secondaryVolumeCount	Integer	Count of secondary volume pairs protecting the primary volume.
secondaryVolumeFailures	Integer	Count of failed volume pairs where this volume is an S-VOL.
gadSummary	Object	List of the GAD attributes of the volume. If there is no GAD pair, a NULL value is returned.
vsmId	String	ID number of the virtual storage machine (VSM).
virtualLdevID	String	ID number of the virtual volume.
volumeType	String	Volume type. Valid values: Active-Primary, Active-Secondary **Note:** This parameter is deprecated and will be removed in a future version. Use the `volumeType` parameter of the `mirrors` object instead.
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ UNKNOWN: a volume pair is in unknown status. ▪ NONE: a volume is not paired.

Parameter	Type	Description
		Note: This parameter is deprecated and will be removed in a future version. Use the `pairStatus` parameter of the `mirrors` object instead.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. **Note:** This parameter is deprecated and will be removed in a future version. Use the `consistencyId` parameter of the `mirrors` object instead.
mirrors	Object	List of the GAD attributes per mirror of the volume.
volumeType	String	Volume type. Valid values: ACTIVE_PRIMARY, ACTIVE_SECONDARY, NOT_AVAILABLE
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: the volume is in paired status. ▪ PSUS: the volume pair is in suspended status for the primary volume. ▪ SSUS: the volume pair is in suspended status for the secondary volume. ▪ COPY: the volume pair is in data synchronizing status. ▪ PSUE: the volume pair is in suspended status with error. ▪ SSWS: the volume pair is in suspended status for swapping the secondary volume.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. For storage systems without an SVP, a NULL value is returned.

Parameter	Type	Description
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSION, and NONE
virtualStorageMachineInformation	Object	Displays the virtual storage machine information for the volume. A value of NULL is returned if there are no VSMs.
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	The serial number of the VSM to which the volume belongs.
model	String	The model of the VSM to which the volume belongs.
virtualVolumeId	Long	The virtual volume ID. If the virtual volume is not defined, a value of NULL is returned.
migrationSummary	Object	List of migration attributes for the volume.
ownerTaskId	String	The ID of the owner migration task.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE
aluaEnabled	Boolean	Whether ALUA mode of the volume is enabled.
tieringPolicy	Object	Tiering policy information
id	Integer	Tier level between 0 and 31.
name	String	Name of the tier. This value is editable outside of Hitachi Ops Center Administrator for tier level 6 and higher.
userDefined	Boolean	True for tier levels 6 and higher. False, otherwise.
t10PiEnabled	Boolean	Whether T10PI mode of the volume is enabled.
compressionAcceleration	String	Whether the compression accelerator is enabled for the volume. Valid values: ENABLED, DISABLED, -

Parameter	Type	Description
commandDevice	Object	Command device settings for the volume. The value of this parameter is null in case of storage systems without SVP or not command device.
securityEnabled	Boolean	Whether or not the command device security setting is enabled.
userAuthenticationEnabled	Boolean	Whether or not user authentication for the command device is enabled.
deviceGroupSettingEnabled	Boolean	Whether or not device group information authentication for the command device is enabled.

Note: The API does not return the NAA ID of the volume.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/storage-systems/41020/volumes/68
```

Example response


```
{
  "volumeId": 0,
  "storageSystemId": "41020",
  "storageSystemName": "RN-SC-41020-HID_SVOS7.3-Gsd",
  "resourceGroupId": 0,
  "resourceGroupName": "meta_resource",
  "poolId": "3",
  "poolName": "test-pool",
  "label": "test-aua",
  "size": 2147483648,
  "usedCapacity": 0,
  "availableCapacity": 2147483648,
  "utilization": 0,
  "attributes": [
    "THIN"
  ],
  "status": "NORMAL",
  "type": "THIN",
  "provisioningStatus": "ATTACHED",
  "portIds": [
    "CL1-E",
    "CL3-F"
  ],
  "hostGroupNames": [
    "DocServer",
    "windows16"
  ],
  "luns": [
    1,
    2
  ],
  "numberOfLunPaths": 2,
  "attachedVolumeServerSummary": [
    {
      "serverId": 1,
      "paths": [
        {
          "storagePortId": "CL3-F",
          "storageSystemId": "41020",
          "lun": 1,
          "hostGroupId": "CL3-F-6",
          "name": "windows16",
          "hostMode": "WIN",
          "wwns": [
            "1000000533267214"
```

```
          ],
          "hostModeOptions": [],
          "iscsiTargetInformation": null,
          "preferredPath": true
        },
        ...
      ]
    },
    ...
  ],
  ...
  "gadSummary": {
    "vsmId": "7",
    "virtualLdevId": "2657",
    "volumeType": "ACTIVE_PRIMARY",
    "pairStatus": "PAIR",
    "consistencyId": 15,
    "mirrors" : [
      {
        "mirrorId": 0,
        "volumeType": "ACTIVE_SECONDARY",
        "pairStatus": "PAIR",
        "consistencyId": 15
      },
      {
        "mirrorId": 1,
        "volumeType": "ACTIVE_PRIMARY",
        "pairStatus": "COPY",
        "consistencyId": 17
      }
    ]
  },
  ...
  "virtualStorageMachineInformation": {
    "virtualStorageMachineId": "41503-VSPF700",
    "storageSystemId": "41010",
    "model": "VSP F700",
    "virtualVolumeId": 0
  },
  ...,
  "compressionAcceleration": "ENABLED",
  "commandDevice": {
    "securityEnabled": true,
    "userAuthenticationEnabled": false,
    "deviceGroupSettingEnabled": false
  }
}
```

Getting a volumes summary

You can display a list of volumes with pool types attached to the volumes.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volumes/summary
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
   "volumeCountByType":
   {
    "THIN":
    "TIERED":
    "SNAP":
   },
  "numberOfVolumes":
}
```

Parameter	Type	Description
volumeCountByType	List	List of pool types where the volume is attached.
numberOfVolumes	Integer	Total number of volumes.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/storage-systems/410209/volumes/summary
```

Example response

```
{
  "volumeCountByType":
   {
    "TIERED": 1,
    "THIN": 6
   },
  "numberOfVolumes": 7
}
```

Creating a volume

You can create a volume on a given pool.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/volumes
```

Use the storage system ID where the volume is to be created as the *storageSystemId*.

Request structure

The request body structure is as follows:

```
{
  "capacityInBytes": "",
  "poolId": "",
  "dkcDataSavingType": "",
  "label": "",
  "virtualStorageMachineId": "",
  "tieringPolicyId": ,
  "commandDevice": {
    "commandDeviceEnabled": ,
    "securityEnabled": ,
    "userAuthenticationEnabled": ,
    "deviceGroupSettingEnabled":
```

```
  }
}
```

Parameter	Required	Type	Description
capacityInBytes	Yes	Long	The size of the volume to be created.
poolId	Yes	String	ID of the storage pool.
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are COMPRESSION and DEDUPLICATION_AND_COMPRESSION. The deduplication setting of the target storage pool is automatically enabled if DEDUPLICATION_AND_COMPRESSION is selected, and if it is the first time a storage pool creates volumes using deduplication and compression. COMPRESSION and DEDUPLICATION_AND_COMPRESSION are not available for Snap pools
label	No	String	Description of the volume up to 32 characters.
virtualStorageMachineId	No	String	Specifies the virtual storage machine where the volume is created. If you don't specify this, the volume is created from the default VSM.
tieringPolicyId	No	Integer	A number between 0 and 31 that specifies the tier level.
commandDevice	No	Object	Command device settings for the volume.
commandDeviceEnabled	No	Boolean	Whether to configure the volume as a command device.
securityEnabled	No	Boolean	Whether to enable the command device security setting. If commandDeviceEnabled is true and this value is omitted, false is assumed.
userAuthenticationEnabled	No	Boolean	Whether to enable user authentication for the command device. If commandDeviceEnabled is true and this value is omitted, true is assumed.

Parameter	Required	Type	Description
deviceGroupSettingEnabled	No	Boolean	Whether to enable device group information authentication for the command device. If commandDeviceEnabled is true and this value is omitted, false is assumed.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
  "capacityInBytes": "5368709120",
  "poolId": "0",
  "dkcDataSavingType": "DEDUPLICATION
_AND_COMPRESSION",
  "label": "test-volume-MD",
  "virtualStorageMachineId": "456789-VSPF800andVSPG800",
  "tieringPolicyId": 5,
  "commandDevice": {
    "commandDeviceEnabled": true,
    "securityEnabled": true,
    "userAuthenticationEnabled": false,
    "deviceGroupSettingEnabled": false
  }
}
```

Example request

```
https://172.17.64.111/v1/storage-systems/410209/volumes
```

Example response


```
    {
        "jobId": "1f201bfe-a49b-4269-84b7-dc53c38f5bf6",
        "title":
        {
            "text": "Create volume",
            "messageCode": "CreateVolumeJobTitleMessage",
            "parameters":
            {
            }
        },
        "user": "sysadmin",
        "status": "IN_PROGRESS",
        "startDate": 1456964712680,
        "endDate": null,
        "parentJobId": null,
        "reports":
        [
        ],
        "links":
        [
            {
                "rel": "_self",
                "href": "/v1/jobs/1f201bfe-a49b-4269-84b7-dc53c38f5bf6"
            }
        ],
        "tags":
        [
        ],
        "isSystem": false
    }
```


Updating a volume

You can rename or expand a volume on a storage system. If a volume is a part of a replication group it cannot be deleted. For VSP G1000, VSP G1500, and VSP F1500, a volume can be updated to be part of a replication group, regardless. You can also update the ALUA mode settings for the volume.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/volumes/volumeId
```

Use the storage system ID where the volume is to be updated as the *storageSystemId*.

Request structure

The request body structure is as follows:

```
{
  "capacityInBytes": "",
  "label": "",
  "dkcDataSavingType": "",
  "aluaEnabled":,
  "tieringPolicyId": ,
  "commandDevice": {
    "commandDeviceEnabled": ,
    "securityEnabled": ,
    "userAuthenticationEnabled": ,
    "deviceGroupSettingEnabled":
  }
}
```

Parameter	Required	Type	Description
capacityInBytes	No	Long	Expanded size of the volume. You can specify a size that is greater than or equal to the current size.
label	No	String	Description of the volume up to 32 characters.
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are NONE, COMPRESSION and DEDUPLICATION_AND_COMPRESSION. The deduplication setting of the target storage pool is automatically enabled if DEDUPLICATION_AND_COMPRESSION is selected, and if it is the first time a storage pool creates volumes using deduplication and compression. COMPRESSION and DEDUPLICATION_AND_COMPRESSION are not available for Snap pools. NONE disables current capacity saving settings.
aluaEnabled	No	Boolean	Describes whether ALUA mode of the volume is enabled.
tieringPolicyId	No	Integer	A number between 0 and 31 that specifies the tier level.
commandDevice	No	Object	Command device settings for the volume.

Parameter	Required	Type	Description
commandDeviceEnabled	No	Boolean	Whether to configure the volume as a command device. Specify true also in case of updating the security settings only.
securityEnabled	No	Boolean	Whether to enable the command device security setting. If commandDeviceEnabled is true and this value is omitted, false is assumed. Specify this parameter to prevent the setting from being unexpectedly disabled.
userAuthenticationEnabled	No	Boolean	Whether to enable user authentication for the command device. If commandDeviceEnabled is true and this value is omitted, true is assumed. Specify this parameter to prevent the setting from being unexpectedly disabled.
deviceGroupSettingEnabled	No	Boolean	Whether to enable device group information authentication for the command device. If commandDeviceEnabled is true and this value is omitted, false is assumed. Specify this parameter to prevent the setting from being unexpectedly disabled.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
```

```
    [
    ],
    "links":
    [
       {
          "rel": "_self",
          "href": "/v1/jobs/jobId"
       }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

The request with JSON command:

```
https://172.17.64.111/v1/storage-systems/410209/volumes/volumeId
```

```
{
  "capacityInBytes": "5368709120",
  "label": "test-volume-MD",
  "dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION",
  "tieringPolicyId": 5,
```

```
  "commandDevice": {
    "commandDeviceEnabled": true,
    "securityEnabled": true,
    "userAuthenticationEnabled": false,
    "deviceGroupSettingEnabled": false
  }
}
```

Deleting a volume

You can delete a volume from a specified storage system.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/storage-systems/storageSystemId/volumes/volumeId
```

Use the storage system ID where the volume is to be deleted as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
```

```
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.

Parameter	Type	Description
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

The request with JSON command:

```
https://172.17.64.111/v1/storage-systems/410209/volumes/17
```

Example response

```
    {
        "jobId": "fa9e6498-a578-43ab-a870-7a47cf7f821e",
        "title":
        {
            "text": "Delete volume",
            "messageCode": "DeleteVolumeJobTitleMessage",
            "parameters":
            {
            }
        },
        "user": "sysadmin",
```

```
        "status": "IN_PROGRESS",
        "startDate": 1456966858017,
        "endDate": null,
        "parentJobId": null,
        "reports":
        [
        ],
        "links":
        [
            {
                "rel": "_self",
                "href": "/v1/jobs/fa9e6498-a578-43ab-a870-7a47cf7f821e"
            }
        ],
        "tags":
        [
        ],
        "isSystem": false
    }
```

Deleting volumes

You can delete multiple volumes from a specified storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/delete
```

Use the storage system ID where the volumes are to be deleted as the *storageSystemId*.

Request structure

```
{
  "volumeIds": [],
  "storageSystemId": ""
}
```

Parameter	Required	Type	Description
`volumeIds`	Yes	List	List of the volume IDs to be deleted. The volume ID type is long.
`storageSystemId`	Yes	String	The ID of the storage system.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Job status. Valid values are: ▪ IN_PROGRESS ▪ SUCCESS ▪ SUCCESS_WITH_ERRORS ▪ FAILED
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the href parameter. If the value is _self, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets it to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example

```
{
  "jobId": "ad4203ba-67a0-4785-8bb1-8383ce7501dc",
  "title": {
    "text": "Delete volumes",
    "messageCode": "DeleteVolumeJobTitleMessage",
    "parameters":
     {
     }
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 20190723130000,
  "endDate": null,
  "parentJobId": null,
  "reports":
  [
  ],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/ad4203ba-67a0-4785-8bb1-8383ce7501dc"
    }
  ],
  "tags":
  [
  ],
  "isSystem":false
}
```

Detaching volumes

You can detach volumes from a server.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/detach
```

Request Structure

```
{
  "volumeId": ,
  "volumeIds": [],
  "serverId": ,
  "storageSystemId": "",
  "removeConnection":
}
```

Parameter	Required	Type	Description
volumeId	No	Integer	ID of the volume to be detached. You must specify either `volumeId` or `volumeIds`, but not both.
volumeIds	No	List	The list of the volumes to be detached. The volume ID type is long. You must specify either `volumeId` or `volumeIds`, but not both.
serverId	Yes	Integer	The ID of the server from which the volume is to be detached.
storageSystemId	Yes	String	The ID of the storage system.
removeConnection	No	Boolean	Specify whether the zoning access to the server is removed. FALSE if you specified NULL for the FC port. Must be NULL for iSCSI port.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
```

```
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/volume-manager/detach
```

Example request to detach a single volume

```
{
  "volumeId": "99",
  "serverId": "1",
  "storageSystemId": "410209",
  "removeConnection": "true"
}
```

Example request to detach multiple volumes

```
{
  "volumeIds": [99, 100, 101],
  "serverId": "1",
  "storageSystemId": "410209",
  "removeConnection": "true"
}
```

Creating multiple volumes

You can create different volumes, poolType, and tier on the storage system. If a pool ID is not specified, the least used pool for the given pool type is selected.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/create
```

Request structure

The request body structure is as follows:

```
{
  "storageSystemId": "",
  "volumes": [{
    "poolType": "",
    "numberOfVolumes": ,
    "label": "",
    "suffix": ,
    "capacity": "",
    "poolId":,
    "dkcDataSavingType": "",
    "tieringPolicyId": ,
    "commandDevice": {
      "commandDeviceEnabled": ,
      "securityEnabled": ,
      "userAuthenticationEnabled": ,
```

```
      "deviceGroupSettingEnabled":
    },
    "idRange": {
      "from": ,
      "to":
    }
  }],
  "virtualStorageMachineId": ""
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	Storage system ID.
poolType	Yes	String	The pool type can be TIERED or the name of a tier that is available in the system.
numberOfVolumes	Yes	Integer	Number of volumes. Must be greater than zero.
label	No	String	Name of the volume.
suffix	No	Integer	Suffix number appended to the end of the volume name.
capacity	Yes	Long	The size of the volume to be created.
poolId	No	String	ID of the storage pool. If poolId is not specified, then the least used pool of the specified type is selected.
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are COMPRESSION and DEDUPLICATION_AND_COMPRESSION. The deduplication setting of the target storage pool is automatically enabled if DEDUPLICATION_AND_COMPRESSION is selected, and if it is the first time a storage pool creates volumes using deduplication and compression. COMPRESSION and DEDUPLICATION_AND_COMPRESSION are not available for Snap pools
virtualStorageMachineId	No	String	Specifies the virtual storage machine where the volumes are created. If you don't specify this, the volumes are created from the default VSM.
tieringPolicyId	No	Integer	A number between 0 and 31 that specifies the tier level.

Parameter	Required	Type	Description
idRange	No	Object	An ID range for creating volumes.
from	No	Integer	Starting volume ID of the range (in decimal).
to	No	Integer	Ending volume ID for the range (in decimal)
commandDevice	No	Object	Command device settings for the volume.
commandDeviceEnabled	No	Boolean	Whether to configure the volume as a command device.
securityEnabled	No	Boolean	Whether to enable the command device security setting. If commandDeviceEnabled is true and this value is omitted, false is assumed.
userAuthenticationEnabled	No	Boolean	Whether to enable user authentication for the command device. If commandDeviceEnabled is true and this value is omitted, true is assumed.
deviceGroupSettingEnabled	No	Boolean	Whether to enable device group information authentication for the command device. If commandDeviceEnabled is true and this value is omitted, false is assumed.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
```

```
    [
    ],
    "links":
    [
       {
          "rel": "_self",
          "href": "/v1/jobs/jobId"
       }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
  "storageSystemId":"410209",
  "volumes": [
    {
      "poolType": "TIERED",
      "numberOfVolumes": 1,
      "label": "Test",
      "suffix": 0,
```

```
      "capacity": "1073741824",
      "poolId": 0,
      "dkcDataSavingType": null,
      "idRange":{
        "from": 500,
        "to": 1000
      },
      "tieringPolicyId": 2,
      "commandDevice": {
        "commandDeviceEnabled": true,
        "securityEnabled": true,
        "userAuthenticationEnabled": false,
        "deviceGroupSettingEnabled": false
      }
    }
  ],
  "virtualStorageMachineId":"456789-VSPF800andVSPG800"

}
```

Example request

```
https://172.17.64.118/v1/volume-manager/create
```

Example response

```
{
  "jobId": "9759454d-1c97-4d9a-9528-152855406af2",
  "title": {
    "text": "Create volumes from template",
    "messageCode": "CreateVolumesFromTemplateJobTitleMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1456776122736,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/9759454d-1c97-4d9a-9528-152855406af2"
    }
  ],
  "tags": [],
  "isSystem": false
}
```

Attaching volumes

You can attach one or more volumes to servers registered in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/attach
```

Request structure

The request body structure is as follows:

```
{
 "storageSystemId": "",
 "intendedImageType": "",
 "hostModeOptions": [
 ],
 "enableZoning": ,
 "enableLunUnification": ,
 "forceOverwriteChapSecret": ,
 "shareHgByAllServers": ,
 "hostGroupName:",
 "volumes": [
    {
       "lun": ,
       "volumeId":
       "virtualIdRange" : {
               {
           "from":,
           "to":,
         }
       }
     },
     ...
   ],
   "ports": [
   {
     "serverId": ,
     "serverWwns": [""],
     "portIds": [""]
   },
   ...
  ]

}
```

Parameter	Required	Type	Description
storageSystemId	No	String	ID of the storage system.
intendedImageType	No	String	Host mode set for the volume.
hostModeOptions	No	List	Host mode options set for the volume. Default values are set automatically for a VMWARE_EX or WIN_EX server OS. The valid value is a host mode options number without any prefix, or null for auto select.
enableZoning	No	Boolean	Whether zones are created on the SAN fabric. If enableZoning is set to false, then zoning is disabled. The default value is false. This is valid only for FC servers and must be NULL for iSCSI servers.
enableLunUnification	No	Boolean	Whether Lun (logical unit number) assignments for volumes that span multiple servers are consistent.
forceOverwriteChap Secret	No	Boolean	Whether Hitachi Ops Center Administrator overwrites the CHAP user secret when there is any port that exists with the same CHAP user name. The default value is FALSE.

Parameter	Required	Type	Description
shareHgByAllServers	No	Boolean	Whether to share host groups among servers. The default setting is False, which does not allow sharing. Specify True to share host groups among servers.
lun	No	Integer	Logical unit number. Enter a number from 0 to 2047.
volumeId	Yes	Long	ID of the volume.
virtualIdRange	No	Object	A range of a virtual volume IDs to use for the creating volume. If specified, the first usable value in the range is used. If not specified, do the same behavior as the conventional API.
from	No	Integer	Starting volume ID of the range (in decimal)
to	No	Integer	Ending volume ID of the range (in decimal)
ports	No	List	Information about the ports.
portIds	No	List	List of ports.
serverId	Yes	Integer	ID of the server.
serverWwns	No	List	The WWNs for a server. If a WWN is not specified, then all WWNs associated with the server are used.

Parameter	Required	Type	Description
iscsiInitiatorNames	No	List	The iSCSI names of the server to attach. If iscsiInitiatorNames is not specified, then all iSCSI names of the server are used to attach. You must specify either serverWwns or iscsiInitiatorNames but not both.
hostGroupName	No	String	The host group name value must be uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), commas (,), hyphens(-), periods (.), at marks (@), and underscores (_). String length is restricted to the following depending on port type: ▪ Fiber: 60 when creating and 64 for editing. ▪ iSCSI: 28 when creating.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
```

```
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type not the existing type.

Status code	HTTP name	Description
412	Precondition failed	User has not specified forceOverwriteChapSecret when the storage system has any host group with the same CHAP user name.

Example request

```
https://172.17.64.118/v1/volume-manager/attach
```

```
{
  "storageSystemId": "",
  "intendedImageType": "LINUX",
  "hostModeOptions": [
  ],
  "enableZoning": ,
  "enableLunUnification": ,
  "forceOverwriteChapSecret": false,
  "shareHgByAllServers": true,
  "volumes": [
  {
  "lun": ,
  "volumeId":
  },
  "virtualIdRange" : {
      {
        "from":,
        "to":,
      }
    }
  ...
  ],
 "ports": [
   {
     "serverId": 4,
     "serverWwns": [
       "20000090FA34B747"
     ],
     "portIds": [
       "CL1-A"
     ]
   },
   {
     "serverId": 4,
     "serverWwns": [
       "20000090FA34B746"
```

```
      ],
      "portIds": [
        "CL1-A"
      ]
    }
  ]
 }
```

Attaching and protecting volumes

You can attach and protect volumes in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/attach-protect
```

Request structure

```
{
 "storageSystemId": "",
 "hostModeOptions": [],
 "intendedImageType": "",
 "ports": [{
  "serverId": ,
  "serverWwns": [""],
  "portIds": [""],
  "preferredPath":
 }],
 "enableZoning": ,
 "enableLunUnification": ,
 "aluaEnabled": ,
 "hostGroupName": ,
 "volumeIds": [],
 "replicationGroup": {
   "replicationType": "",
   "consistencyGroupNeeded": ,
   "replicationGroupName": "",
   "replicationGroupId": ,
   "secondaryStorageSystemId": "",
   "secondaryPoolId":,
   "quorumId":,
   "secondaryPorts": [
    {
      "serverId": ,
      "serverWwns": [""],
      "portIds": [""],
      "preferredPath":
    }
  ]
```

```
  }
}
```

Parameter	Required	Type	Description
storageSystemId	No	String	ID of the storage system.
hostModeOptions	No	Intended Image	Host mode options set for the volume.
intendedImageTyp e	No	String	The server operating system. If an OS is not specified, then all the servers must have the same OS. Valid values: "HP_UX, SOLARIS, AIX, WIN, LINUX, TRU64, OVMS, NETWARE, HI_UX, VMWARE, VMWARE_EX, WIN_EX, UVM".
ports	No	List	Collection of ports.
enableZoning	No	Boolean	Whether zones are created on the SAN fabric. If enableZoning is set to FALSE, then zoning is disabled. The default value is FALSE. This is valid only for FC servers and must be NULL for iSCSI servers.
enableLunUnificati on	No	Boolean	Whether forced LUN (logical unit number) assignments for paths of a volume that span multiple servers and/or between primary and secondary volumes of each high availability pair are consistent. If set to true, Ops Center Administrator is forced to use same LUN for all paths of the volume, and if the same LUN cannot be assigned, the operation will fail. If set to false, Ops Center Administrator attempts to use same LUN for all paths of the volume, and if the same LUN cannot be assigned, it uses available LUNs. The default value is true.
aluaEnabled	No	Boolean	Whether ALUA mode of the volume is enabled.

Parameter	Required	Type	Description
volumeIds	Yes	List	Collection of volume IDs. Volume must be attached to the server.
replicationGroup	Yes	Object	Replication group information.
serverId	Yes	Integer	ID of the server.
serverWwns	No	List	The WWNs for a server. If a WWN is not specified, then all WWNs associated with the server are used.
portIds	No	List	Collection of ports.
preferredPath	No	Boolean	Whether the LU path (host group) is preferred or not.
replicationType	No	String	Type of replication technology to use. Must be HA.
consistencyGroup Needed	No	Boolean	Whether a consistency group is needed or not.
replicationGroupNa me	No	String	Name of the replication group. Enter up to 28 alphanumeric characters, hyphens, and underscores in the name, but must not start with a hyphen.
replicationGroupId	No	Long	ID of the replication group.
secondaryStorage SystemId	No	String	Specify an ID of the secondary storage system.
secondaryPoolId	No	String	Specify an ID of the pool of the secondary volume.
quorumId	No	Integer	Specify an ID of the quorum disk.
secondaryPorts	Yes	Object	Storage ports where the secondary volume is attached.
serverId	Yes	Integer	ID of the server.
serverWwns	No	List	The WWNs for a server. If a WWN is not specified, then all WWNs associated with the server are used.
portIds	No	List	Storage ports where the volume is attached. If ports are not specified, it automatically selects an available port.
preferredPath	No	Boolean	Whether the LU path (host group) is preferred or not.

Parameter	Required	Type	Description
hostGroupName	No	String	The host group name value must be uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), commas (,), hyphens(-), periods (.), at marks (@), and underscores (_). String length is restricted to the following depending on port type: ▪ Fiber: 60 when creating and 64 for editing. ▪ iSCSI: 28 when creating.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
```

```
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "storageSystemId": "410209",
    "aluaEnabled":true,
    "intendedImageType":"VMWARE_EX",
    "hostModeOptions":[
        54,
        63
    ],
    "enableZoning":false,
    "enableLunUnification":false,
    "ports":[
        {
            "serverId":12,
            "serverWwns":[
                "4488336622442211"
            ],
            "portIds":[
                "CL8-E"
            ],
            "preferredPath":true
        }
    ],
```

```
    "replicationGroup":{
        "replicationType":"HA",
        "consistencyGroupNeeded": false
        "replicationGroupName":"test-to-ha-repli-grp",
        "secondaryStorageSystemId":"411209",
        "secondaryPoolId":4,
        "quorumId":11,
        "secondaryPorts":[
            {
                "serverId":12,
                "serverWwns":[
                    "1122442266338844"
                ],
                "portIds":[
                    "CL1-A"
                ],
                "preferredPath":false
            }
        ]
    },
    "volumeIds":[
        84,
        85
    ]
}
```

Creating, attaching, and protecting volumes

You can create multiple volumes of different sizes, attach them to multiple servers, and configure data protection in a single process.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/create-attach-protect
```

Request Structure

The request body structure is as follows:

```
{
  "storageSystemId": "",
  "hostModeOptions": [],
  "intendedImageType": "",
  "ports": [
    {
      "portId": "",
      "serverId":,
      "serverWwns": [""],
      "iscsiInitiatorNames": [""],
      "preferredPath":
```

```
    }
    ...
  ],
  "enableZoning": ,
  "enableLunUnification": ,
  "forceOverwriteChapSecret": ,
  "aluaEnabled":,
  "shareHgByAllServers":,
  "hostGroupName": ,
  "volumes": [
    {
      "poolType": "",
      "numberOfVolumes": ,
      "label": "",
      "suffix": ,
      "capacity": "",
      "poolId":,
      "dkcDataSavingType": "",
      "tieringPolicyId": ,
      "idRange": {
        "from":,
        "to":,
      },
      "virtualIdRange" :
        "from":,
        "to":,
      }
    }],
  "skipProtection": ,
  "replicationGroup": {
    "replicationType": "",
    "consistencyGroupNeeded": ,
    "replicationGroupName": "",
    "replicationGroupId": ,
    "schedule": {
      "hour": ,
      "minute": ,
      "recurringUnit": "",
      "recurringUnitInterval": ,
      "dayOfWeek": [""],
      "dayOfMonth": ,
    },
    "numberOfBackups": ,
    "targetPoolId": ,
    "secondaryStorageSystemId": "",
    "secondaryPoolId": ,
    "quorumId": ,
    "secondaryPorts": [
      {
        "serverId":,
        "serverWwns": [""],
```

```
        "portIds": [""],
        "preferredPath":,
   }],
    "shareHgByAllServers":
   }
  "virtualStorageMachineId": ,
}
```

Parameter	Required	Type	Description
storageSystemId	No	String	ID of the storage system.
hostModeOptions	No	List	Host mode options set for the volume. Default values are set automatically for a VMWARE_EX or WIN_EX server OS. The valid value is a host mode options number without any prefix, or null for auto select.
intendedImageType	No	String	The server operating system. If an OS is not specified, then all the servers must have the same OS. Valid values: "HP_UX,SOLARIS,AIX,WIN,LINUX,TRU64,OVMS,NETWARE,HI_UX,VMWARE,VMWARE_EX,WIN_EX,UVM".
ports	No	List	Collection of ports.
portId	No	String	ID of the port.
serverId	Yes	Integer	ID of the server.
serverWwns	No	List	The WWNs for a server. If a WWN is not specified, then all WWNs associated with the server are used.
iscsiInitiatorNames	No	List	The iSCSI names of the server to attach. If iscsiInitiatorNames is not specified, then all iSCSI names of the server are used to attach. You must specify either serverWwns or iscsiInitiatorNames but not both.
forceOverwriteChapSecret	No	Boolean	Whether Hitachi Ops Center Administrator overwrites the CHAP user secret when there is any port that exists with the same CHAP user name. The default is FALSE.
aluaEnabled	No	Boolean	Whether ALUA mode of the volume is enabled.

Parameter	Required	Type	Description
shareHgByAllServers	No	Boolean	Whether to share host groups among servers. The default setting is False, which does not allow sharing. Specify True to share host groups among servers.
portIds	No	String	Storage ports where the volume is attached. If ports are not specified, it automatically selects an available port.
preferredPath	No	Boolean	Whether the LU path (Host Group) is preferred or not.
enableZoning	No	Boolean	Whether of not zones are created on the SAN fabric. If enableZoning is set to FALSE, then zoning is disabled. The default value is FALSE. This is valid only for FC servers and must be NULL for iSCSI servers.
enableLunUnification	No	Boolean	Whether forced LUN (logical unit number) assignments for paths of a volume that span multiple servers and/or between primary and secondary volumes of each high availability pair are consistent. If set to true, Ops Center Administrator is forced to use same LUN for all paths of the volume, and if the same LUN cannot be assigned, the operation will fail. If set to false, Ops Center Administrator attempts to use same LUN for all paths of the volume, and if the same LUN cannot be assigned, it uses available LUNs. The default value is true.
volumes	No	List	Collection of volume items.
poolType	Yes	String	The pool type can be TIERED or the name of a tier that is available in the system.
numberOfVolumes	Yes	Integer	Number of volumes. Must be greater than zero.
label	No	String	Name of the volume.
suffix	No	Integer	Suffix number appended to the end of the volume name.

Parameter	Required	Type	Description
capacity	Yes	String	Capacity of the resource, in bytes.
poolId	No	String	ID of the storage pool.
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are COMPRESSION and DEDUPLICATION_AND_COMPRESSION . The deduplication setting of the target storage pool is automatically enabled if DEDUPLICATION_AND_COMPRESSION is selected, and if it is the first time a storage pool creates volumes using deduplication and compression. COMPRESSION and DEDUPLICATION_AND_COMPRESSION are not available for Snap pools
skipProtection	Yes	Boolean	Whether to skip data protection. When skipProtection is true, all listed replication parameters are ignored.
replicationGroup	No	Object	Replication group information.
replicationType	No	String	Type of replication technology to use, such as SNAP, SNAP_ON_SNAP, CLONE, or HA.
consistencyGroupNeeded	No	Boolean	Whether a consistency group is needed or not.
replicationGroupName	No	String	Name of the replication group. Enter up to 28 alphanumeric characters, hyphens, and underscores in the name, but it must not start with a hyphen.
replicationGroupId	No	Long	ID of the replication group.
schedule	Yes	Object	Required if type is SNAP or SNAP_ON_SNAP. Interval at which the snapshots are taken, such as: ▪ hour; Integer, valid values: 0-23 ▪ minute; Integer, valid values: 0-59 ▪ recurringUnit; String, ('HOURLY', 'DAILY','WEEKLY', 'MONTHLY') ▪ recurringUnitInterval; Integer, (null, or any positive integer)

Parameter	Required	Type	Description
			▪ dayOfWeek; String[ ], (null, or 'SUN', 'MON','TUE', 'WED', 'THU', 'FRI', 'SAT') ▪ dayOfMonth; Integer, (null, or 1-31) Note: ▪ Minute is required if HOURLY is chosen. ▪ Hour and minute are required if DAILY is chosen ▪ recurringUnitInterval is only applicable if HOURLY is chosen ▪ dayOfWeek is only applicable if WEEKLY is chosen ▪ dayOfMonth is only applicable if MONTHLY is chosen
numberOfBackups	No	Integer	Number of backup copies that need to be created.
targetPoolId	No	Integer	If the user specifies `poolId`, the snapshot is taken from the specified pool.
secondaryStorageSystemId	No	String	Specifies the ID of the secondary storage system.
secondaryPoolId	No	Integer	Specifies the ID of the pool of the secondary volume.
quorumId	No	Integer	Specifies the ID of the quorum disk.
secondaryPorts	No	Object	Storage ports where the secondary volume is attached.
serverId	Yes	Integer	ID of the server.
serverWwns	No	List	The WWNs for a server. If a WWN is not specified, then all WWNs associated with the server are used.
portIds	No	String	Storage ports where the volume is attached. If ports are not specified, an available port is automatically selected.
preferredPath	No	Boolean	Whether the LU path (Host Group) is preferred or not.

Parameter	Required	Type	Description
virtualStorageMachineId	No	String	Specifies the virtual storage machine where the volumes are created. If you don't specify this, the volumes are created from the default VSM. If the volumes are protected by HA, you must specify the ID.
hostGroupName	No	String	The host group name value must be uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), commas (,), hyphens(-), periods (.), at marks (@), and underscores (_). String length is restricted to the following depending on port type: ▪ Fiber: 60 when creating and 64 for editing. ▪ iSCSI: 28 when creating.
tieringPolicyId	No	Integer	A number between 0 and 31 that specifies the tier level.
idRange	No	Object	An ID range for creating volumes.
from	No	Integer	Starting volume ID of the range (in decimal).
to	No	Integer	Ending volume ID for the range (in decimal)
virtualIdRange	No	Object	A range of a virtual volume IDs to use for the creating volume. If specified, the first usable value in the range is used. If not specified, do the same behavior as the conventional API.
from	No	Integer	Starting volume ID of the range (in decimal)
to	No	Integer	Ending volume ID of the range (in decimal)

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
```

```
      "parameters":
       {
       }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.

Parameter	Type	Description
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	User has not specified forceOverwriteChapSecret when the storage system has any host group with the same CHAP user name.

Example request

```
https://172.17.64.115/v1/volume-manager/create-attach-protect
```

Example request

```
{
  "storageSystemId": "411209",
  "hostModeOptions": [],
  "intendedImageType":"LINUX",
  "ports": [
    {
      "portId" : "CL1-A",
      "serverId" : 4,
      "serverWwns" : [
        "20000090FA34B747",
        "20000090FA34B746"
      ],
      "iscsiInitiatorNames": ["iqn.2017-11.com.example:Linux:array0", "storagePort",
"CL1-A"],
      "preferredPath": true
    }
  ],
  "enableZoning": false,
  "enableLunUnification": false,
  "forceOverwriteChapSecret": false,
  "aluaEnabled": true,
  "shareHgByAllServers": true,
  "volumes": [
    {
      "poolType": "Platinum",
      "numberOfVolumes": 1,
      "label": "john",
      "suffix": 0,
      "capacity": "1073741824",
      "poolId": 0
      "dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION",
```

```
    }
  ],
  "skipProtection": false,
  "replicationGroup": {
    "replicationType": "SNAP",
    "consistencyGroupNeeded": false,
    "replicationGroupName": "my-snapshot",
    "replicationGroupId": null,
    "schedule": {
      "hour": 0,
      "minute": 0,
      "recurringUnit": "DAILY",
      "recurringUnitInterval": null,
      "dayOfWeek": null,
      "dayOfMonth": null
    },
    "numberOfBackups": 1,
    "targetPoolId": 1,
  },
  "virtualStorageMachineId":"456789-VSPF800andVSPG800"
}
```

Updating multiple volumes

You can modify multiple volumes' label and command device settings across multiple storage systems at once.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/update
```

Request structure

The request body structure is as follows:

```
{
  "label": "",
  "dkcDataSavingType": "",
  "commandDevice": {
    "commandDeviceEnabled":,
    "securityEnabled":,
    "userAuthenticationEnabled":,
    "deviceGroupSettingEnabled":
  },
  "updateTargetItems": [
    {
      "storageSystemId": "",
      "volumeIds": []
    },
    ...
```

```
  ]
}
```

Parameter	Required	Type	Description
label	No	String	Description of the volumes up to 32 characters.
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are NONE, COMPRESSION and DEDUPLICATION_AND_COMPRESSION. The deduplication setting of the target storage pool is automatically enabled if DEDUPLICATION_AND_COMPRESSION is selected, and if it is the first time a storage pool creates volumes using deduplication and compression. COMPRESSION and DEDUPLICATION_AND_COMPRESSION are not available for Snap pools. NONE disables current capacity saving settings.
commandDevice	No	Object	Command device settings for the volume.
commandDeviceEnabled	No	Boolean	Whether to configure the volume as a command device. Specify true also in case of updating the security settings only.
securityEnabled	No	Boolean	Whether to enable the command device security setting. If commandDeviceEnabled is true and this value is omitted, false is assumed. Specify this parameter to prevent the setting from being unexpectedly disabled.
userAuthenticationEnabled	No	Boolean	Whether to enable user authentication for the command device. If commandDeviceEnabled is true and this value is omitted, true is assumed. Specify this parameter to prevent the setting from being unexpectedly disabled.
deviceGroupSettingEnabled	No	Boolean	Whether to enable device group information authentication for the command device. If commandDeviceEnabled is true and this value is omitted, false is assumed. Specify this parameter to prevent the setting from being unexpectedly disabled.

Parameter	Required	Type	Description
updateTargetItems	Yes	List	The list of the storage systems and volume IDs.
storageSystemId	Yes	string	ID of the storage system.
volumeIds	Yes	List	The list of the volumes to update. The volume ID type is long.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type not match the existing type.
500	Internal Server Error	Some errors occurred inside the API server.

Example request

The request with JSON command:

```
https://172.17.64.111/v1/volume-manager/update
```

```
{
  "label": "volumeLabel1",
  "dkcDataSavingType": "COMPRESSION",
  "updateTargetItems": [
    {
      "storageSystemId": "39304",
      "volumeIds": [100, 101]
    },
    {
      "storageSystemId": "39305",
      "volumeIds": [200, 201]
    }
  ]
}
```

Detaching volumes from multiple servers

You can detach volumes from multiple servers.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/detach-from-multiple-servers
```

Request Structure

```
{
  "storageSystemId": ,
  "detachTargetItems": [
    {
      "serverId": ,
      "volumeIds": [],
    },
    {
      "serverId": ,
      "volumeIds": [],
    },
    ...
  ],
  "removeConnection":
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	The ID of the storage system.
detachTargetItems	Yes	List	List of the items containing servers and volumes to be detached.
serverId	Yes	Integer	The ID of the server from which the volumes are to be detached.
volumeIds	Yes	List	The list of the volumes to be detached. The volume ID type is long.
removeConnection	No	Boolean	Specify whether the zoning accesses to the servers are removed. FALSE if you specified NULL for the FC port. Must be NULL for iSCSI port.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/volume-manager/detach-from-multiple-servers
```

Example request

```
{
  "storageSystemId": "410209",
  "detachTargetItems": [
    {
      "serverId": 1,
      "volumeIds": [10, 11],
    },
    {
      "serverId": 2,
      "volumeIds": [100, 101],
    }
    ...
  ],
  "removeConnection": true
}
```

Edit volume LUN path

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/edit-lun-paths
```

Request structure

```
{
   "enableZoning":,
   "hostMode":"",
   "hostModeOptions":[],
   "forceOverwriteChapSecret": ,
   "updates":[
        {
            "storageSystemId":"",
            "volumeId":,
            "currentPath":{
                 "serverWwn":"",
                 "iscsiInitiatorName": "",
                 "storagePort":""
            },
            "newPath":{
                 "serverWwn":"",
                 "iscsiInitiatorName": "",
                 "storagePort":""
            }
        }
   ]
}
```

Parameter	Required	Type	Description
enableZoning	Yes	Boolean	Provide the value "true" to edit the volume LUN path.
hostMode	Yes	String	Host mode set for the volume.
hostModeOptions	No	List	Host mode options set for the volume. Default values are set automatically for a VMWARE_EX or WIN_EX server OS. The valid value is a host mode options number without any prefix, or null for auto select.
updates	No	List	List of updates.

Parameter	Required	Type	Description
storageSystemId	No	String	ID of the storage system.
volumeId	No	Integer	ID of the volume.
forceOverwriteChapSecret	No	Boolean	Whether Hitachi Ops Center Administrator overwrites the CHAP user secret when there is any port with the same CHAP user name. The default is FALSE.
currentPath	No	Object	The three objects are as follows: ▪ serverWwn (String): If the target server has FC ports, specify the target serverWwn. ▪ iscsiInitiatorName (String): If the target server has iSCSI ports, specify the target iscsiInitiatorName . ▪ storagePort (String): Specify the current storage port that connects to the target server port.

Parameter	Required	Type	Description
newPath	No	Object	The three objects are as follows: ▪ serverWwn (String): If the target server has FC ports, specify the new serverWwn. ▪ iscsiInitiatorName (String): If the target server has iSCS ports, specify the new iscsiInitiatorName . ▪ storagePort (String): Specify the new storage port that connects to the target server port.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
```

```
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.

Parameter	Type	Description
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
412	Precondition failed	User has not specified forceOverwriteChapSecret when the storage system has any host group with the same CHAP user name.

Example request

```
{
   "enableZoning": false,
   "hostMode": "LINIX",
   "hostModeOptions":[1,2],
   "forceOverwriteChapSecret":false,
   "updates": [{
       "storageSystemId":"targetStorageId",
       "volumeId":"00:00:01",
       "lun":0,
       "currentPath":{
               "serverWwn":null,
               "iscsiInitiatorName":"iqn.2017-11.com.example:Linux:array0",
               "storagePort","CL1-A"
       },
       "newPath":{
               "serverWwn":null,
               "iscsiInitiatorName":"iqn.2017-11.com.example:Linux:array0",
               "storagePort","CL1-B"
       }
```

```
      },
      {
        "storageSystemId":"targetStorageId",
        "volumeId":"00:00:01",
        "lun":0,
        "currentPath":{
                "serverWwn":null,
                "iscsiInitiatorName":"iqn.2017-11.com.example:Linux:array2",
                "storagePort","CL2-A"
            },
        "newPath":{
                "serverWwn":null,
                "iscsiInitiatorName":"iqn.2017-11.com.example:Linux:array2",
                "storagePort","CL2-B"
            }
        }
    ]
}
```

Getting auto-selection paths

If there are no existing host groups, this command specifies the return paths that Ops Center Administrator will select.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/auto-path-select
```

Request structure

```
 {
   "storageSystemId": ""
   "hostMode": "",
   "hostModeOptions": [
   ],
   "serverIds": [
   ],
   "virtualStorageMachineId":
}
```

Parameter	Required	Type	Description
storageSystemId	No	String	ID of the storage system.
hostMode	Yes	String	Host mode set for the volume.

Parameter	Required	Type	Description
hostModeOptions	No	List	Host mode options set for the volume. Default values are set automatically for a VMWARE_EX or WIN_EX server OS. The valid value is a host mode options number without any prefix, or null for auto select.
virtualStorageMachineId	No	String	If existing volumes are being attached, specify the volume's virtualStorageMachineId. The VSM is verified and the same VSM's port is selected. When creating, attaching, and protecting volumes, specify null.

Response structure

```
{
  "pathResources": [
    {
      // For FC server port
      "portId": "",
      "serverWwn": "",
      "iscsiInitiatorName": ,
      "hostMode": "",
      "hostModeOptions": [
      ]
    },
    {
      // For iSCSI server port
      "portId": "",
      "serverWwn": ,
      "iscsiInitiatorName": "",
      "hostMode": "",
      "hostModeOptions": [
      ]
    }
```

```
    ...
  ]
}}
```

Parameter	Type	Description
portId	String	Port ID.
serverWwn	String	World wide network ID of the server.
hostMode	String	Host mode set for the volume.
hostModeOptions	List of Integers	Host mode options for the volume.
iscsiInitiatorName	String	Displays the iSCSI name for the iSCSI initiator. NULL for FC path.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
"storageSystemId": "410209",
   "hostMode": "LINUX",
   "hostModeOptions": [
     4,
     2
   ],
   "serverIds": [
     6,
     34
   ],
   "virtualStorageMachineId":"456789-VSPF800andVSPG800"

}
```

Example response

```
 {
   "pathResources": [
     {
       // For FC server port
       "portId": "1",
       "serverWwn": "5000000001",
       "iscsiInitiatorName": null,
       "hostMode": "LINUX",
       "hostModeOptions": [
       ]
     },
     {
       // For iSCSI server port
       "portId": "2",
       "serverWwn": null,
       "iscsiInitiatorName": "iqn.1994-04.com.example:rsd.h8m.t.10013.CL4.1 ",
       "hostMode": "LINUX",
       "hostModeOptions": [
       ]
     },
     ...
   ]
 }
```

Getting host groups

You can get a list of host groups for a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/host-groups
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
 "resources": [
   // For FC Host Group
   {
     "protocol": "",
     "hostGroupId": "",
     "hostGroupNumber": ,
     "hostGroupName": "",
     "storagePortId": "",
     "storageSystemId": "",
     "hostMode": "",
     "hbaWwns": [],
     "hostModeOptions": [],
     "luns": [],
     "iscsiTargetInformation": {},
     "preferredPath": ,
     "numOfHostPortIds": ,
     "numOfLuns": ,
     "virtualStorageMachineInformation: {
       "virtualStorageMachineId": "",
       "storageSystemId": "",
       "model": ""
     },
     "resourceGroupId": ,
     "resourceGroupName": ""
   },
   // For iSCSI Target
   {
     "protocol": "",
     "hostGroupId": "",
     "hostGroupNumber": ,
     "hostGroupName": "",
     "storagePortId": "",
     "storageSystemId": "",
     "hostMode": "",
     "hbaWwns": [],
     "hostModeOptions": [],
```

```
      "luns": [],
      "iscsiTargetInformation": {
        "iscsiTargetName": "",
        "iscsiInitiatorNames": [
          ""
        ],
        "mutualChapUser": "",
        "chapUsers": [
          ""
        ],
        "authenticationMode": "",
        "authenticationDirection": ""
      },
      "preferredPath": ,
      "numOfHostPortIds": ,
      "numOfLuns": ,
      "virtualStorageMachineInformation: {
        "virtualStorageMachineId": "",
        "storageSystemId": "",
        "model": ""
      },
      "resourceGroupId": ,
      "resourceGroupName": ""
    },

    ...

  ],
  "total": ,
  "nextToken": ""
}
```

Parameter	Type	Description
protocol	Enum	Protocol type of this port, either FIBRE or ISCSI.
hostGroupId	Long	The ID of the host group.
hostGroupNumber	Integer	The host group or iSCSI target ID number.
hostGroupName	String	The host group name.
storagePortId	Long	The storage port ID.
storageSystemId	String	The storage system ID.
hostMode	String	The host mode set for the volume.
hbaWwns	List	The list of WWNs for the HBA.

Parameter	Type	Description
hostModeOptions	Integer[]	The host mode options for the volume.
luns	List	The list of LUNs and volumes.
iscsiTargetInformation	Object	Displays the iSCSI target information. This is NULL for FC host groups.
preferredPath	Boolean	Specifies whether LU paths for the host group are preferred.
numOfHostPortIds	integer	The number of WWNs in the host group, or the number of iSCSI names in the iSCSI Target.
numOfLuns	integer	The number of LUNs in the Host Group or iSCSI Target
virtualStorageMachineInformation.virtualStorageMachineId	string	The ID of the virtual storage machine to which the host group or iSCSI target belongs.
virtualStorageMachineInformation.storageSystemId	string	The serial number of the virtual storage machine to which the host group or iSCSI target belongs.
virtualStorageMachineInformation.model	string	The model of the virtual storage machine to which the host group or iSCSI target belongs.
resourceGroupId	integer	The ID of the resource group to which the host group or iSCSI target belongs.
resourceGroupName	string	The name of the resource group to which the host group or iSCSI target belongs.
iscsiTargetName	String	Displays the iSCSI name of the iSCSI target.
iscsiInitiatorNames	String	Displays the list of iSCSI names of the host bus adapters registered in the iSCSI target.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target.
chapUsers	String	Displays the list of CHAP users of the host bus adapters registered in the iSCSI target.

Parameter	Type	Description
authenticationMode	Enum	The CHAP authentication mode for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ CHAP: CHAP-authentication mode. ▪ NONE: No-authentication mode. ▪ BOTH: Both CHAP-authentication mode and no-authentication mode.
authenticationDirection	Enum	The CHAP authentication direction for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ ONEWAY: The iSCSI target authenticates the iSCSI initiator. ▪ MUTUAL: The iSCSI target and the iSCSI initiator authenticate each other.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example request

```
https://172.17.64.111/v1/storageSystems/410209/host-groups
```

Example response

```
{
 "resources": [
  {
    "hostGroupId": "CL3-B-66",
    "hostGroupNumber": 66,
```

```
      "storagePortId": "CL3-B",
      "storageSystemId": "15283",
      "protocol": "FIBRE",
      "hostMode": "VMWARE_EX",
      "hbaWwns": [
        "3333000000009511"
      ],
      "hostModeOptions": [
        54,
        63
      ],
      "luns": [
        {
          "lun": 1,
          "volumeId": 791
        }
      ],
      "iscsiTargetInformation": null,
      "preferredPath": true,
      "hostGroupName": "fc-cluster-node149",
      "numOfHostPortIds": 1,
      "numOfLuns": 1,
      "virtualStorageMachineInformation: {
        "virtualStorageMachineId": "15283-VSP5100H-5500H",
        "storageSystemId": "15283",
        "model": "VSP 5100H, 5500H"
      },
      "resourceGroupId": 1,
      "resourceGroupName": "RSG1"
    }
  ]
}
```

Getting host group information

You can retrieve information regarding a host group when you specify a host group ID in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/host-groups/hostGroupId
```

Note: The format for the host group ID is *portId-hostGroupNumber*. For example, CL4-G-0.

Request structure

Not applicable.

Response structure

The response body structure is as follows.

For Fibre Channel host group:

```
{
   "resources": [
     // For FC Host Group
     {
       "protocol": "",
       "hostGroupId": "",
       "hostGroupNumber": ,
       "hostGroupName": "",
       "storagePortId": "",
       "storageSystemId": "",
       "hostMode": "",
       "hbaWwns": [],
       "hostModeOptions": [],
       "luns": [],
       "iscsiTargetInformation": {},
       "preferredPath": ,
       "numOfHostPortIds": ,
       "numOfLuns": ,
       "virtualStorageMachineInformation: {
         "virtualStorageMachineId": "",
         "storageSystemId": "",
         "model": ""
       },
       "resourceGroupId": ,
       "resourceGroupName": ""
     },
```

For iSCSI target:

```
{
       "protocol": "",
       "hostGroupId": "",
       "hostGroupNumber": ,
       "hostGroupName": "",
       "storagePortId": "",
       "storageSystemId": "",
       "hostMode": "",
       "hbaWwns": [],
       "hostModeOptions": [],
       "luns": [],
       "iscsiTargetInformation": {
         "iscsiTargetName": "",
         "iscsiInitiatorNames": [
           ""
         ],
         "mutualChapUser": "",
```

```
        "chapUsers": [
          ""
        ],
        "authenticationMode": "",
        "authenticationDirection": ""
      },
      "preferredPath": ,
      "numOfHostPortIds": ,
      "numOfLuns": ,
      "virtualStorageMachineInformation: {
        "virtualStorageMachineId": "",
        "storageSystemId": "",
        "model": ""
      },
      "resourceGroupId": ,
      "resourceGroupName": ""
    },
```

Parameter	Type	Description
protocol	Enum	Protocol type of this port, either FIBRE or ISCSI.
hostGroupId	Long	The ID of the host group.
hostGroupNumber	integer	The host group or iSCSI target ID number.
hostGroupName	String	The host group name.
storagePortId	Long	The storage port ID.
storageSystemId	String	The storage system ID.
hostMode	String	The host mode set for the volume.
hbaWwns	List	The list of WWNs for the HBA.
hostModeOptions	List of Integers	The host mode options for the volume.
luns	List	The list of LUNs and volumes.
iscsiTargetInformation	Object	Displays the iSCSI target information. This is NULL for FC host groups.
preferredPath	Boolean	Specifies whether LU paths for the host group are preferred.
numOfHostPortIds	integer	The number of WWNs in the host group, or the number of iSCSI names in the iSCSI Target.

Parameter	Type	Description
numOfLuns	integer	The number of LUNs in the Host Group or iSCSI Target
virtualStorageMachineInformation.virtualStorageMachineId	string	The ID of the virtual storage machine to which the host group or iSCSI target belongs.
virtualStorageMachineInformation.storageSystemId	string	The serial number of the virtual storage machine to which the host group or iSCSI target belongs.
virtualStorageMachineInformation.model	string	The model of the virtual storage machine to which the host group or iSCSI target belongs.
resourceGroupId	integer	The ID of the resource group to which the host group or iSCSI target belongs.
resourceGroupName	string	The name of the resource group to which the host group or iSCSI target belongs.
iscsiTargetName	String	Displays the iSCSI name of the iSCSI target.
iscsiInitiatorNames	String	Displays the list of iSCSI names of the host bus adapters registered in the iSCSI target.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target.
chapUsers	String	Displays the list of CHAP users of the host bus adapters registered in the iSCSI target.
authenticationMode	Enum	The CHAP authentication mode for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ CHAP: CHAP-authentication mode. ▪ NONE: No-authentication mode. ▪ BOTH: Both CHAP-authentication mode and no-authentication mode.
authenticationDirection	Enum	The CHAP authentication direction for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ ONEWAY: The iSCSI target authenticates the iSCSI initiator. ▪ MUTUAL: The iSCSI target and the iSCSI initiator authenticate each other.

Return codes

Status Code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response

For Fibre Channel host group:


```
{
  "resources": [
   {
     "hostGroupId": "CL3-B-66",
     "hostGroupNumber": 66,
     "storagePortId": "CL3-B",
     "storageSystemId": "15283",
     "protocol": "FIBRE",
     "hostMode": "VMWARE_EX",
     "hbaWwns": [
       "3333000000009511"
     ],
     "hostModeOptions": [
       54,
       63
     ],
     "luns": [
       {
         "lun": 1,
         "volumeId": 791
       }
     ],
     "iscsiTargetInformation": null,
     "preferredPath": true,
     "hostGroupName": "fc-cluster-node149",
     "numOfHostPortIds": 1,
     "numOfLuns": 1,
     "virtualStorageMachineInformation: {
       "virtualStorageMachineId": "15283-VSP5100H-5500H",
       "storageSystemId": "15283",
       "model": "VSP 5100H, 5500H"
```

```
      },
      "resourceGroupId": 1,
      "resourceGroupName": "RSG1"
    }
  ]
}
```

Editing a host group

You can edit the host mode, host mode options, host bus adapter (HBA) WWNs, preferred path setting, and name of a host group in Ops Center Administrator.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/storage-systems/storageSystemId/host-groups/hostGroupId
```

Request structure

```
{
  "hostGroupName": "",
  "hbaWwns": [
      "",
      ...
  ],
  "hostMode": "",
  "hostModeOptions": [],
  "preferredPath":
}
```

Parameter	Required	Type	Description
hostGroupName	No	string	The host group name. The host group name value must be uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), commas (,), hyphens(-), periods (.), at marks (@), and underscores (_). String length is restricted to the following depending on the port type: ▪ Fiber: 60 when creating and 64 for editing. ▪ iSCSI: 28 when creating.
hbaWwns	No	string[]	The host group HBA WWNs.
hostMode	No	string	The host group host mode.

Parameter	Required	Type	Description
hostModeOptions	No	integer[]	The host group host mode options.
preferredPath	No	boolean	Specifies whether the host group enables the preferred path setting.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.

Parameter	Type	Description
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP Name	Description
200	OK	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
  "hostGroupName": "hostgroup1",
  "hbaWwns": [
    "3333000000009511",
    "3333000000009512"
  ],
  "hostMode": "VMWARE_EX",
  "hostModeOptions": [
    54,
    63
  ],
  "preferredPath": true
}
```

Adding a mutual CHAP user of a host group

You can add a mutual CHAP user of a host group in Ops Center Administrator. Adding a CHAP user is only for iSCSI ports. In the URI, you must specify the host group ID whose protocol is iSCSI. Also, Add/Update/Delete uses the same URI. You modify the payload. To add, specify an empty string for currentValue. To delete, specify an existing user for currentValue and an empty string for newValue.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/storage-systems/storageSystemId/host-groups/hostGroupId
```

Request structure

The request body structure is as follows:

```
 {
   iscsiTargetInformation: {
      "mutualChapUser": {
         "userName":      {
           "currentValue": "",
           "newValue": ""
         },
         "secret": ""
      }
   }
}
```

Parameter	Required	Type	Description
iscsiTargetInformation	Yes	Object	Specify to update iSCSI information.
mutualChapUser	Yes	Object	New mutual CHAP user set to the host group.
userName	Yes	Object	Mutual CHAP user name.
currentValue	Yes	String	Current user name of the new mutual CHAP user.
newValue	Yes	String	New user name of the new mutual CHAP user.

Parameter	Required	Type	Description
secret	Yes	String	User secret of the new mutual CHAP user. To add/update a mutual CHAP user, this parameter is required. To delete a mutual CHAP user, this parameter is not required.

Response structure

```
{
  "jobId": "",
  "title": {
    "text": "",
    "messageCode": "",
    "parameters": {}
  },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/"
    }
  ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.

Parameter	Type	Description
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   iscsiTargetInformation: {
      "mutualChapUser": {
         "userName":      {
           "currentValue": null,
           "newValue": "mutualChapY",
         },
         "secret": "123456789012"
      }
   }
}
```

Updating a mutual CHAP user of a host group

You can update a mutual CHAP user in Ops Center Administrator. Add/Update/Delete uses the same URI. You modify the payload. To add, specify an empty string for currentValue. To delete, specify an existing user for currentValue and an empty string for newValue.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/storage-systems/storageSystemId/host-groups/hostGroupId
```

Request structure

The request body structure is as follows:

```
{
   iscsiTargetInformation: {
      "mutualChapUser": {
         "userName":      {
           "currentValue": "",
           "newValue": ""
         },
         "secret": ""
      }
   }
   "hostGroupName": ""
}
```

Parameter	Required	Type	Description
iscsiTargetInformation	Yes	Object	Specify to update iSCSI information.
mutualChapUser	Yes	Object	New mutual CHAP user set to the host group.
userName	Yes	Object	Mutual CHAP user name.
currentValue	Yes	String	Current user name of the new mutual CHAP user.
newValue	Yes	String	New user name of the new mutual CHAP user.
secret	Yes	String	User secret of the new mutual CHAP user. To add/update a mutual CHAP user, this parameter is required. To delete a mutual CHAP user, this parameter is not required.

Parameter	Required	Type	Description
hostGroupName	No	String	The host group name value must be uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), commas (,), hyphens(-), periods (.), at marks (@), and underscores (_). String length is restricted to the following depending on port type: ▪ Fiber: 60 when creating and 64 for editing. ▪ iSCSI: 28 when creating.

Response structure

```
{
  "jobId": "",
  "title": {
    "text": "",
    "messageCode": "",
    "parameters": {}
  },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/"
    }
  ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   iscsiTargetInformation: {
      "mutualChapUser": {
         "userName":      {
           "currentValue": "mutualChapX",
           "newValue": "mutualChapY",
         },
         "secret": "123456789012"
      }
   }
}
```

Deleting a mutual CHAP user of a host group

You can delete a mutual CHAP user of a host group in Ops Center Administrator. Add/Update/Delete uses the same URI. You modify the payload. To add, specify an empty string for currentValue. To delete, specify an existing user for currentValue and an empty string for newValue.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/storage-systems/storageSystemId/host-groups/hostGroupId
```

Request structure

The request body structure is as follows:

```
{
   iscsiTargetInformation: {
      "mutualChapUser": {
         "userName":      {
           "currentValue": "",
           "newValue": ""
         }
      }
   }
}
```

Parameter	Required	Type	Description
iscsiTargetInformation	Yes	Object	Specify to update iSCSI information.
mutualChapUser	Yes	Object	New mutual CHAP user set to the host group.
userName	Yes	Object	Mutual CHAP user name.
currentValue	Yes	String	Current user name of the new mutual CHAP user.
newValue	Yes	String	New user name of the new mutual CHAP user.

Parameter	Required	Type	Description
secret	No	String	User secret of the new mutual CHAP user. To add/update a mutual CHAP user, this parameter is required. To delete a mutual CHAP user, this parameter is not required.

Response structure

```
{
  "jobId": "",
  "title": {
    "text": "",
    "messageCode": "",
    "parameters": {}
  },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/"
    }
  ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.

Parameter	Type	Description
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   iscsiTargetInformation: {
      "mutualChapUser": {
         "userName":      {
           "currentValue": "mutualChapX",
           "newValue": null,
         }
      }
   }
}
```

Shredding volumes

You can shred volumes in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/shred
```

Request structure

The request body structure is as follows:

```
{
  "storageSystemId": "",
```

```
  "volumeIds": [, ...],
  "patterns": ["", ...]
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the storage system.
volumeIds	Yes	List	List of the volume IDs to shred. Maximum number of volumes that can be shredded at the same time in a single storage system is 300.
patterns	No	List	List of the pattern strings used for shredding. Maximum number of patterns is 7. Each pattern must be a string representing a hex value of up to 0xFFFFFFFFF (regular expression: [0-9a-fA-F]{1,8}). For each specified <pattern> in the API payload, actual shredding passes are ["00000000", <pattern>, "00000000"]. If not specified, a pre-defined pattern ["FFFFFFFF"] will be used.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
```

```
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.

Status Code	HTTP name	Description
403	Forbidden	The server failed to authenticate the request.

Example request

```
{
  "storageSystemId": "",
  "volumeIds": [, ...],
  "patterns": ["", ...]
}
```

Interrupting volume shredding

You can interrupt the shredding of volumes in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/shred/interrupt
```

Request structure

The request body structure is as follows:

```
{
  "storageSystemId": ""
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the storage system.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
```

```
        }
    },
    "user": "",
    "status": "",
    "createdDate":,
    "scheduledDate":,
    "startDate": ,
    "endDate": ,
    "parentJobId": ,
    "reports":
    [
    ],
    "links":
    [
        {
            "rel": "_self",
            "href": "/v1/jobs/jobId"
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).

Parameter	Type	Description
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Parameter	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains a request payload that is not valid, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Host group management resources

Request	Method	URI	Role
Creating host groups (on page 323)	POST	/v1/host-group-manager/create	Storage administrator System administrator
Adding volumes to host groups (on page 329)	POST	/v1/host-group-manager/add-volumes	Storage administrator System administrator
Removing volumes from host groups (on page 333)	POST	/v1/host-group-manager/remove-volumes	Storage administrator System administrator
Deleting host groups (on page 336)	POST	/v1/host-group-manager/delete	Storage administrator System administrator

Creating host groups

You can create host groups in a storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/host-group-manager/create
```

Request structure

The request body structure is as follows:

```
{
  "hostGroups": [
    {
      "storageSystemId": "",
      "virtualStorageMachineId": "",
      "storagePortId": "",
      "hostGroupNumber":,
      "hostGroupName": "",
      "hbaWwns": [
         "",
```

```
        ...
      ],
      "hostMode": "",
      "hostModeOptions": [],
      "preferredPath": ,
      "luns": [
        {
          "lun": ,
          "volumeId":
        },
        ...
      ],
      "virtualVolumeIdRange": {
        "from": ,
        "to":
      }
    },
    ...

  ]
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	string	The ID of the storage system to which the Host Group belongs.
storagePortId	Yes	string	The ID of the storage port to which the Host Group belongs.
virtualStorageMachineId	No	string	The ID of the Virtual Storage Machine to which the Host Group belongs. If you specify null, then the API selects the default VSM for the storage system automatically.
hostGroupNumber	No	integer	The Host Group number for the Host Group. If you specify null, then API selects the minimum number for the storage port automatically.
hostGroupName	Yes	string	The name of the Host Group.
hbaWwns	No	string[]	The HBA WWNs of the Host Group.
hostMode	Yes	string	The Host Mode of the Host Group.

Parameter	Required	Type	Description
hostModeOptions	No	integer[]	The Host Mode Options for the Host Group. If you specify null, then Ops Center Administrator sets the default values automatically based on the specified hostMode.
preferredPath	No	boolean	Specifies whether the Host Group enables the preferred path setting. The default value is true.
luns.volumeId	No	integer	The target volume ID.
luns.lun	No	integer	The target LUN number. If you specify null, then the API selects the minimum value in the storage port automatically.
virtualVolumeIdRange.from	No	integer	The starting virtual volume ID of the range (in decimal).
virtualVolumeIdRange.to	No	integer	The ending virtual volume ID of the range (in decimal)

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
```

```
    [
        {
            "rel": "_self",
            "href": "/v1/jobs/jobId"
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.

Parameter	Type	Description
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The operation was accepted.
400	Bad request	Bad request
403	Forbidden	The operation is not authorized.

Example request

```
{
  "hostGroups": [
   {
     "storageSystemId": "12345",
     "virtualStorageMachineId": "10000-G1500",
     "storagePortId": "CL3-B",
     "hostGroupNumber": 13,
     "hostGroupName": "fc-cluster-node149",
     "hbaWwns": [
       "3333000000009511"
     ],
     "hostMode": "VMWARE_EX",
     "hostModeOptions": [
       54,
       63
     ],
     "preferredPath": true,
     "luns": [
       {
         "lun": 1,
         "volumeId": 791
       },
       {
```

```
        "volumeId": 31
      }
    ],
    "virtualVolumeIdRange": {
      "from": 2000,
      "to": 2001
    }
  }
  ]
}
```

Multiple Host Groups

```
{
  "hostGroups": [
   {
     "storageSystemId": "12345",
     "virtualStorageMachineId": "10000-G1500",
     "storagePortId": "CL3-B",
     "hostGroupName": "fc-cluster-node149",
     "hbaWwns": [
       "3333000000009511"
     ],
     "hostMode": "VMWARE_EX",
     "hostModeOptions": [
       54,
       63
     ],
     "preferredPath": true,
     "luns": [
       {
         "volumeId": 31
       }
     ]
   },
   {
     "storageSystemId": "49853",
     "storagePortId": "CL4-B",
     "hostGroupNumber": 12,
     "hostGroupName": "fc-cluster-node177",
     "hbaWwns": [
       "3333000000009513"
     ],
     "hostMode": "VMWARE_EX",
     "hostModeOptions": [
       54,
       63
     ],
     "luns": [
       {
         "volumeId": 31
```

```
      }
    ],
    "virtualVolumeIdRange": {
      "from": 31,
      "to": 31
    }
  }
]
```

Adding volumes to host groups

You can add volumes to host groups in a storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/host-group-manager/add-volumes
```

Request structure

The request body structure is as follows:

```
{
  "hostGroups": [
    {
      "storageSystemId": "",
      "hostGroupId": "",
      "luns": [
        {
          "lun":,
          "volumeId":
        },
        ...
      ],
      "virtualVolumeIdRange": {
        "from": ,
        "to":
      }
    },
    ...
  ]
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	string	The ID of the storage system to which the Host Group belongs.
hostGroupId	Yes	string	The target host group ID.

Parameter	Required	Type	Description
luns.volumeId	Yes	integer	The target volume ID.
luns.lun	No	integer	The target LUN number. If you specify null, then the API selects the minimum value in the storage port automatically.
virtualVolumeIdRange.from	No	integer	The starting virtual volume ID of the range (in decimal).
virtualVolumeIdRange.to	No	integer	The ending virtual volume ID of the range (in decimal)

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
```

```
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The operation was accepted.
400	Bad request	Bad request
403	Forbidden	The operation is not authorized.

Example request

```
{
   "hostGroups": [
     {
       "storageSystemId": "12345",
       "hostGroupId": "CL1-A-2",
       "luns": [
         {
           "lun": 33,
           "volumeId": 3974
         },
         {
           "volumeId": 3975
         }
       ],
       "virtualVolumeIdRange": {
         "from": 2000,
         "to": 2001
       }
     },
     {
       "storageSystemId": "12345",
       "hostGroupId": "CL1-A-3",
       "luns": [
         {
           "lun": 34,
           "volumeId": 3976
         },
         {
           "volumeId": 3977
         }
       ],
       "virtualVolumeIdRange": {
         "from": 3000,
         "to": 3001
       }
     }
```

```
  ]
}
```

Removing volumes from host groups

You can remove volumes from host groups in a storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/host-group-manager/remove-volumes
```

Request structure

The request body structure is shown below:

```
{
 "hostGroups": [
   {
     "storageSystemId": "",
     "hostGroupId": "",
     "volumeIds": [
       ...
     ]
   },
   ...

  ]
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	string	The target storage system ID.
hostGroupId	Yes	string	The target host group ID.
volumeIds	Yes	integer[]	The target volume IDs.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
```

```
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).

Parameter	Type	Description
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The operation was accepted.
400	Bad request	Bad request
403	Forbidden	The operation is not authorized.

Example request

```
{
   "hostGroups": [
     {
       "storageSystemId": "12345",
       "hostGroupId": "CL1-A-83",
       "volumeIds": [
         3247,
         3774
       ]
     },
     {
```

```
      "storageSystemId": "12345",
      "hostGroupId": "CL1-B-83",
      "volumeIds": [
        3247,
        3774
      ]
    }
  ]
}
```

Deleting host groups

You can delete host groups from a storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/host-group-manager/delete
```

Request structure

The request body structure is shown below:

```
{
  "hostGroups": [
    {
      "storageSystemId":
      "hostGroupIds": [
        "",
        ...
      ]
    },
    ...
  ]
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	string	The ID of the target storage system.
hostGroupIds	Yes	string[]	The target host group IDs.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
```

```
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The operation was accepted.
400	Bad request	Bad request
403	Forbidden	The operation is not authorized.

Example request

```
{
  "hostGroups": [
    {
      "storageSystemId": "12345"
```

```
      "hostGroupIds": [
        "CL1-A-83",
        "CL1-B-83"
      ]
    }
  ]
}
```

Port management resources

Request	Method	URI	Role
Listing ports (on page 339)	GET	/v1/storage-systems/*storageSystemId*/storage-ports	Storage administrator System administrator Security administrator
Getting a port (on page 348)	GET	/v1/storage-systems/*storageSystemId*/storage-ports/*storagePortId*	Storage administrator System administrator Security administrator
Updating a port (on page 356)	POST	/v1/storage-systems/*storageSystemId*/storage-ports/*storagePortId*	Storage administrator
Getting port login information (on page 362)	GET	/v1/storage-systems/*storageSystemId*/ports-login-information	Storage administrator System administrator Security administrator

Listing ports

You can list all the ports in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/storage-ports
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources":
    [
        // For Fibre port
        {
            "storagePortId": "",
            "storageSystemId": "",
            "storageSystemName": "",
            "wwn": "",
            "attributes":
            [
                "",
                "",
                "",
                ""
            ],
            "speed": "",
            "type": "",
            "loopId": "",
            "topology": "",
            "securitySwitchEnabled": ,
            "vsmPort": ,
            "iscsiPortInformation":,
            "t10PiStatus":
        },
        // For iSCSI port
        {
            "storagePortId": "",
            "storageSystemId": "",
            "storageSystemName": "",
            "wwn": null,
            "attributes":
            [
                "",
                "",
                "",
                ""
            ],
            "speed": "",
            "type": "",
            "loopId": "",
            "topology": "",
```

```
            "securitySwitchEnabled": ,
            "isVsmPort": ,
            "t10PiStatus":,
            "iscsiPortInformation": {
                "portIscsiName: "",
                "macAddress": "",
                "vlanUse": true,
                "vlanId": ,
                "ipv4Information": {
                    "address": "",
                    "subnetMask": "",
                    "defaultGateway": ""
                },
                "ipv6Enabled": ,
                "ipv6Information": {
                    "linklocalAddressingMode": "",
                    "linklocalAddress": "",
                    "globalAddressingMode": "",
                    "globalAddress": "",
                    "defaultGateway": ""
                },
                "tcpPort": ,
                "selectiveAck": ,
                "delayedAck": ,
                "windowSizeInKBytes": ,
                "mtuSizeInBytes": ,
                "keepAliveTimerInSec": ,
                "isnsInformation": {
                    "isnsServerIpAddress": "",
                    "isnsServerPort": ,
                }
            }
        },
        ...
    ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
storagePortId	String	ID of the storage port.
storageSystemId	String	ID of the storage system.
storageSystemName	String	The name of the storage system.
wwn	String	World wide name of the storage port.

Parameter	Type	Description
attributes	List	Attribute on the port. Valid values: TARGET_PORT, MCU_INITIATOR_PORT,RCU_TARGET_PORT, EXTERNAL_INITIATOR_PORT. All ports are universal ports.
speed	String	Speed of the port, such as 1G, 2G, 4G, 8G, 10G, 16G, 32G, or AUTO.
type	String	Type of port, such as FIBRE and ISCSI.
loopId	String	For disks that are connected using Fibre Channel-Arbitrated Loop (FC-AL or FC), the loop ID identifies the disk within its loop and is included in the disk name, which uniquely identifies the disk for the entire system. The loop ID is a hexadecimal number from 0x01 to 0xEF. For iSCSI port, the loop ID is always 0x00.
topology	String	Topology of the port, such as the following. For Fibre port: ▪ FABRIC_ON_ARB_LOOP ▪ FABRIC_ON_POINT_TO_POINT ▪ FABRIC_OFF_ARB_LOOP ▪ FABRIC_OFF_POINT_TO_POINT For iSCSI port: ▪ ISCSI
securitySwitchEnabled	Boolean	Security status of the port. If the status is TRUE, security is enabled on the port.
vsmPort	Boolean	Whether the port is being used by a VSM.
iscsiPortInformation	Object	Displays port information related to iSCSI. NULL for FC port.
portIscsiName	String	Displays the iSCSI port name.
macAddress	String	Displays the MAC address of the port. NULL if the port does not support outputting the MAC address.

Parameter	Type	Description
vlanUse	Boolean	Displays whether VLAN is enabled for this port. ▪ TRUE: VLAN is enabled ▪ FALSE: VLAN is disabled ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
vlanId	Number	Displays VLAN ID in decimal. NULL if VLAN ID is not set (vlanUse is FALSE).
ipv4Information	Object	Displays information related to IPv4.
address	String	Displays the IPv4 address.
subnetMask	String	Displays the IPv4 subnet address.
defaultGateway	String	Displays the IPv4 address of the gateway to the user for iSCSI communication.
ipv6Enabled	Boolean	Displays whether the port works with IPv6 address. ▪ TRUE: The port works with both IPv4 and IPv6 addresses. ▪ FALSE: The port works with IPv4 addresses. ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
ipv6Information	Object	Displays information related to IPv6.

Parameter	Type	Description
linklocalAddressingMode	Enum	Displays the IPv6 link local addressing mode. ▪ AUTO: The link local address is set automatically. ▪ MANUAL: The specified link local address is set. ▪ UNKNOWN: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
linklocalAddress	String	Displays the IPv6 link local address.
globalAddressingMode	Enum	Displays the IPv6 global addressing mode. ▪ AUTO: The link local address is set automatically. ▪ MANUAL: The specified link local address is set. ▪ UNKNOWN: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
globalAddress	String	Displays the IPv6 global address.
tcpPort	Number	Displays the TCP port number for iSCSI communication. The value is between 1 and 65535.
selectiveAck	Boolean	Displays whether the selective ACK mode is enabled. ▪ TRUE: The selective ACK is enabled. ▪ FALSE: The selective ACK is disabled. ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.

Parameter	Type	Description
delayedAck	Boolean	Displays whether the delayed ACK mode is enabled. ▪ TRUE: The delayed ACK mode is enabled. ▪ FALSE: The delayed ACK mode is disabled. ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
windowSizeInKBytes	Number	Displays the value of the window size for iSCSI communication. The value is in {64, 128, 256, 512, 1024} [KiB]
mtuSizeInBytes	Number	Displays the value of MTU for iSCSI communication. The value is in {1500/4500/900} [Byte]
keepAliveTimerInSec	Number	Displays the value of the keep-alive timer for iSCSI communication. The value is between 30 and 64800 [s].
isnsServerInformation	Object	Displays the iSNS server information. NULL if iSNS server mode is disabled for this port.
isnsServerIpAddress	String	Displays the address of the iSNS server. The format is IPv4 or IPv6.
isnsServerPort	Number	Displays the TCP port number of the iSNS server. The value is between 1 and 65535.
t10PiStatus	String	T10PI status of the port. For Fibre Port, valid values are: ▪ ENABLED ▪ DISABLED ▪ UNSUPPORTED Returns NULL for iSCSI.

Parameter	Type	Description
total	Long	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

```
https://172.17.64.115/v1/storage-systems/39305/storage-ports
```

Example response

```
{
    "resources":
    [
        // For Fibre port
        {
            "storagePortId": "CL1-D",
            "storageSystemId": "39305",
            "storageSystemName": "RN-SC-39305-HID_SVOS7.3-Gsd",
            "wwn": "50060E8012272F03",
            "attributes":
```

```
            [
                "TARGET_PORT",
                "MCU_INITIATOR_PORT",
                "RCU_TARGET_PORT",
                "EXTERNAL_INITIATOR_PORT"
            ],
            "speed": "AUTO",
            "type": "FIBRE",
            "loopId": "AC",
            "topology": "FABRIC_ON_POINT_TO_POINT",
            "securitySwitchEnabled": true,
            "vsmPort": false,
            "iscsiPortInformation": null,
            "t10PiStatus": "ENABLED"
        },
        // For iSCSI port
        {
            "storagePortId": "CL4-B",
            "storageSystemId": "39305",
            "storageSystemName": "RN-SC-39305-HID_SVOS7.3-Gsd",
            "wwn": null,
            "attributes":
            [
                "TARGET_PORT",
                "MCU_INITIATOR_PORT",
                "RCU_TARGET_PORT",
                "EXTERNAL_INITIATOR_PORT"
            ],
            "speed": "10G",
            "type": "ISCSI",
            "loopId": "0x00",
            "topology": "ISCSI",
            "securitySwitchEnabled": true,
            "isVsmPort": false,
            "t10PiStatus": null,
            "iscsiPortInformation": {
                "portIscsiName": "iqn.1994-04.com.example:rsd.h8s.i.125f77.4b",
                "macAddress": "00:1f:67:af:c1:0d",
                "vlanUse": true,
                "vlanId": 0,
                "ipv4Information": {
                    "address": "192.168.116.237",
                    "subnetMask": "255.255.0.0",
                    "defaultGateway": "0.0.0.0"
                },
                "ipv6Enabled": true,
                "ipv6Information": {
                    "linklocalAddressingMode": "AUTO",
                    "linklocalAddress": "fe80::",
                    "globalAddressingMode": "MANUAL",
                    "globalAddress": "::",
```

```
                    "defaultGateway": "::"
                },
                "tcpPort": 0,
                "selectiveAck": true,
                "delayedAck": true,
                "windowSizeInKBytes": 64,
                "mtuSizeInBytes": 1500,
                "keepAliveTimerInSec": 0,
                "isnsInformation": {
                    "isnsServerIpAddress": "",
                    "isnsServerPort": 0,
                }
            }
        },
        ...
    ],
    "total": 16,
    "nextToken": null
}
```

Getting a port

You can list port information for a storage port.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/storage-ports/storagePortId
```

Use the storage system ID as the *storageSystemId*.

Use the storage port ID as the *storagePortId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
// For Fibre port
{
    "storagePortId": "",
    "storageSystemId": "",
    "storageSystemName": "",
    "wwn": "",
    "attributes":
    [
        "",
        "",
        "",
```

```
        ""
    ],
    "speed": "",
    "type": "",
    "loopId": "",
    "topology": "",
    "securitySwitchEnabled": ,
    "vsmPort": ,
    "iscsiPortInformation":,
    "t10PiStatus":
}

// For iSCSI port
{
    "storagePortId": "",
    "storageSystemId": "",
    "storageSystemName": "",
    "wwn": null,
    "attributes":
    [
        "",
        "",
        "",
        ""
    ],
    "speed": "",
    "type": "",
    "loopId": "",
    "topology": "",
    "securitySwitchEnabled": ,
    "isVsmPort": ,
    "t10PiStatus": ,
    "iscsiPortInformation": {
        "portIscsiName": "",
        "macAddress": "",
        "vlanUse": true,
        "vlanId": ,
        "ipv4Information": {
            "address": "",
            "subnetMask": "",
            "defaultGateway": ""
        },
        "ipv6Enabled": ,
        "ipv6Information": {
            "linklocalAddressingMode": "",
            "linklocalAddress": "",
            "globalAddressingMode": "",
            "globalAddress": "",
            "defaultGateway": ""
        },
        "tcpPort": ,
```

```
        "selectiveAck": ,
        "delayedAck": ,
        "windowSizeInKBytes": ,
        "mtuSizeInBytes": ,
        "keepAliveTimerInSec": ,
        "isnsInformation": {
            "isnsServerIpAddress": "",
            "isnsServerPort": ,
        }
    }
}
```

Parameter	Type	Description
storagePortId	String	ID of the storage port.
storageSystemId	String	ID of the storage system.
storageSystemName	String	The name of the storage system.
wwn	String	World wide name of the storage port.
attributes	List	Attribute on the port. Valid values: TARGET_PORT, MCU_INITIATOR_PORT,RCU_TARGET_PORT, EXTERNAL_INITIATOR_PORT. All ports are universal ports.
speed	String	Speed of the port, such as 1G, 2G, 4G, 8G, 10G, 16G, 32G, or AUTO.
type	String	Type of port, such as FIBRE, SCSI, ISCSI, ENAS, FICON, ESCON, FCOE, HNASU, or HNASS.
loopId	String	For disks that are connected using Fibre Channel-Arbitrated Loop (FC-AL or FC), the loop ID identifies the disk within its loop and is included in the disk name, which uniquely identifies the disk for the entire system. The loop ID is a hexadecimal number from 0x01 to 0xEF. For iSCSI port, the loop ID is always 0x00.
topology	String	Topology of the port, such as the following. For Fibre port: ▪ FABRIC_ON_ARB_LOOP ▪ FABRIC_ON_POINT_TO_POINT

Parameter	Type	Description
		▪ FABRIC_OFF_ARB_LOOP ▪ FABRIC_OFF_POINT_TO_POINT For iSCSI port: ▪ ISCSI
securitySwitchEnabled	Boolean	Security status of the port. If the status is TRUE, security is enabled on the port.
vsmPort	Boolean	Whether the port is being used by a VSM.
iscsiPortInformation	Object	Displays port information related to iSCSI. NULL for FC port.
portIscsiName	String	Displays the iSCSI port name.
macAddress	String	Displays the MAC address of the port. NULL if the port does not support outputting the MAC address.
vlanUse	Boolean	Displays whether VLAN is enabled for this port. ▪ TRUE: VLAN is enabled ▪ FALSE: VLAN is disabled ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
vlanId	Number	Displays VLAN ID in decimal. NULL if VLAN ID is not set (vlanUse is FALSE).
ipv4Information	Object	Displays information related to IPv4.
address	String	Displays the IPv4 address.
subnetMask	String	Displays the IPv4 subnet address.
defaultGateway	String	Displays the IPv4 address of the gateway to the user for iSCSI communication.

Parameter	Type	Description
ipv6Enabled	Boolean	Displays whether the port works with IPv6 address. ▪ TRUE: The port works with both IPv4 and IPv6 addresses. ▪ FALSE: The port works with IPv4 addresses. ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
ipv6Information	Object	Displays information related to IPv6.
linklocalAddressingMode	Enum	Displays the IPv6 link local addressing mode. ▪ AUTO: The link local address is set automatically. ▪ MANUAL: The specified link local address is set. ▪ UNKNOWN: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
linklocalAddress	String	Displays the IPv6 link local address.
globalAddressingMode	Enum	Displays the IPv6 global addressing mode. ▪ AUTO: The link local address is set automatically. ▪ MANUAL: The specified link local address is set. ▪ UNKNOWN: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
globalAddress	String	Displays the IPv6 global address.
tcpPort	Number	Displays the TCP port number for iSCSI communication. The value is between 1 and 65535.

Parameter	Type	Description
selectiveAck	Boolean	Displays whether the selective ACK mode is enabled. ▪ TRUE: The selective ACK is enabled. ▪ FALSE: The selective ACK is disabled. ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
delayedAck	Boolean	Displays whether the delayed ACK mode is enabled. ▪ TRUE: The delayed ACK mode is enabled. ▪ FALSE: The delayed ACK mode is disabled. ▪ NULL: Cannot get information from the storage system. Returns if the value is not defined in DKC and raidcom returns nothing. This case is extremely rare and cannot be expected to occur.
windowSizeInKBytes	Number	Displays the value of the window size for iSCSI communication. The value is in {64, 128, 256, 512, 1024} [KiB]
mtuSizeInBytes	Number	Displays the value of MTU for iSCSI communication. The value is in {1500/4500/900} [Byte]
keepAliveTimerInSec	Number	Displays the value of the keep-alive timer for iSCSI communication. The value is between 30 and 64800 [s].
isnsServerInformation	Object	Displays the iSNS server information. NULL if iSNS server mode is disabled for this port.
isnsServerIpAddress	String	Displays the address of the iSNS server. The format is IPv4 or IPv6.

Parameter	Type	Description
isnsServerPort	Number	Displays the TCP port number of the iSNS server. The value is between 1 and 65535.
t10PiStatus	String	T10PI status of the port. For Fibre Port, valid values are: ▪ ENABLED ▪ DISABLED ▪ UNSUPPORTED Returns NULL for iSCSI.
total	Long	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

```
https://172.17.64.115/v1/storage-systems/39305/storage-ports/CL1-D
```

Example response

```
// For Fibre port
{
    "storagePortId": "CL1-D",
    "storageSystemId": "39305",
    "storageSystemName": "RN-SC-39305-HID_SVOS7.3-Gsd",
    "wwn": "50060E8012272F03",
    "attributes":
    [
        "TARGET_PORT",
        "MCU_INITIATOR_PORT",
        "RCU_TARGET_PORT",
        "EXTERNAL_INITIATOR_PORT"
    ],
    "speed": "AUTO",
    "type": "FIBRE",
    "loopId": "AC",
    "topology": "FABRIC_ON_POINT_TO_POINT",
    "securitySwitchEnabled": true,
    "vsmPort": false,
    "iscsiPortInformation": null,
    "t10PiStatus": "ENABLED"
}

// For iSCSI port
{
    "storagePortId": "CL4-B",
    "storageSystemId": "39305",
    "storageSystemName": "RN-SC-39305-HID_SVOS7.3-Gsd",
    "wwn": null,
    "attributes":
    [
        "TARGET_PORT",
        "MCU_INITIATOR_PORT",
        "RCU_TARGET_PORT",
        "EXTERNAL_INITIATOR_PORT"
    ],
    "speed": "10G",
    "type": "ISCSI",
    "loopId": "0x00",
    "topology": "ISCSI",
    "securitySwitchEnabled": true,
    "isVsmPort": false,
    "t10PiStatus": null,
    "iscsiPortInformation": {
        "portIscsiName": "iqn.1994-04.com.example:rsd.h8s.i.125f77.4b",
        "macAddress": "00:1f:67:af:c1:0d",
        "vlanUse": true,
        "vlanId": 0,
        "ipv4Information": {
```

```
            "address": "192.168.116.237",
            "subnetMask": "255.255.0.0",
            "defaultGateway": "0.0.0.0"
        },
        "ipv6Enabled": true,
        "ipv6Information": {
            "linklocalAddressingMode": "AUTO",
            "linklocalAddress": "fe80::",
            "globalAddressingMode": "MANUAL",
            "globalAddress": "::",
            "defaultGateway": "::"
        },
        "tcpPort": 0,
        "selectiveAck": true,
        "delayedAck": true,
        "windowSizeInKBytes": 64,
        "mtuSizeInBytes": 1500,
        "keepAliveTimerInSec": 0,
        "isnsInformation": {
            "isnsServerIpAddress": "",
            "isnsServerPort": 0,
        }
    }
}
```

Updating a port

You can modify the port configuration settings for a specific storage port, such as topology, loop ID, security, and speed. For VSP G1000, VSP G1500, VSP F1500 or VSP 5000 series storage systems you can also change the port or role attributes.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/storage-ports/storagePortId
```

Use the storage system ID as the *storageSystemId*.

Use the storage port ID as the *storagePortId*.

Request structure

The request body structure is shown below:

For updating an FC port:

```
{
"topology":" " ,
"loopId":" ",
"securitySwitchEnabled":" ",
"speed":" ",
```

```
"attribute":" "
}
```

For updating an iSCSI port:

```
{
   "securitySwitchEnabled":"",
   "speed":"",
   "attribute":" ",
   "iscsiPortInformation": {
     "ipv6Enabled": true,
     "ipv4Information": {
       "address": "",
       "subnetMask": "",
       "defaultGateway": ""
     },
     "ipv6Information": {
       "linklocalAddressingMode": "",
       "linklocalAddress": "",
       "globalAddressingMode": "",
       "globalAddress": "",
       "defaultGateway": ""
     }
   }
}
```

Parameter	Required	Type	Description
topology	Yes	String	The topology of the port: ▪ FABRIC_ON_ARB_LOOP ▪ FABRIC_ON_POINT_TO_POINT ▪ FABRIC_OFF_ARB_LOOP ▪ FABRIC_OFF_POINT_TO_POINT Must be NULL for iSCSI port.
loopId	No	String	For disks that are connected using Fibre Channel-Arbitrated Loop (FC-AL or FC), the loop ID identifies the disk within its loop and is included in the disk name, which uniquely identifies the disk for the entire system. The loop ID is a hexadecimal number from 0x01 to 0xEF. Must be NULL for iSCSI port.

Parameter	Required	Type	Description
securitySwitchEnabled	No	Boolean	Security status of the port. If the status is TRUE, security is enabled on the port.
speed	No	String	The speed of the port. Valid values: 1G, 2G,4G, 8G, 10G, 16G, 32G, or AUTO.
attribute	No	String	Port attribute. Valid values: TARGET_PORT, RCU_TARGET_PORT,EXTERNAL_INITAITOR_PORT, MCU_INITIATOR_PORT, BIDIRECTIONAL_PORT.
iscsiPortInformation	No	Object	Updates iSCSI port information. Must be NULL for FC port.
ipv6Enabled	No	Boolean	Updates whether the port works with IPv6. ▪ TRUE: The port works with both IPv4 and IPv6 addresses. ▪ FALSE: The port works with IPv4 addresses.
ipv4Information	No	Object	Specify if updating the IPv4 settings. If NULL is specified, the IPv4 settings do not change.
address	No	String	Updates the IPv4 address.
subnetMask	No	String	Updates the IPv4 subnet mask.
defaultGateway	No	String	Updates the IPv4 address of the gateway for iSCSI communication.
ipv6Information	No	Object	Specify if updating the IPv6 settings. If NULL is specified, IPv6 settings are not changed.
linklocalAddressingMode	No	Enum	Updates the IPv6 link local addressing mode. ▪ AUTO: The link local address is set automatically. ▪ MANUAL: The specified link local address is set.

Parameter	Required	Type	Description
linklocalAddress	No	String	Updates the IPv6 link local address. Must be NULL if the addressing mode is AUTO. Must be specified if the addressing mode is MANUAL.
globalAddressingMode	No	Enum	Updates the IPv6 global addressing mode. ▪ AUTO: The link local address is set automatically. ▪ MANUAL: Specified link local address is set.
globalAddress	No	String	Updates the IPv6 global address. Must be NULL if the addressing mode is AUTO. Must be specified if the addressing mode is MANUAL.
defaultGateway	No	String	Updates the IPv6 address of the gateway for iSCSI communication.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
```

```
    ],
    "links":
    [
       {
          "rel": "_self",
          "href": "/v1/jobs/jobId"
       }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

```
https://172.17.64.115/v1/storage-systems/440084/storage-ports/storagePortId
```

Example request

For updating an FC port:

```
{
  "topology": "FABRIC_ON_POINT_TO_POINT"
  "loopId": "EF",
```

```
  "securitySwitchEnabled": true,
  "speed": "AUTO"
  "attribute":"MCU_INITIATOR_PORT"
}
```

For updating an iSCSI port:

```
 {
    "securitySwitchEnabled": true,
    "speed":"10G",
    "attribute":"TARGET_PORT",
    "iscsiPortInformation": {
      "ipv6Enabled": true,
      "ipv4Information": {
        "address": "192.168.116.237",
        "subnetMask": "255.255.0.0",
        "defaultGateway": "0.0.0.0"
      },
      "ipv6Information": {
        "linklocalAddressingMode": "AUTO",
        "linklocalAddress": "fe80::",
        "globalAddressingMode": "AUTO",
        "globalAddress": "::",
        "defaultGateway": "::"
      }
    }
 }
```

Getting port login information

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/ports-login-information
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

```
{
    "resources": [
        {
            "storageSystemId": "",
            "storagePortId": "",
            "type": "",
            "loginWwn": "",
            "loginIscsiName": ""
```

```
            "hostGroupId": "",
            "hostGroupName": "",
            "iscsiTargetName": "",
            "iscsiTargetAlias": "",
            "isLoggedIn":
        },
    ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
storagePortId	String	ID of the storage port.
storageSystemId	String	ID of the storage system.
loginWwn	String	Login name for the WWN Fiber port.
loginIscsiName	String	Login name for the iSCSI port.
hostGroupId	String	The host group ID.
hostGroupName	String	The host group name.
iscsiTargetName	String	The iSCSI target name.
iscsiTargetAlias	String	The iSCSI target alias.
isLoggedIn	Boolean	Specifies whether the WWN/iSCSI Name is logged in. The value is false when the WWN/iSCSI Name is logged out or is not connected currently.
type	String	Type of port, such as FIBRE and ISCSI.
total	Long	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example request

```
https://172.17.64.115/v1/storage-systems/410209/ports-login-information
```

Example response


```
{
    "resources": [
        {
            "storageSystemId": "410209",
            "storagePortId": "CL7-B",
            "type": "FIBRE",
            "loginWwn": "100000051EEE059C",
            "loginIscsiName": null
            "hostGroupId": "CL7-B-1",
            "hostGroupName": "hg-07-b",
            "iscsiTargetName": null,
            "iscsiTargetAlias": null,
            "isLoggedIn": true
        },
        {
            "storageSystemId": "410209",
            "storagePortId": "CL1-B",
            "type": "FIBRE",
            "loginWwn": "50060E80123ABF05",
            "loginIscsiName": null
            "hostGroupId": "CL1-B-1",
            "hostGroupName": "hg-01-b",
            "iscsiTargetName": null,
            "iscsiTargetAlias": null,
            "isLoggedIn": true
        },
        {
            "storageSystemId": "410209",
            "storagePortId": "CL5-B",
```

```
            "type": "FIBRE",
            "loginWwn": "50060E801227E135",
            "loginIscsiName": null
            "hostGroupId": "CL5-B-1",
            "hostGroupName": "hg-05-b",
            "iscsiTargetName": null,
            "iscsiTargetAlias": null,
            "isLoggedIn": true
        },
        {
            "storageSystemId": "410209",
            "storagePortId": "CL3-B",
            "type": "FIBRE",
            "loginWwn": "50060E80123ABF25",
            "loginIscsiName": null
            "hostGroupId": "CL3-B-1",
            "hostGroupName": "hg-03-b",
            "iscsiTargetName": null,
            "iscsiTargetAlias": null,
            "isLoggedIn": true
        }
    ],
    "total": 4,
    "nextToken": null
}
```


Tier management resources

Request	Method	URI	Role
Listing tiers (on page 365)	GET	/v1/templates/tiers	Storage administrator System administrator Security administrator
Updating a tier (on page 368)	POST	/v1/templates/tiers/*tierId*	System administrator

Listing tiers

You can display a list of all the tiers that are defined in Ops Center Administrator. The list is sorted by the tier ID.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/templates/tiers
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "tiers": [
        {
            "id":
            "tier":
            "subTiers": [
                {
                    "diskType":
                    "speed":
                },

            ]
        }
    ]
}
```

Parameter	Type	Description
tiers	List	Collection of tier definitions.
id	String	ID of the tier.
tier	String	Custom name of the tier, such as Platinum, Gold, Silver, Bronze, or External.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/templates/tiers
```

Example response

```
{
    "tiers": [
        {
            "id": "1",
            "tier": "Platinum",
            "subTiers": [
                {
                    "diskType": "SSD",
                    "speed": 0
                },
                {
                    "diskType": "FMD DC2",
                    "speed": 0
                }
            ]
        },
        {
            "id": "2",
            "tier": "Gold",
            "subTiers": [
                {
                    "diskType": "SAS",
                    "speed": 15000
                }
            ]
        },
        {
            "id": "3",
```

```
            "tier": "Silver",
            "subTiers": [
                {
                    "diskType": "SAS",
                    "speed": 10000
                }
            ]
        },
        {
            "id": "4",
            "tier": "Bronze",
            "subTiers": [
                {
                    "diskType": "SAS",
                    "speed": 7200
                }
            ]
        },
        {
            "id": "5",
            "tier": "External",
            "subTiers": []
        }
    ]
}
```

Updating a tier

You can change the name of a tier.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/templates/tiers/tierId
```

Use the ID of the tier for the *tierId*.

Request structure

The request body structure is shown below:

```
{
    "tierName":
}
```

Parameter	Required	Type	Description
tierName	Yes	String	The new name of the tier. The maximum name length is 256 characters. The name cannot start with a dash or underscore.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.

Parameter	Type	Description
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
201	Created	The server has started the operation.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/templates/tiers/5
```

Example request

```
{
 "tierName":     "NewName"
}
```

Chapter 3: File storage management resources

This module describes the file storage management operations.

Virtual file server management resources

Request	Method	URI	Role
Getting virtual file servers from all storage systems (on page 373)	GET	/v1/file/vfs	Storage administrator System administrator Security administrator
Listing virtual file servers for a storage system (on page 376)	GET	/v1/file/storage-systems/*storageSystemId*/vfs	Storage administrator System administrator Security administrator
Getting a virtual file server (on page 380)	GET	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	Storage administrator System administrator Security administrator
Creating a virtual file server (on page 384)	POST	/v1/file/storage-systems/*storageSystemId*/vfs	System administrator
Enabling a virtual file server (on page 389)	PATCH	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator
Disabling a virtual file server (on page 392)	PATCH	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator
Renaming a virtual file server (on page 396)	PATCH	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator

Request	Method	URI	Role
Deleting a virtual file server (on page 400)	DELETE	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator

Getting virtual file servers from all storage systems

You can change the name of a tier.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/vfs
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "evses": [
    {
      "clusterNodeId": ,
      "enabled": ,
      "id": ,
      "interfaceAddresses": [
        {
          "clusterNodeId": ,
          "evs": ,
          "evsId": ,
          "ip": "",
          "ipv6": ,
          "locationName": "",
          "mask": "",
          "port": "",
          "prefixLength":
        },
        ...
      ],
      "ipAddresses": [
        {
          "ipAddress": "",
          "mask": "",
          "port": ""
        }
      ],
      "links": [],
```

```
      "name": "",
      "status": "",
      "type": "",
      "uuid": ""
    }
  ]
}
```

Parameter	Type	Description
clusterNodeId	String	ID of the cluster or ID of one of the cluster nodes.
enabled	Boolean	Whether the virtual file server is enabled.
id	Integer	ID of the virtual file server.
interfaceAddresses	List	List of interface addresses for the virtual file server.
evs	Boolean	Whether the virtual file server is present.
evsId	Integer	ID of the virtual file server.
ip	String	IP address of the virtual file server.
ipv6	Boolean	Whether the IPv6 address is used.
locationName	String	Location of the virtual file server.
mask	String	Subnet mask of the IP address.
port	String	Port number.
prefixLength	Integer	The number of bits set in the subnet mask.
ipAddresses	List	List of IP addresses for the virtual file server.
ipAddress	String	IP address of the resource.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
name	String	Name of the virtual file server.
status	String	Online, if the virtual file server is enabled and offline if the virtual file server is disabled.
type	String	Type of the virtual file server. Valid values: 1 - admin, 2 - file server.

Parameter	Type	Description
uuid	String	Universal unique identifier of the virtual file server.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://129.59.181.45/v1/file/vfs
```

JSON Response:

```
{
  "evses": [
    {
      "clusterNodeId": 2,
      "enabled": true,
      "id": 0,
      "interfaceAddresses": [
        ...
        {
          "clusterNodeId": 2,
          "evs": true,
          "evsId": 0,
          "ip": "2002::7eff:3002",
          "ipv6": true,
          "locationName": "G800-410500-a",
          "mask": "ffff:ffff:ffff:ffff::",
          "port": "eth1",
          "prefixLength": 64
        }
```

```
      ],
      "ipAddresses": [
        {
          "ipAddress": "126.255.48.2",
          "mask": "255.255.0.0",
          "port": "eth1"
        }
      ],
      "links": [],
      "name": "G800-410500-a",
      "status": "On line",
      "type": "admin",
      "uuid": "cd0f6090-4a29-11d1-901c-040100050000"
     }
   ]
}
```

Getting virtual file servers for a storage system

You can display all virtual file servers in a specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/vfs
```

Use the ID of the storage system as the *storageSystemId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
You can display all virtual file servers in a specified storage system.{
  "evses":
  [
    {
          "clusterNodeId": ,
          "enabled": ,
          "id": ,
          "interfaceAddresses":
          [
              {
                 "clusterNodeId": ,
                 "evs": ,
                 "evsId": ,
                 "ip": "",
                 "ipv6":,
                 "locationName": "",
```

```
                "mask": "",
                "port": "",
                "prefixLength":
              },
          ],
          "ipAddresses":
          [
           {
         "ipAddress": "",
         "mask": "",
         "port": ""
        }
          ],
          "links":
          [
              {
                "rel": "",
                "href": ""
              },
              {
                "rel": "",
                "href": ""
              }
          ],
          "name": "",
          "status": "",
          "type": "",
          "uuid": ""
    }
  ]
}
```


Parameter	Type	Description
clusterNodeId	String	ID of the cluster or ID of one of the cluster nodes.
enabled	Boolean	Whether the virtual file server is enabled.
id	Integer	ID of the virtual file server.
interfaceAddresses	List	List of interface addresses for the virtual file server.
evs	Boolean	Whether the virtual file server is present.
evsId	Integer	ID of the virtual file server.
ip	String	IP address of the virtual file server.

Parameter	Type	Description
ipv6	Boolean	Whether the IPv6 address is used.
locationName	String	Location of the virtual file server.
mask	String	Subnet mask of the IP address.
port	String	Port number.
prefixLength	Integer	The number of bits set in the subnet mask.
ipAddresses	List	List of IP addresses for the virtual file server.
ipAddress	String	IP address of the resource.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
name	String	Name of the virtual file server.
status	String	Online, if the virtual file server is enabled and offline if the virtual file server is disabled.
type	String	Type of the virtual file server. Valid values: 1 - admin, 2 - file server.
uuid	String	Universal unique identifier of the virtual file server.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/vfs
```

JSON Response:


```
{
  "evses":
  [
    {
          "clusterNodeId": 2,
          "enabled": true,
          "id": 0,
          "interfaceAddresses":
          [
              {
                "clusterNodeId": 2,
                "evs": true,
                "evsId": 0,
                "ip": "126.255.48.2",
                "ipv6": false,
                "locationName": "G800-410500-a",
                "mask": "255.255.0.0",
                "port": "eth1",
                "prefixLength": 16
              },
                                          {
                "clusterNodeId": 2,
                "evs": true,
                "evsId": 0,
                "ip": "202:7eff:3002",
                "ipv6": true,
                "locationName": "G800-410500-a",
                "mask": "ffff:ffff:ffff:ffff::",
                "port": "eth1",
                "prefixLength": 64
              }
          ],
          "ipAddresses":
          [
        {
          "ipAddress": "126.255.48.2",
          "mask": "255.255.0.0",
          "port": "eth1"
        }
          ],
          "links":
          [
```

```
                {
                   "rel": "_self",
                   "href": "/v1/file/storage-systems/410500/vfs"
                },
                {
                   "rel": "_filesystems",
                   "href": "/v1/file/storage-systems/410500/vfs/cd0f6090-4a29-11d1-901c-
040100050000/file-systems"
                }
          ],
          "name": "G800-410500-a",
          "status": "On line",
          "type": "admin",
          "uuid": "cd0f6090-4a29-11d1-901c-040100050000"
    }
  ]
}
```

Getting information about a specific virtual file server

You can display information about a virtual file server from a specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/vfs/vfsuuId
```

Use the ID of the storage system as the *storageSystemId.*

Use the universal unique identifier of the virtual file server as the *vfsuuId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
    {
          "clusterNodeId": ,
          "enabled": ,
          "id": ,
          "interfaceAddresses":
          [
              {
                 "clusterNodeId": ,
                 "evs": ,
                 "evsId": ,
                 "ip": "",
                 "ipv6": true|false,
                 "locationName": "",
```

```
                "mask": "",
                "port": "",
                "prefixLength":
             },
        ],
        "ipAddresses":
        [
            {
                    "ipAddress": "",
             "mask": "",
             "port": ""
            }
        ],
        "links":
        [
            {
                "rel": "_self",
                "href": "/v1/file/storage-systems/410500/vfs"
            },
            {
                "rel": "_filesystems",
                "href": "/v1/file/storage-systems/410500/vfs/cd0f6090-4a29-11d1-901c-
040100050000/file-systems"
            }
        ],
        "name": "",
        "status": "",
        "type": "",
        "uuid": ""
    }
}
```


Parameter	Type	Description
clusterNodeId	String	ID of the cluster or ID of one of the cluster nodes.
enabled	Boolean	Whether the virtual file server is enabled.
id	Integer	ID of the virtual file server.
interfaceAddresses	List	List of interface addresses for the virtual file server.
evs	Boolean	Whether the virtual file server is present.
evsId	Integer	ID of the virtual file server.
ip	String	IP address of the virtual file server.

Parameter	Type	Description
ipv6	Boolean	Whether the IPv6 address is used.
locationName	String	Location of the virtual file server.
mask	String	Subnet mask of the IP address.
port	String	Port number.
prefixLength	Integer	The number of bits set in the subnet mask.
ipAddresses	List	List of IP addresses for the virtual file server.
ipAddress	String	IP address of the resource.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
fileSystem	String	URI that includes the file system ID.
name	String	Name of the virtual file server.
status	String	Online, if the virtual file server is enabled and offline if the virtual file server is disabled.
type	String	Type of the virtual file server. Valid values: 1 - admin, 2 - file server.
uuid	String	Universal unique identifier of the virtual file server.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/storage-systems/410500/vfs/cd0f6090-4a29-11d1-901c-
040100050000
```

JSON Response:


```
{
         "clusterNodeId": 2,
         "enabled": true,
         "id": 0,
         "interfaceAddresses":
         [
             {
                "clusterNodeId": 2,
                "evs": true,
                "evsId": 0,
                "ip": "126.255.48.2",
                "ipv6": false,
                "locationName": "G800-410500-a",
                "mask": "255.255.0.0",
                "port": "eth1",
                "prefixLength": 16
              },
                                            {
                "clusterNodeId": 2,
                "evs": true,
                "evsId": 0,
                "ip": "202:7eff:3002",
                "ipv6": true,
                "locationName": "G800-410500-a",
                "mask": "ffff:ffff:ffff:ffff::",
                "port": "eth1",
                "prefixLength": 64
              }
         ],
         "ipAddresses":
         [
             {
                        "ipAddress": "126.255.48.2",
                 "mask": "255.255.0.0",
                 "port": "eth1"
             }
         ],
         "links":
         [
             {
                "rel": "_self",
```

```
                "href": "/v1/file/storage-systems/410500/vfs"
            },
            {
                "rel": "_filesystems",
                "href": "/v1/file/storage-systems/410500/vfs/cd0f6090-4a29-11d1-901c-
040100050000/file-systems"
            }
        ],
        "name": "G800-410500-a",
        "status": "On line",
        "type": "admin",
        "uuid": "cd0f6090-4a29-11d1-901c-040100050000"
}
```

Creating a virtual file server

You can create a virtual file server.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/file/storage-systems/storageSystemId/vfs
```

Use the ID of the storage system as the *storageSystemId*.

Request structure

The request body structure is shown below:

```
{
"name": "",
"ipAddress": "",
"subnetMask": "",
"storageSystemId": "",
"port": "",
"ipv6":
}
```

Parameter	Required	Type	Description
name	No	String	The name of the SNMP manager.
ipAddress	Yes	String	IP address of the resource.
subnetMask	No	String	Subnet mask of the IP address. This parameter is not required when IPv6 is set to true.
storageSystemId	No	String	ID of the storage system.

Parameter	Required	Type	Description
port	No	Integer	The SNMP port number in the range between 0 to 65535.
ipv6	Yes	Boolean	IPv6 address. When IPv6 is set to true, add a suffix with a forward slash in the ipAddress.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title": {
      "text": "",
      "messageCode": "",
      "parameters": {}
  },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
     {
        "rel": "_self",
        "href": "/v1/jobs/"
     }
  ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.

Parameter	Type	Description
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Example request (EVS with IPv4 address format)

```
{
"name": "New EVS",
"ipAddress": "172.17.91.102",
"subnetMask": "255.255.255.192",
"storageSystemId": "410304",
"port": "ag1",
"ipv6": false
}
```

Example request (EVS with IPv6 address format)

```
{
    "name": "ivp6Test2",
    "ipAddress": "2002::7eef:5002/64",
    "storageSystemId": "410209",
    "subnetMask": "255.255.255.192",
```

```
    "port": "ag1",
    "ipv6": true
}
```

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/storage-systems/410500/vfs
```

Example response

```
{
  "jobId": "a88bd309-fe36-4d68-b3b3-342d1edf20e8",
  "title": {
      "text": "Create VFS",
      "messageCode": "CreateVFSJobPreTitleMessage",
      "parameters": {}
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129643172,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
     {
        "rel": "_self",
        "href": "/v1/jobs/a88bd309-fe36-4d68-b3b3-342d1edf20e8"
     }
  ],
  "tags": [{
      "tag": "STORAGE"
    },
    {
      "tag": "410209"
    },
    {
      "tag": "CREATE"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```

Enabling a virtual file server

You can enable a virtual file server in the storage system. Use this command to bring a virtual file server online.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/vfs/vfsuuId
```

Use the ID of the storage system as the *storageSystemId.*

Use the universal unique identifier of the virtual file server as the *vfsuuId.*

Request structure

The request body structure is shown below:

```
{
  "enabled":"true"
}
```

Parameter	Required	Type	Description
enabled	Yes	Boolean	Set to true to enable the virtual file server or false to disable it.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title": {
    "text": "",
    "messageCode": "",
    "parameters": {}
  },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/"
    }
```

```
  ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.

Parameter	Type	Description
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.

Example request

```
{
  "enabled":"true"
}
```

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/storage-systems/21000/vfs/cd0f6090-4a29-11d1-901c-
040100050000
```

JSON Response:


```
{
  "jobId": "e8bf52d5-bc18-4400-b3ef-edc16543af88",
  "title": {
    "text": "Updating VFS with Label EVS-SS, UUID a195af84-84e2-11d1-908d-
040100020009",
    "messageCode": "UpdateVFSPreJobStepMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452542341909,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/e8bf52d5-bc18-4400-b3ef-edc16543af88"
    }
  ],
  "tags": [{
      "tag": "STORAGE"
    },
    {
      "tag": "a195af84-84e2-11d1-908d-040100020009"
    },
    {
      "tag": "410209"
    },
    {
      "tag": "UPDATE"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```


Disabling a virtual file server

You can disable a virtual file server. When disabling a file server a virtual file server goes offline.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/vfs/vfsuuId
```

Use the ID of the storage system as the *storageSystemId.*

Use the universal unique identifier of the virtual file server as the *vfsuuId.*

Request structure

The request body structure is shown below:

```
{
  "enabled":"false"
}
```

Parameter	Required	Type	Description
enabled	Yes	Boolean	Set to true to enable the virtual file server or false to disable it.

Response structure

The response body structure is shown below.

```
{
  "jobId": "",
  "title": {
    "text": "",
    "messageCode": "",
    "parameters": {}
  },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/jobId"
    }
  ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.

Example request

```
{
  "enabled":"false"
}
```

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/storage-systems/410500/vfs/cd0f6090-4a29-11d1-901c-
040100050000
```

JSON Response:

```
{
  "jobId": "e8bf52d5-bc18-4400-b3ef-edc16543af88",
  "title": {
    "text": " Updating VFS with Label EVS-SS, UUID a195af84-84e2-11d1-908d-
040100020009.",
    "messageCode": "UpdateVFSPreJobStepMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452542341909,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
```

```
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/e8bf52d5-bc18-4400-b3ef-edc16543af88"
    }
  ],
  "tags": [{
      "tag": "STORAGE"
    },
    {
      "tag": "a195af84-84e2-11d1-908d-040100020009"
    },
    {
      "tag": "410209"
    },
    {
      "tag": "UPDATE"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```

Renaming a virtual file server

You can rename a virtual file server.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/vfs/vfsuuId
```

Use the ID of the storage system as the *storageSystemId.*

Use the universal unique identifier of the virtual file server as the *vfsuuId.*

Request structure

The request body structure is shown below:

```
{
 "evsName":"NewEVS"
}
```

Parameter	Required	Type	Description
evsName	Yes	String	The new name for the virtual file server. Min = 1, max = 15.

Response structure

The response body structure is shown below.

```
{
  "jobId": "",
  "title": {
    "text": "",
    "messageCode": "",
    "parameters": {}
  },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/jobId"
    }
  ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.

Parameter	Type	Description
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
  "evsName":"NewEVS"
}
```

Example code

Request with JSON command:

```
https://172.17.64.104/v1/file/storage-systems/21000/vfs/9d869ca6-4bf7-11d1-901c-
040100020009
```

JSON Response:


```
{
  "jobId": "e8bf52d5-bc18-4400-b3ef-edc16543af88",
  "title": {
    "text": "Updating VFS with Label EVS-SS, UUID a195af84-84e2-11d1-908d-
040100020009",
    "messageCode": "UpdatingVFSPreJobStepMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452542341909,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/e8bf52d5-bc18-4400-b3ef-edc16543af88"
    }
  ],
  "tags": [ {
      "tag": "STORAGE"
```

```
    },
    {
      "tag": "a195af84-84e2-11d1-908d-040100020009"
    },
    {
      "tag": "410209"
    },
    {
      "tag": "UPDATE"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```

Deleting a virtual file server

You can delete a virtual file server. When you delete a virtual file server, it is automatically disabled.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/file/storage-systems/storageSystemId/vfs/vfsuuId
```

Use the ID of the storage system as the *storageSystemId.*

Use the universal unique identifier of the virtual file server as the *vfsuuId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
```

```
   "user": "",
   "status": "",
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.

Parameter	Type	Description
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/storage-systems/410500/vfs/cd0f6090-4a29-11d1-901c-
040100050000
```

JSON Response:


```
{
  "jobId": "df88e4bd-b6d6-435c-8ac0-deca3c542605",
  "title": {
    "text": "Deleting VFS with Label VFS12345, UUID a195af84-84e2-11d1-908d-
040100020009",
    "messageCode": "DeleteVFSPreStepMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1453254005810,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/df88e4bd-b6d6-435c-8ac0-deca3c542605"
    }
  ],
  "tags": [{
      "tag": "STORAGE"
    },
    {
      "tag": "a195af84-84e2-11d1-908d-040100020009"
    },
    {
      "tag": "410209"
    },
    {
      "tag": "DELETE"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```

File pool management resources

Request	Method	URI	Role
Listing file pools for a storage system (on page 405)	GET	/v1/file/storage-systems/*storageSystemId*/file-pools	Storage administrator System administrator Security administrator
Getting a file pool (on page 408)	GET	/v1/file/storage-systems/*storageSystemId*/file-pools/*poolId*	Storage administrator System administrator Security administrator
Getting a file pool creation template (on page 410)	GET	/v1/file/storage-systems/*storageSystemId*/templates/file-pools	Storage administrator System administrator Security administrator
Creating a file pool from a template (on page 414)	POST	/v1/file/storage-systems/*storageSystemId*/templates/file-pools	Storage administrator
Getting a file pool expansion template (on page 420)	GET	/v1/file/storage-systems/*storageSystemId*/templates/file-pools/*poolId*	Storage administrator System administrator Security administrator
Expanding a file pool (on page 423)	PATCH	/v1/file/storage-systems/*storageSystemId*/templates/file-pool/*poolId*	Storage administrator
Modifying a file pool (on page 428)	POST	/v1/file/storage-systems/*storageSystemId*/templates/file-pools/*poolId*	Storage administrator

Request	Method	URI	Role
Deleting a file pool (on page 434)	DELETE	/v1/file/storage-systems/*storageSystemId*/file-pools/*poolId*	Storage administrator

Listing file pools for a storage system

You can display a list of all file pools in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-pools
```

Use the ID of the storage system as the *storageSystemId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "filePools":
  [
    {
      "id": "",
      "label": "",
      "totalCapacity": "",
      "freeCapacity": "",
      "usedCapacity": "",
      "healthy": ,
      "chunkSize": "",
      "onHDP": "",
      "physicalCapacity": ""
      "tierNames": [""]
      "tiered": ,
      "fileSystemAutoExpansionAllowed": ,
      "assignedToLocalCluster": ,
      "tiers":
      [
        {
          "capacity": "",
          "freeSpace": "",
          "tierNumber": ""
        }
      ]
```

```
    }
  ]
}
```

Parameter	Type	Description
id	Integer	ID of the pool.
label	String	Name of the pool.
totalCapacity	String	Total capacity of the specified pool type in the storage system, in bytes.
freeCapacity	String	Capacity available, in bytes.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
healthy	Boolean	Whether the file pool is healthy. The health of a pool is determined by the health of all its top-level virtual devices.
chunkSize	String	The size of the chunks the file pool is made of.
onHDP	String	Whether the file pool is on HDP. Default value is set to true, since Ops Center Administrator supports file pool creation on HDP pools.
physicalCapacity	String	Physical capacity of the file pool, in bytes.
tierNames	List	Collection of tiers, such as Diamond, Platinum, Gold, Silver, and Bronze of the underlying HDP pool. This applies only to GET file pools and file pool APIs.
tiered	Boolean	Whether the file pool is tiered. ▪ True: when there are two underlying HDP pools. ▪ False: when this is only one underlying HDP pool. This applies only to GET file pools and file pool APIs.
fileSystemAutoExpansionAllowed	Boolean	Whether file system auto expansion is allowed.
assignedToLocalCluster	Boolean	Whether the file pool is assigned to a local cluster.

Parameter	Type	Description
tiers	List	Collection of tier definitions.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/file/storage-systems/410209/file-pools
```

JSON response:


```
{
  "filePools": [
    {
      "id": "6190571495709419190",
      "label": "FK-Pool-2",
      "totalCapacity": "268414484480",
      "freeCapacity": "115070730240",
      "usedCapacity": "153343754240",
      "healthy": true,
      "chunkSize": "19327352832",
      "onHDP": "True",
      "physicalCapacity": "27662173077504"
      "tierNames": ["Silver"]
      "tiered": false,
      "fileSystemAutoExpansionAllowed": true,
      "assignedToLocalCluster": true,
      "tiers": [
        {
          "capacity": "0",
          "freeSpace": "0",
```

```
          "tierNumber": "0"
        },
      ]
    },
    ...
    }
  ]
}
```

Getting a file pool

You can display information about a single file pool.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-pools/poolId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the file pool as the *poolId.*

Request structure

Not applicable.

Response structure

The response body structure is shows below:

```
{
  "id": "",
  "label": "",
  "totalCapacity": "",
  "freeCapacity": "",
  "usedCapacity": "",
  "healthy": true,
  "chunkSize": "",
  "onHDP": "",
  "physicalCapacity": ""
  "tierNames": [""]
  "tiered": ,
  "fileSystemAutoExpansionAllowed": ,
  "assignedToLocalCluster": ,
  "tiers": [
    {
      "capacity": "",
      "freeSpace": "",
      "tierNumber": ""
     }
  ]
}
```

Parameter	Type	Description
id	Integer	ID of the pool.
label	String	Name of the pool.
totalCapacity	String	Total capacity of the specified pool type in the storage system, in bytes.
freeCapacity	String	Capacity available, in bytes.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
healthy	Boolean	Whether the file pool is healthy. The health of a pool is determined by the health of all its top-level virtual devices.
chunkSize	String	The size of the chunks the file pool is made of.
onHDP	String	Whether the file pool is on HDP. Default value is set to true, since Ops Center Administrator supports file pool creation on HDP pools.
physicalCapacity	String	Physical capacity of the file pool, in bytes.
tierNames	List	Collection of tiers, such as Diamond, Platinum, Gold, Silver, and Bronze of the underlying HDP pool. This applies only to GET file pools and file pool APIs.
tiered	Boolean	Whether the file pool is tiered. ▪ True: when there are two underlying HDP pools. ▪ False: when this is only one underlying HDP pool. This applies only to GET file pools and file pool APIs.
fileSystemAutoExpansionAllowed	Boolean	Whether file system auto expansion is allowed.
assignedToLocalCluster	Boolean	Whether the file pool is assigned to a local cluster.
tiers	List	Collection of tier definitions.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/storage-systems/410500/file-pools/6190571495709419190
```

JSON response:


```
{
  "id": "6190571495709419190",
  "label": "FK-Pool-2",
  "totalCapacity": "268414484480",
  "freeCapacity": "115070730240",
  "usedCapacity": "153343754240",
  "healthy": true,
  "chunkSize": "19327352832",
  "onHDP": "True",
  "physicalCapacity": "27662173077504"
  "tierNames": ["Silver"]
  "tiered": false,
  "fileSystemAutoExpansionAllowed": true,
  "assignedToLocalCluster": true,
  "tiers": [
    {
      "capacity": "0",
      "freeSpace": "0",
      "tierNumber": "0"
    }
  ]
}
```


Getting a file pool creation template

You can get a template for creating a new file pool in the storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/templates/file-pools
```

Use the ID of the storage system as the *storageSystemId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "label":"",
  "overCommitRatio":"",
  "utilizationThreshold1":,
  "utilizationThreshold2":,
  "filePoolTemplateItems":[
    {
      "tiers":[
        {
          "name":"",
          "templateSubTiers":[
            {
              "description":"",
              "diskType":"",
              "speed":,
              "capacity":"",
              "raidLevel":"",
              "raidLayout":"",
              "availableSizesInBytes":[
                ""
              ]
            }
          ]
        }
      ]
    }
  ]
}
```

Parameter	Type	Description
label	String	Name of the file pool.
overCommitRatio	String	Percentage by which a file pool capacity is overprovisioned.

Parameter	Type	Description
utilizationThreshold1	Integer	Pool utilization thresholds in percentage (Low). "0" is always displayed in Snap Pool.
utilizationThreshold2	Integer	Pool utilization thresholds in percentage (High).
filePoolTemplateItems	String	Collection of the file pool template items.
tiers	List	Collection of tier definitions.
name	String	Name of the tier.
templateSubTiers	List	List of items that form the tier.
description	String	Tier description, for example, diskType, raidLevel, raidLayout, and speed.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.
capacity	Long	Total capacity of the system drive, in bytes.
raidLevel	String	RAID level. Valid values: RAID1+0, RAID5, or RAID6.
raidLayout	String	RAID layout. This RAID layout should be of the specified RAID level. Valid values: For VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P)
availableSizesInBytes	Long	Available sizes to use for creating and updating the pool.

Return codes

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/templates/file-pools
```

Example response


```
{
  "label":"",
  "overCommitRatio":"200",
  "utilizationThreshold1":70,
  "utilizationThreshold2":80,
  "filePoolTemplateItems":[
    {
      "tiers":[
        {
          "name":"Gold",
          "templateSubTiers":[
            {
              "description":"SAS RAID5 3D+1P 15000",
              "diskType":"SAS",
              "speed":15000,
              "capacity":"302195408896",
              "raidLevel":"RAID5",
              "raidLayout":"3D+1P",
              "availableSizesInBytes":[
                "3458356740096"
              ]
            }
          ]
        }
      ]
    }
  ]
}
```

Creating a file pool from a template

You can create a file pool from a template. When creating a file pool, block pools are automatically created.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/file/storage-systems/storageSystemId/templates/file-pools
```

Use the ID of the storage system as the *storageSystemId.*

Request structure

Specify either a tier name or all of the following: diskType, speed, raidLevel, raidLayout, and sizeToUse.

The request body structure is shown below:

```
{
  "label":"",
  "utilizationThreshold1":,
  "utilizationThreshold2":,
  "templateTiers":[
    {
      "name":"",
      "diskType":"",
      "speed":,
      "capacity":"",
      "raidLevel":"",
      "raidLayout":"",
      "sizeToUse":""
    }
  ]
}
```

Parameter	Required	Type	Description
label	Yes	String	The name of the pool. Min = 1, max = 255.
utilizationThreshold1	Yes	Integer	The pool capacity utilization threshold at which the first warning is issued. The range is between 1 - 100. If the utilizationThreshold1 is not specified, Ops Center Administrator sets it to 70%.

Parameter	Required	Type	Description
utilizationThreshold2	Yes	Integer	The pool capacity utilization threshold at which the second warning is issued. The range is between 1 - 100. The value for utilizationThreshold2 must be greater than the value for utilizationThreshold1. If utilizationThreshold2 is not specified, Ops Center Administrator sets it to 80%.
templateTiers	Yes	List	List of template items that form the tier.
name	Yes	String	The name of the tier.
diskType	Yes	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI) or SSD NVMe.
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe or FMD DC2, the speed is 0.
capacity	Yes	String	Tier capacity
raidLevel	Yes	String	RAID level. Valid values: RAID0, RAID1, RAID1+0, RAID0+1, RAID2, RAID3, RAID4, RAID5, or RAID6.
raidLayout	Yes	String	The RAID layout of the specified RAID level. For VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D +1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D +2P)
sizeToUse	Yes	String	The size to use when creating and updating the pool, based on all availableSizesInBytes during the GET template call.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.

Parameter	Type	Description
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

HTTP status codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/templates/file-pools/
6190571495709419190
```

```
{
 "label":"testPool",
 "utilizationThreshold1":70,
 "utilizationThreshold2":80,
 "templateTiers":[
 {
 "name":"Platinum",
 "diskType":"FMD DC2",
 "speed":0,
 "capacity":"1600000000000",
 "raidLevel":"RAID6",
 "raidLayout":"6D+2P",
```

```
 "sizeToUse":"10555288977408"
 }
 ]
}
```

Example request

Example response

```
{
  "jobId": "723fddb1-2013-472b-a5da-938102352ee7",
  "title":
   {
     "text": "Creating File Pool with Label tieredExpTest",
     "messageCode": "CreateFilePoolJobPreTitleMessage",
     "parameters":
      {
      }
   },
   "user": "sysadmin",
   "status": "IN_PROGRESS",
   "startDate": 1453426947559,
   "endDate": null,
   "parentJobId": null,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/723fddb1-2013-472b-a5da-938102352ee7"
      }
   ],
   "tags":
   [{
      "tag": "STORAGE"
    },
    {
      "tag": "CREATE"
    },
    {
      "tag": "410500"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
```

```
  ]
   "isSystem": false
}
```

Getting a file pool expansion template

You can get a template to expand a file pool.

Use the ID of the storage system as the *storageSystemId.*

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/templates/file-pools/
poolId
```

Use the ID of the pool as the *poolId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "label":"",
  "overCommitRatio":"",
  "utilizationThreshold1":,
  "utilizationThreshold2":,
  "filePoolTemplateItems":[
    {
      "tiers":[
        {
          "name":"",
          "templateSubTiers":[
            {
              "description":"",
              "diskType":"",
              "speed":,
              "capacity":"",
              "raidLevel":"",
              "raidLayout":"",
              "availableSizesInBytes":[
                ""
              ]
            }
          ]
        }
      ]
    }
```

```
  ]
}
```

Parameter	Type	Description
label	String	Name of the file pool.
overCommitRatio	String	Percentage by which a file pool capacity is overprovisioned.
utilizationThreshold1	Integer	Pool utilization thresholds in percentage (Low). "0" is always displayed in Snap Pool.
utilizationThreshold2	Integer	Pool utilization thresholds in percentage (High).
filePoolTemplateItems	String	Collection of the file pool template items.
tiers	List	Collection of tier definitions.
name	String	Name of the tier.
templateSubTiers	List	List of items that form the tier.
description	String	Tier description, for example, diskType, raidLevel, raidLayout, and speed.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	Speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe, the speed is 0.
capacity	Long	Total capacity of the system drive, in bytes.
raidLevel	String	RAID level. Valid values: RAID1+0, RAID5, or RAID6.
raidLayout	String	RAID layout. This RAID layout should be of the specified RAID level. Valid values: For VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P)
availableSizesInBytes	Long	Available sizes to use for creating and updating the pool.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/templates/file-pools/
6190571495709419190
```

Example response


```
{
  "label":"",
  "overCommitRatio":"200",
  "utilizationThreshold1":70,
  "utilizationThreshold2":80,
  "filePoolTemplateItems":[
    {
      "tiers":[
        {
          "name":"Gold",
          "templateSubTiers":[
            {
              "description":"SAS RAID5 3D+1P 15000",
              "diskType":"SAS",
              "speed":15000,
              "capacity":"302195408896",
              "raidLevel":"RAID5",
              "raidLayout":"3D+1P",
              "availableSizesInBytes":[
                "3458356740096"
              ]
            }
          ]
        }
      ]
    }
```

```
  ]
}
```

Expanding a file pool

You can expand a file pool using one or more parameters.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/templates/file-pool/
poolId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the pool as the *poolId.*

Request structure

The request body structure is shown below:

```
{
  "label":"",
  "utilizationThreshold1":,
  "utilizationThreshold2":,
  "templateTiers":[
    {
      "name":"",
      "diskType":"",
      "speed":,
      "capacity":"",
      "raidLevel":"",
      "raidLayout":"",
      "sizeToUse":""
    }
  ]
}
```

Parameter	Required	Type	Description
label	Yes	String	The name of the pool. Min = 1, max = 255.
utilizationThreshold1	Yes	Integer	The pool capacity utilization threshold at which the first warning is issued. The range is between 1 - 100. If the utilizationThreshold1 is not specified, Ops Center Administrator sets it to 70%.

Parameter	Required	Type	Description
utilizationThreshold2	Yes	Integer	The pool capacity utilization threshold at which the second warning is issued. The range is between 1 - 100. The value for utilizationThreshold2 must be greater than the value for utilizationThreshold1. If utilizationThreshold2 is not specified, Ops Center Administrator sets it to 80%.
templateTiers	Yes	List	List of template items that form the tier.
name	Yes	String	The name of the tier.
diskType	Yes	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, FMD DC2, or SCM NVMe the speed is 0.
capacity	Yes	String	Tier capacity
raidLevel	Yes	String	RAID level. Valid values: RAID0, RAID1, RAID1+0, RAID0+1, RAID2, RAID3, RAID4, RAID5, or RAID6.
raidLayout	Yes	String	The RAID layout of the specified RAID level. For VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D +1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D +2P)
sizeToUse	Yes	String	The size to use when creating and updating the pool, based on all availableSizesInBytes during the GET template call.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.

Parameter	Type	Description
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

HTTP status codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Example request

```
{
  "label":"sample",
  "utilizationThreshold1":70,
  "utilizationThreshold2":80,
  "templateTiers":[
    {
      "name":"Gold",
      "diskType":"SAS",
      "speed":15000,
      "capacity":"302195408896",
      "raidLevel":"RAID5",
      "raidLayout":"3D+1P",
      "sizeToUse":"46988947095552"
    }
  ]
}
```

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/templates/file-pools/
6190571495709419190
```

Example response


```
{
  "jobId": "723fddb1-2013-472b-a5da-938102352ee7",
  "title":
   {
     "text": "Expanding File Pool",
     "messageCode": "ExpandFilePoolJobPreTitleMessage",
     "parameters":
      {
      }
   },
   "user": "sysadmin",
   "status": "IN_PROGRESS",
   "startDate": 1453426947559,
   "endDate": null,
   "parentJobId": null,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/723fddb1-2013-472b-a5da-938102352ee7"
      }
   ],
   "tags":
   [
   ],
   "isSystem": false
}
```


Modifying a file pool

You can modify a file pool label.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/file/storage-systems/storageSystemId/templates/file-pools/
poolId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the pool as the *poolId.*

Request structure

The request body structure is shown below:

```
{
  "label":"",
  "utilizationThreshold1":,
  "utilizationThreshold2":,
  "templateTiers":[
    {
      "name":"",
      "diskType":"",
      "speed":,
      "capacity":"",
      "raidLevel":"",
      "raidLayout":"",
      "sizeToUse":""
    }
  ]
}
```

Parameter	Required	Type	Description
label	Yes	String	The name of the pool. Min = 1, max = 255.
utilizationThreshold1	Yes	Integer	The pool capacity utilization threshold at which the first warning is issued. The range is between 1 - 100. If the utilizationThreshold1 is not specified, Ops Center Administrator sets it to 70%.
utilizationThreshold2	Yes	Integer	The pool capacity utilization threshold at which the second warning is issued. The range is between 1 - 100. The value for utilizationThreshold2 must be greater than the value for utilizationThreshold1. If utilizationThreshold2 is not specified, Ops Center Administrator sets it to 80%.
templateTiers	Yes	List	List of template items that form the tier.
name	Yes	String	The name of the tier.
diskType	Yes	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, SSD(RI), SSD NVMe, SCM NVMe, or FMD DC2, the speed is 0.

Parameter	Required	Type	Description
capacity	Yes	String	Tier capacity
raidLevel	Yes	String	RAID level. Valid values: RAID0, RAID1, RAID1+0, RAID0+1, RAID2, RAID3, RAID4, RAID5, or RAID6.
raidLayout	Yes	String	The RAID layout of the specified RAID level. For VSP G200, G/F400, G/F600, G/F800 and VSP G/F350, G/F370, G/F700, G/F900: ▪ RAID1+0: (2D+2D) ▪ RAID5: (3D+1P), (4D+1P), (6D+1P), and (7D+1P) ▪ RAID6: (6D+2P), (14D+2P), (12D+2P) For VSP G1000, VSP G1500, VSP F1500, VSP 5000 series: ▪ RAID5: (3D+1P), (7D+1P) ▪ RAID6: (6D+2P), (14D+2P) ▪ RAID1+0: (2D+2D), (2D+2D)x2
sizeToUse	Yes	String	The size to use when creating and updating the pool, based on all availableSizesInBytes during the GET template call.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
```

```
    [
    ],
    "links":
    [
        {
            "rel": "_self",
            "href": "/v1/jobs/"
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.

Parameter	Type	Description
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Example request

```
https://172.17.64.111/v1/file/storage-systems/410500/file-pools/6190571495709419190
```

Example request

```
{
  "label":"sample",
  "utilizationThreshold1":70,
  "utilizationThreshold2":80,
  "templateTiers":[
```

```
    {
      "name":"Gold",
      "diskType":"SAS",
      "speed":15000,
      "capacity":"302195408896",
      "raidLevel":"RAID5",
      "raidLayout":"3D+1P",
      "sizeToUse":"46988947095552"
    }
  ]
}
```

Example response

```
{
  "jobId": "723fddb1-2013-472b-a5da-938102352ee7",
  "title":
   {
     "text": "Modifying File Pool with Label UserNameTestPool, ID 360468247080066541",
     "messageCode": "ModifyFilePoolJobPreTitleMessage",
     "parameters":
      {
      }
   },
   "user": "sysadmin",
   "status": "IN_PROGRESS",
   "startDate": 1453426947559,
   "endDate": null,
   "parentJobId": null,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/723fddb1-2013-472b-a5da-938102352ee7"
      }
   ],
   "tags":
   [ {
      "tag": "STORAGE"
    },
    {
      "tag": "360468247080066541"
    },
    {
      "tag": "410500"
    },
    {
      "tag": "UPDATE"
```

```
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
   ]
   "isSystem": false
}
```

Deleting a file pool

You can delete a file pool. Deleting a file pool detaches created volumes, deletes the volumes, and then deletes the underlying block pool.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/file/storage-systems/storageSystemId/file-pools/poolId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the pool as the *poolId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
```

```
    [
        {
            "rel": "_self",
            "href": "/v1/jobs/"
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.

Parameter	Type	Description
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/file/storage-systems/410500/file-pools/6190571495709419190
```

Example response

```
{
  "jobId": "723fddb1-2013-472b-a5da-938102352ee7",
  "title":
   {
     "text": "Deleting file pool with Label tieredExpTest, ID 360460576304227337",
     "messageCode": "DeleteFilePoolJobPreTitleMessage",
     "parameters":
      {
      }
   },
   "user": "sysadmin",
```

```
   "status": "IN_PROGRESS",
   "startDate": 1453426947559,
   "endDate": null,
   "parentJobId": null,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/723fddb1-2013-472b-a5da-938102352ee7"
      }
   ],
   "tags":
   [ {
      "tag": "STORAGE"
    },
    {
      "tag": "DELETE"
    },
    {
      "tag": "410500"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    },
    {
      "tag": "360460576304227337"
    }
  ]
   "isSystem": false
}
```


File system management resources

Request	Method	URI	Role
Listing file systems (on page 439)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Getting a single file system (on page 442)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator System administrator Security administrator
Getting file systems for a file pool (on page 445)	GET	/v1/file/storage-systems/*storageSystemId*/file-pools/*poolId*/file-systems	Storage administrator System administrator Security administrator
Getting file systems for a virtual file server (on page 450)	GET	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*/file-systems	Storage administrator System administrator Security administrator
Creating a file system (on page 453)	POST	/v1/file/storage-systems/*storageSystemId*/file-systems	Storage administrator
Deleting a file system (on page 469)	DELETE	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator
Mounting a file system (on page 457)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator
Unmounting a file system (on page 461)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator
Updating a file system (on page 465)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator

Getting file systems for a storage system

You can display information about file systems in a specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems
```

Use the ID of the storage system as the *storageSystemId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "fileSystems":
    [
        "links": [
        {
        "rel":"_self",
        "href":""
        },
        {
        "rel":"_filePool1",
        "href":"/v1/storage-systems/{storageSystemId}/filepools/
        filePool1"
        },
        {
        "rel":"_fsServer1",
        "href":"/v1/storage-systems/{storageSystemId}/vfs/
        fsServer1"
        }
        ],
             "id": "",
             "label": "",
             "filePoolId": ,
             "evsId": 1,
             "fileSystemCapacityDetails":
             {
                 "capacity": ,
                 "freeCapacity": ,
                 "usedCapacity": ,
                 "expansionLimit": ,
                 "unlimitedExpansion":
             },
             "status": "",
             "blockSize": ,
```

```
            "fileSystemTraits":
            {
                "readOnly": ,
                "sysLocked": ,
                "worm": ,
                "nonStrictWorm": ,
                "readCache": ,
                "objectReplicationTarget": ,
                "ndmRecoveryTarget": ,
                "dedupeSupported": ,
                "dedupeEnabled":
            }
    }
  ]
}
```

Parameter	Type	Description
links	List	Displays related resources.
self	String	URI that includes the resource ID.
id	Integer	ID of the file system.
label	String	Name of the file system.
filePoolId	String	ID of the storage pool.
evsId	Integer	ID of the virtual file server.
fileSystemCapacityDetails	String	The file system capacity details.
capacity	String	The file system size limit in bytes. Min = 1, max = 1099511627776.
freeCapacity	String	Capacity available, in bytes.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
expansionLimit	String	Size of the expansion limit, in bytes.
unlimitedExpansion	Boolean	Whether the expansion is limited.
status	String	Status of the virtual file server. Valid values: mounted or unmounted.
blockSize	String	Block size of the file system, either 32 KiB or 4 KiB.

Parameter	Type	Description
fileSystemTraits	String	The characteristics of the file system. It describes whether the file system is read-only, and whether object replication is set on the file system.
readOnly	Boolean	Whether the cache is read.
sysLocked	Boolean	Whether the file system is locked.
worm	Boolean	The file system WORM type. The server supports two types of WORM file systems: strict and non-strict.
nonStrictWorm	Boolean	The nonStrictWorm file system enables users to test WORM storage before committing to a "strict" file system.
readCache	Boolean	Whether the cache is read.
objectReplicationTarget	Boolean	Whether there is an object replication target.
ndmRecoveryTarget	Boolean	Whether there is an object recovery target.
dedupeSupported	Boolean	Whether deduplication is supported.
dedupeEnabled	Boolean	Whether deduplication is enabled.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/file/storage-systems/410500/file-systems
```

JSON response:


```
{
  "fileSystems": [
    {
      "id": "55E9CC7EDEBE2B0D0000000000000000",
      "label": "AutomationFS85",
      "filePoolId": 6190571495709419190,
      "evsId": 2,
      "fileSystemCapacityDetails": {
        "capacity": 19126026240,
        "freeCapacity": 16399564800,
        "usedCapacity": 2726461440,
        "expansionLimit": 1073741824,
        "unlimitedExpansion": false
      },
      "status": "Mounted",
      "blockSize": 32768,
      "fileSystemTraits": {
        "readOnly": false,
        "sysLocked": false,
        "worm": false,
        "nonStrictWorm": false,
        "readCache": false,
        "objectReplicationTarget": false,
        "ndmRecoveryTarget": false,
        "dedupeSupported": true,
        "dedupeEnabled": true
      }
    },
 ]
}
```


Getting a single file system

You can display information about a specific file system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the file system as the *fileSystemId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "id": "",
  "label": "",
  "filePoolId": ,
  "evsId": ,
  "fileSystemCapacityDetails": {
    "capacity": ,
    "freeCapacity": ,
    "usedCapacity": ,
    "expansionLimit": ,
    "unlimitedExpansion":
  },
  "status": "",
  "blockSize": ,
  "fileSystemTraits": {
    "readOnly": ,
    "sysLocked": ,
    "worm": ,
    "nonStrictWorm": ,
    "readCache": ,
    "objectReplicationTarget": ,
    "ndmRecoveryTarget": ,
    "dedupeSupported": ,
    "dedupeEnabled":
  }
}
```

Parameter	Type	Description
id	Integer	ID of the file system.
label	String	Name of the file system.
filePoolId	String	ID of the storage pool.
evsId	Integer	ID of the virtual file server.
status	String	Status of the virtual file server. Valid values: mounted or unmounted.
blockSize	String	Block size of the file system, either 32 KiB or 4KiB.
fileSystemCapacityDetails	String	The file system capacity details.
capacity	String	The file system size limit in bytes. Min = 1, max = 1099511627776.

Parameter	Type	Description
freeCapacity	String	Capacity available, in bytes.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
expansionLimit	String	Size of the expansion limit, in bytes.
unlimitedExpansion	Boolean	Whether the expansion is limited.
fileSystemTraits	String	The characteristics of the file system. It describes whether the file system is read-only, and whether object replication is set on the file system.
readOnly	Boolean	Whether the cache is read.
sysLocked	Boolean	Whether the file system is locked.
worm	Boolean	The file system WORM type. The server supports two types of WORM file systems: strict and non-strict.
nonStrictWorm	Boolean	The nonStrictWorm file system enables users to test WORM storage before committing to a "strict" file system.
readCache	Boolean	Whether the cache is read.
objectReplicationTarget	Boolean	Whether there is an object replication target.
ndmRecoveryTarget	Boolean	Whether there is an object recovery target.
dedupeSupported	Boolean	Whether deduplication is supported.
dedupeEnabled	Boolean	Whether deduplication is enabled.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/file/storage-systems/410500/file-systems/
55E9F6F812D9CF310000000000000000
```

JSON response:

```
{
  "id": "55E9F6F812D9CF310000000000000000",
  "label": "AutomationFS53",
  "filePoolId": 6190571495709419190,
  "evsId": 2,
  "fileSystemCapacityDetails": {
    "capacity": 19126026240,
    "freeCapacity": 16399499264,
    "usedCapacity": 2726526976,
    "expansionLimit": 1073741824,
    "unlimitedExpansion": false
  },
  "status": "Mounted",
  "blockSize": 32768,
  "fileSystemTraits": {
    "readOnly": false,
    "sysLocked": false,
    "worm": false,
    "nonStrictWorm": false,
    "readCache": false,
    "objectReplicationTarget": false,
    "ndmRecoveryTarget": false,
    "dedupeSupported": true,
    "dedupeEnabled": true
  }
}
```

Getting file systems for a file pool

You can display information about all file systems in the specified file pool.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-pools/poolId/file-
systems
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the file pool as the *poolId.*

Request structure

Not applicable.

Response structure

The response body structure is shows below:

```
{
    "fileSystems":
    [
        "links": [
        {
        "rel":"_self",
        "href":""
        },
        {
        "rel":"_filePool1",
        "href":"/v1/storage-systems/{storageSystemId}/filepools/
        filePool1"
        },
        {
        "rel":"_fsServer1",
        "href":"/v1/storage-systems/{storageSystemId}/fs-server/
        fsServer1"
        }
        ],
             "id": "",
             "label": "",
             "filePoolId": ,
             "evsId": 1,
             "fileSystemCapacityDetails":
             {
                 "capacity": ,
                 "freeCapacity": ,
                 "usedCapacity": ,
                 "expansionLimit": ,
                 "unlimitedExpansion":
             },
             "status": "",
             "blockSize": ,
             "fileSystemTraits":
             {
```

```
                "readOnly": ,
                "sysLocked": ,
                "worm": ,
                "nonStrictWorm": ,
                "readCache": ,
                "objectReplicationTarget": ,
                "ndmRecoveryTarget": ,
                "dedupeSupported": ,
                "dedupeEnabled":
            }
                        }
        ]
}
```

Parameter	Type	Description
links	List	Displays related resources.
self	String	URI that includes the resource ID.
id	Integer	ID of the file system.
label	String	Name of the file system.
filePoolId	String	ID of the storage pool.
evsId	Integer	ID of the virtual file server.
fileSystemCapacityDetails	String	The file system capacity details.
capacity	String	The file system size limit in bytes. Min = 1, max = 1099511627776.
freeCapacity	String	Capacity available, in bytes.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
expansionLimit	String	Size of the expansion limit, in bytes.
unlimitedExpansion	Boolean	Whether the expansion is limited.
status	String	Status of the virtual file server. Valid values: mounted or unmounted.
blockSize	String	Block size of the file system, either 32KiB or 4KiB.
fileSystemTraits	String	The characteristics of the file system. It describes whether the file system is read-only, and whether object replication is set on the file system.

Parameter	Type	Description
readOnly	Boolean	Whether the cache is read.
sysLocked	Boolean	Whether the file system is locked.
worm	Boolean	The file system WORM type. The server supports two types of WORM file systems: strict and non-strict.
nonStrictWorm	Boolean	The nonStrictWorm file system enables users to test WORM storage before committing to a "strict" file system.
readCache	Boolean	Whether the cache is read.
objectReplicationTarget	Boolean	Whether there is an object replication target.
ndmRecoveryTarget	Boolean	Whether there is an object recovery target.
dedupeSupported	Boolean	Whether deduplication is supported.
dedupeEnabled	Boolean	Whether deduplication is enabled.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.111/v1/file/storage-systems/410500/file-pools/6190571495709419190/
file-systems
```

JSON response:

```
{
    "fileSystems":
```

```
    [
        "links": [
        {
        "rel":"_self",
        "href":""
        },
        {
        "rel":"_filePool1",
        "href":"/v1/storage-systems/{storageSystemId}/filepools/
        filePool1"
        },
        {
        "rel":"_fsServer1",
        "href":"/v1/storage-systems/{storageSystemId}/fs-server/
        fsServer1"
        }
        ],
             "id": "050001134F55D7B10000000000000000",
             "label": "FSCreatedFromSmu",
             "filePoolId": 361060684191926460,
             "evsId": 1,
             "fileSystemCapacityDetails":
             {
                 "capacity": 19495124992,
                 "freeCapacity": 0,
                 "usedCapacity": 0,
                 "expansionLimit": 10737418240,
                 "unlimitedExpansion": false
             },
             "status": "Not Mounted",
             "blockSize": 0,
             "fileSystemTraits":
             {
                 "readOnly": false,
                 "sysLocked": false,
                 "worm": false,
                 "nonStrictWorm": false,
                 "readCache": false,
                 "objectReplicationTarget": false,
                 "ndmRecoveryTarget": false,
                 "dedupeSupported": false,
                 "dedupeEnabled": false
             }
                         }
        ]
}
```

Getting file systems for a virtual file server

In a specified storage system, you can display information about file systems that belong to a virtual file server.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/vfs/vfsuuId/file-systems
```

Use the ID of the storage system as the *storageSystemId.*

Use the universal unique identifier of the virtual file server as the *vfsuuId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
 "fileSystems":
{
  "id": "",
  "label": "",
  "filePoolId": ,
  "evsId": ,
  "fileSystemCapacityDetails": {
    "capacity": ,
    "freeCapacity": ,
    "usedCapacity": ,
    "expansionLimit": ,
    "unlimitedExpansion":
  },
  "status": "",
  "blockSize": ,
  "fileSystemTraits": {
    "readOnly": ,
    "sysLocked": ,
    "worm": ,
    "nonStrictWorm": ,
    "readCache": ,
    "objectReplicationTarget": ,
    "ndmRecoveryTarget": ,
    "dedupeSupported": ,
    "dedupeEnabled":
  }
}
```

Parameter	Type	Description
id	Integer	ID of the file system.
label	String	Name of the file system.
filePoolId	String	ID of the storage pool.
evsId	Integer	ID of the virtual file server.
status	String	Status of the virtual file server. Valid values: mounted or unmounted.
blockSize	String	Block size of the file system, either 32 KiB or 4 KiB.
fileSystemCapacityDetails	String	The file system capacity details.
capacity	String	The file system size limit in bytes. Min = 1, max = 1099511627776.
freeCapacity	String	Capacity available, in bytes.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
expansionLimit	String	Size of the expansion limit, in bytes.
unlimitedExpansion	Boolean	Whether the expansion is limited.
fileSystemTraits	String	The characteristics of the file system. It describes whether the file system is read-only, and whether object replication is set on the file system.
readOnly	Boolean	Whether the cache is read.
sysLocked	Boolean	Whether the file system is locked.
worm	Boolean	The file system WORM type. The server supports two types of WORM file systems: strict and non-strict.
nonStrictWorm	Boolean	The nonStrictWorm file system enables users to test WORM storage before committing to a "strict" file system.
readCache	Boolean	Whether the cache is read.
objectReplicationTarget	Boolean	Whether there is an object replication target.
ndmRecoveryTarget	Boolean	Whether there is an object recovery target.
dedupeSupported	Boolean	Whether deduplication is supported.

Parameter	Type	Description
dedupeEnabled	Boolean	Whether deduplication is enabled.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/file/storage-systems/410304/vfs/
0201EF861F061E7B0000000000000000/file-systems
```

JSON response:

```
{
 "fileSystems": [
{
"id": "0201EF861F061E7B0000000000000000",
"label": "EVS-true-FS-test-1-SS",
"filePoolId": 144124183381760338,
"evsId": 1,
"status": "Mounted",
"blockSize": 32768,
"fileSystemCapacityDetails":
{
"capacity": 19260243968,
"freeCapacity": 16478306304,
"usedCapacity": 2781937664,
"expansionLimit": 112321312334,
"unlimitedExpansion": false
},
"fileSystemTraits":
{
```

```
"readOnly": false,
"sysLocked": false,
"worm": false,
"nonStrictWorm": false,
"readCache": false,
"objectReplicationTarget": false,
"ndmRecoveryTarget": false,
"dedupeSupported": true,
"dedupeEnabled": true,
}
}
```

Creating a file system

You can create a file system. After creating the file system, the API mounts and formats the new file system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems
```

Use the ID of the storage system as the *storageSystemId.*

Request structure

The request body structure is shown below:

```
{
"label": "",
"filePoolId": "",
"capacity": ,
"blockSize": ,
"evsId": "",
}
```

Parameter	Required	Type	Description
label	No	String	The name of the file system.
filePoolId	Yes	String	The storage pool ID where the file system is created.
capacity	Yes	String	The file system size limit, in bytes. Min = 1, max = 1099511627776.
blockSize	No	Integer	The block size of the file system, either 32 KiB or 4 KiB.

Parameter	Required	Type	Description
evsId	Yes	String	ID of the virtual file server.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
  {
      "text": "",
      "messageCode": "",
      "parameters":
      {
      }
  },
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports":
 [
     {
          "reportMessage":
     {
             "text": "",
             "messageCode": "",
             "parameters":
             {
                 "fileSystemId": ""
             }
         },
         "severity": "",
         "creationDate":
    }
 ],
 "links":
 [
      {
        "rel": "_self",
        "href": "/v1/jobs/"
 }
 ],
 "tags":
 [
```

```
 ],
 "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/file-systems
```

Example request

```
{
 "label":"NewFS",
 "filePoolId":"144578117277982905",
 "capacity":10737418240,
 "blockSize":32,
 "evsId":"2",
 }
```

Example response


```
{
 "jobId": "a88bd309-fe36-4d68-b3b3-342d1edf20e8",
  "title": {
     "text": "Creating File System with Label FSforenableevs",
     "messageCode": "CreateFileSystemJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129643172,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/a88bd309-fe36-4d68-b3b3-342d1edf20e8"
        }
    ],
   "tags": [{
      "tag": "STORAGE"
    },
    {
      "tag": "CREATE"
    },
    {
      "tag": "410500"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
],
   "isSystem": false
}
```


Mounting a file system

You can mount a file system using Ops Center Administrator even if a file system already created outside of Ops Center Administrator. The API also formats the file system after mounting it.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the file system as the *fileSystemId.*

Request structure

```
{
"label" : "",
"status" : "mount",
"blockSize" : "",
"expansionLimit " : ""
}
```

Parameter	Required	Type	Description
label	No	String	The name of the file system.
status	No	String	Mount or unmount. Default value: mount.
blockSize	Yes	String	When mounting a file system this parameter is required. If a file system is formatted, this parameter is ignored.
expansionLimit	No	String	The file system expansion limit.

Response structure

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.

Parameter	Type	Description
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

```
{
  "jobId": "",
  "title": {
     "text": "",
     "messageCode": "",
     "parameters": {}
    },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
      {
          "rel": "_self",
```

```
          "href": "/v1/jobs/"
        }
    ],
  "tags": [],
  "isSystem":
}
```

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.

Example request

```
https://172.17.64.109/v1/file/storage-systems/410500/file-systems/
55E9F6F812D9CF310000000000000000
```

Example request

```
{
"label" : "",
"status" : "mount",
"blockSize" : "",
"expansionLimit " : ""
}
```

Example Response


```
{
  "jobId": "bb1b9bd9-b0f1-4842-8b95-521bdef776ba",
  "title": {
     "text": "Modifying File System with Label FirstFS2",
     "messageCode": "MountFileSystemJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129926168,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/bb1b9bd9-b0f1-4842-8b95-521bdef776ba"
        }
    ],
  "tags": [ {
      "tag": "STORAGE"
    },
    {
      "tag": "410500"
    },
    {
      "tag": "0500B2335827A5C60000000000000000"
    },
    {
      "tag": "UPDATE"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```


Unmounting a file system

You can unmount a file system.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the file system as the *fileSystemId.*

Request structure

The request body structure is shown below:

```
{
"label"
"status" : "unmount",
"blockSize" : "",
"expansionLimit " : ""
}
```

Parameter	Required	Type	Description
label	No	String	The name of the file system.
status	Yes	String	Mount or unmount.
blockSize	No	String	If the file system is formatted, this parameter is ignored.
expansionLimit	No	String	The file system expansion limit.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title": {
     "text": "",
     "messageCode": "",
     "parameters": {}
    },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
```

```
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/"
        }
    ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.

Parameter	Type	Description
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.

Example request

```
{
  "status":"unmount"
}
```

Example code

Request with JSON command:

```
https://172.17.64.122/v1/file/storage-systems/410209/file-systems/
02029EC8EBDD7EB80000000000000000
```

Example Response

```
{
  "jobId": "bb1b9bd9-b0f1-4842-8b95-521bdef776ba",
  "title": {
     "text": "Mounting File System",
     "messageCode": "MountFileSystemJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129926168,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/bb1b9bd9-b0f1-4842-8b95-521bdef776ba"
        }
    ],
  "tags": [],
  "isSystem": false
}
```

Updating a file system

You can modify a file system with one or more parameters. You can also rename or expand a file system.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the file system as the *fileSystemId.*

Request structure

The request body structure is shown below:

```
{
"label": "",
"expansionLimit": ""
}
```

Parameter	Required	Type	Description
label	No	String	The name of the file system.
expansionLimit	Yes	String	The file system expansion limit.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title": {
     "text": "",
     "messageCode": "",
     "parameters": {}
    },
  "user": "",
  "status": "",
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/"
        }
    ],
  "tags": [],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.

Parameter	Type	Description
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
 https://172.17.64.122/v1/file/storage-systems/410209/file-systems/
02029F5C1178864D0000000000000000
```

Example request

```
{
 "label":"NewFS17",
 "expansionLimit":10737418240
}
```

Example response

```
{
  "jobId": "bb1b9bd9-b0f1-4842-8b95-521bdef776ba",
  "title": {
     "text": "Modifying File System with Label FirstFS2",
     "messageCode": "ModifyFileSystemJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129926168,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/bb1b9bd9-b0f1-4842-8b95-521bdef776ba"
        }
```

```
    ],
  "tags": [{
      "tag": "STORAGE"
    },
    {
      "tag": "410500"
    },
    {
      "tag": "0500B2335827A5C60000000000000000"
    },
    {
      "tag": "UPDATE"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```

Deleting a file system

You can delete a file system. Unmount the file system before deleting it. When a file system is deleted all associated shares (Windows OS) and exports (Linux OS) are deleted.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId
```

Use the ID of the storage system as the *storageSystemId.*

Use the ID of the file system as the *fileSystemId.*

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
```

```
      "parameters":
       {
       }
   },
   "user": "",
   "status": "",
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors

Parameter	Type	Description
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109:8183/v1/file/storage-systems/21000/file-systems/ebc4b9b8-529e-
11d1-9003-040100050000
```

JSON Response:


```
{
  "jobId": "e10b1e6c-6985-4a1d-9161-68cfa3c96b29",
  "title": {
    "text": "Deleting File System with Label FirstFS2renamed",
    "messageCode": "DeleteFileSystemJobPreTitleMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1453254388625,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/e10b1e6c-6985-4a1d-9161-68cfa3c96b29"
    }
  ],
  "tags": [ {
      "tag": "STORAGE"
    },
    {
      "tag": "DELETE"
    },
    {
      "tag": "410500"
    },
    {
      "tag": "0500B2335827A5C60000000000000000"
    },
    {
      "tag": "FILE"
    },
    {
      "tag": "USER"
    }
  ],
  "isSystem": false
}
```

Share management resources

Request	Method	URI	Role
Listing all shares (on page 473)	GET	/v1/file/storage-systems/*storageSystemId*/shares	Storage administrator System administrator Security administrator
Listing shares in the file system (on page 478)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/shares	Storage administrator System administrator Security administrator
Getting a share (on page 482)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/shares/*shareId*	Storage administrator System administrator Security administrator
Creating a share (on page 488)	POST	/v1/file/storage-systems/*storageSystemId*/shares	Storage administrator
Modifying a share (on page 492)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/shares/*shareId*	Storage administrator Security administrator
Deleting a share (on page 497)	DELETE	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/shares/*shareId*	Storage administrator

Listing all shares

You can display a list of shares in the specified system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/shares
```

Use the ID of the storage system as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "shares":
    [
        {
            "id": "",
            "name": "",
            "fileSystemPath": "",
            "fileSystemId": "",
            "evsId": ,
            "permissions":
            [
            ],
            "accessConfiguration": "",
            "maxConcurrentUsers": ,
            "snapshotOptions": "",
            "cacheOptions": "",
            "transferToReplicationTarget": "",
            "userHomeDirectoryMode": "",
            "userHomeDirectoryPath": "",
            "followSymbolicLinks": ,
            "followGlobalSymbolicLinks": ,
            "links":
            [
                {
                    "rel": "_self",
                    "href": ""
                },
                {
                    "rel": "_filesystem",
                    "href": ""
                },
                {
                    "rel": "_vfs",
                    "href": ""
                }
            ]
    ]    }
}
```

Parameter	Type	Description
id	String	ID of the share.
name	String	Name of the resource.
fileSystemPath	String	The file system location to be accessed through the resource. Min = 1, max = 80.
fileSystemId	String	ID of the file system. Min = 0, max = 256.
evsId	Integer	ID of the virtual file server.
permissions	List	Security permissions that grant or deny access to files and folders.
accessConfiguration	String	The access security for this resource. Min = 1, max = 5957.
maxConcurrentUsers	String	Total number of users accessing the resource at a given time, -1 value for unlimited.
snapshotOptions	String	0: Hides and disallows access to snapshots. 1: Hides snapshots, but still allows access to hidden snapshots. 3: Displays and allows access to snapshots.
cacheOptions	Integer	0: Permits the user to specify individual files required for offline access. 4: Automatic caching is enabled for all files on the entire share. 8: Automatic caching is enabled for all programs on the entire share. 12: No caching of files or folders.
transferToReplicationTarget	String	0: NFS exports are not transferred to recovered file systems. 1: When the target file system is brought online, NFS exports are transferred. 2: NFS exports are transferred to recovered file systems.
userHomeDirectoryMode	Integer	The user home directory mapping mode. 0: Disable the home directory feature for this share. Do not automatically create home directories on this share for users.

Parameter	Type	Description
		1: Create the user home directories based on the home directory information supplied by the Active Directory server for each user. Do not specify a path. 2: Create the user home directory by converting the Windows user name to lower case. 3: Create the user home directory by converting the Windows user name to lower case, then hide the path for other users. 4: Create the user home directory by creating a directory named for the Windows domain name, then converting the Windows user name to lower case and creating a sub-directory by that name. 5: Create the user home directory by converting the UNIX user name to lower case.
userHomeDirectoryPath	String	The user home directory path. Min = 0, max = 127.
followSymbolicLinks	Boolean	Whether to enable CIFS clients to follow symbolic links using Microsoft DFS mechanism for this share.
followGlobalSymbolicLinks	Boolean	Whether to enable CIFS clients to follow global (absolute) symbolic links using Microsoft DFS mechanism for this share.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
fileSystem	String	URI that includes the file system ID.
vfs	String	URI that includes the virtual file server ID.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.108/v1/file/storage-systems/410209/shares
```

JSON response:


```
{
    "shares":
    [
        {
            "id": "fdad1f82-74de-11d1-9000-ac60536d5065",
            "name": "C$",
            "fileSystemPath": "\",
            "fileSystemId": "00000000000000000000000000000000",
            "evsId": 1,
            "permissions":
            [
            ],
            "accessConfiguration": "",
            "maxConcurrentUsers": -1,
            "snapshotOptions": "HIDE_AND_ALLOW_ACCESS",
            "cacheOptions": "MANUAL_CACHING_DOCS",
            "transferToReplicationTarget": "UseFSDefault",
            "userHomeDirectoryMode": "Off",
            "userHomeDirectoryPath": "",
            "followSymbolicLinks": true,
            "followGlobalSymbolicLinks": false,
            "links":
```

```
            [
                {
                    "rel": "_self",
                    "href": "http://172.17.64.109/v1/file/storage-systems/410500/
shares"
                },
                {
                    "rel": "_filesystem",
                    "href": "http://172.17.64.109/v1/file/storage-systems/410500/file-
systems/00000000000000000000000000000000"
                },
                {
                    "rel": "_vfs",
                    "href": "http://172.17.64.109/v1/file/storage-systems/410500/vfs/
55e9ac86-5cf4-11d1-9005-040100050000"
                }
            ]
   ]     }
}
```

Listing shares in the file system

You can display a list of shares in the specified file system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/shares
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "shares":
    [
        {
            "id": "",
            "name": "",
            "fileSystemPath": "",
            "fileSystemId": "",
            "evsId": ,
            "permissions":
```

```
            [
            ],
            "accessConfiguration": "",
            "maxConcurrentUsers": ,
            "snapshotOptions": "",
            "cacheOptions": "",
            "transferToReplicationTarget": "",
            "userHomeDirectoryMode": "",
            "userHomeDirectoryPath": "",
            "followSymbolicLinks": ,
            "followGlobalSymbolicLinks": ,
            "links":
            [
                {
                    "rel": "_self",
                    "href": ""
                },
                {
                    "rel": "_filesystem",
                    "href": ""
                },
                {
                    "rel": "_vfs",
                    "href": ""
                }
            ]
    ]    }
}
```


Parameter	Type	Description
id	String	ID of the share.
name	String	Name of the resource.
fileSystemPath	String	The file system location to be accessed through the resource. Min = 1, max = 80.
fileSystemId	String	ID of the file system. Min = 0, max = 256.
evsId	Integer	ID of the virtual file server.
permissions	List	Security permissions that grant or deny access to files and folders.
accessConfiguration	String	The access security for this resource. Min = 1, max = 5957.

Parameter	Type	Description
maxConcurrentUsers	String	Total number of users accessing the resource at a given time, -1 value for unlimited.
snapshotOptions	String	0: Hides and disallows access to snapshots. 1: Hides snapshots, but still allows access to hidden snapshots. 3: Displays and allows access to snapshots.
cacheOptions	Integer	0: Permits the user to specify individual files required for offline access. 4: Automatic caching is enabled for all files on the entire share. 8: Automatic caching is enabled for all programs on the entire share. 12: No caching of files or folders.
transferToReplicationTarget	String	0: NFS exports are not transferred to recovered file systems. 1: When the target file system is brought online, NFS exports are transferred. 2: NFS exports are transferred to recovered file systems.
userHomeDirectoryMode	Integer	The user home directory mapping mode. 0: Disable the home directory feature for this share. Do not automatically create home directories on this share for users. 1: Create the user home directories based on the home directory information supplied by the Active Directory server for each user. Do not specify a path. 2: Create the user home directory by converting the Windows user name to lower case. 3: Create the user home directory by converting the Windows user name to lower case, then hide the path for other users. 4: Create the user home directory by creating a directory named for the Windows domain name, then converting the Windows user name to lower case and creating a sub-directory by that name.

Parameter	Type	Description
		5: Create the user home directory by converting the UNIX user name to lower case.
userHomeDirectoryPath	String	The user home directory path. Min = 0, max = 127.
followSymbolicLinks	Boolean	Whether to enable CIFS clients to follow symbolic links using Microsoft DFS mechanism for this share.
followGlobalSymbolicLinks	Boolean	Whether to enable CIFS clients to follow global (absolute) symbolic links using Microsoft DFS mechanism for this share.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
fileSystem	String	URI that includes the file system ID.
vfs	String	URI that includes the virtual file server ID.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.108/v1/file/storage-systems/410209/file-systems/
020344B00E161D570000000000000000/shares
```


```
        {
        "shares":
        [
            {
                "id": "f391dfe4-67df-11d1-96c9-040100020009",
                "label": "NewExportMD",
                "fileSystemPath": "\SA",
                "fileSystemId": "020344B00E161D570000000000000000",
                "evsId": 1,
                "permissions":
                [
                ],
                "accessConfiguration": "",
                "maxConcurrentUsers": -1,
                "snapshotOptions": "HIDE_AND_DISABLE_ACCESS",
                "cacheOptions": "MANUAL_CACHING_DOCS",
                "transferToReplicationTarget": "UseFSDefault",
                "userHomeDirectoryMode": "Off",
                "userHomeDirectoryPath": "",
                "followSymbolicLinks": true,
                "followGlobalSymbolicLinks": false,
                "links":
                [
                    {
                        "rel": "_self",
                        "href": "http://172.17.64.108/v1/file/storage-systems/410209/
file-systems/020344B00E161D570000000000000000/shares"
                    },
                    {
                        "rel": "_filesystem",
                        "href": "http://172.17.64.108/v1/file/storage-systems/410209/
file-systems/020344B00E161D570000000000000000"
                    }
                ]
            }
        ]
    }
```


JSON response:

Getting a share

You can display information about a share in the specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/shares/shareId
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Use the ID of the share as the *shareId*.

Request structure

Not applicable.

Response structure

```
{
    "id": "",
    "label": "",
    "fileSystemPath": "",
    "fileSystemId": "",
    "evsId": 1,
    "permissions":
    [
        {
            "name": "",
            "permissionType":
            {
                "allowFullControl": ,
                "allowChange": ,
                "allowRead": ,
                "denyFullControl": ,
                "denyChange": ,
                "denyRead":
            }
        }
    ],
    "accessConfiguration": "",
    "maxConcurrentUsers": ,
    "snapshotOptions": "",
    "cacheOptions": "",
    "transferToReplicationTarget": "",
    "userHomeDirectoryMode": "",
    "userHomeDirectoryPath": "",
    "followSymbolicLinks": ,
    "followGlobalSymbolicLinks": ,
    "links":
    [
        {
            "rel": "_self",
            "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
```

```
systems/020344B00E161D570000000000000000/shares/f391dfe4-67df-11d1-96c9-040100020009"
            },
            {
                "rel": "_filesystem1",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
systems/020344B00E161D570000000000000000"
            },
            {
                "rel": "_evs",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/vfs/
4ae98a4a-5e1b-11d1-9004-040100020009"
            }
        ]
    }
```

Parameter	Type	Description
id	String	ID of the share.
label	String	Name of the share.
fileSystemPath	String	The file system location to be accessed through the resource. Min = 1, max = 80.
fileSystemId	String	ID of the file system. Min = 0, max = 256.
evsId	Integer	ID of the virtual file server.
name	String	Name of the resource.
permissions	List	Security permissions that grant or deny access to files and folders.
permissionType	String	Security permission types that grant or deny access to files, such as full control, change, and read.
allowFullControl	Boolean	Permits reading, writing, changing, and deleting of files and folders.
allowChange	Boolean	Permits reading and writing of files and subfolders; allows deletion of the folder.
allowRead	Boolean	Permits viewing and listing of files and folders.
denyFullControl	Boolean	Restricts reading, writing, changing, and deleting of files and folders.
denyChange	Boolean	Restricts reading and writing of files and folders.

Parameter	Type	Description
denyRead	Boolean	Restricts viewing and listing of files and subfolders.
accessConfiguration	String	The access security for this resource. Min = 1, max = 5957.
maxConcurrentUsers	String	Total number of users accessing the resource at a given time, -1 value for unlimited.
snapshotOptions	String	0: Hides and disallows access to snapshots. 1: Hides snapshots, but still allows access to hidden snapshots. 3: Displays and allows access to snapshots.
cacheOptions	Integer	0: Permits the user to specify individual files required for offline access. 4: Automatic caching is enabled for all files on the entire share. 8: Automatic caching is enabled for all programs on the entire share. 12: No caching of files or folders.
transferToReplicationTarget	String	0: NFS exports are not transferred to recovered file systems. 1: When the target file system is brought online, NFS exports are transferred. 2: NFS exports are transferred to recovered file systems.
userHomeDirectoryMode	Integer	The user home directory mapping mode. 0: Disable the home directory feature for this share. Do not automatically create home directories on this share for users. 1: Create the user home directories based on the home directory information supplied by the Active Directory server for each user. Do not specify a path. 2: Create the user home directory by converting the Windows user name to lower case. 3: Create the user home directory by converting the Windows user name to lower case, then hide the path for other users.

Parameter	Type	Description
		4: Create the user home directory by creating a directory named for the Windows domain name, then converting the Windows user name to lower case and creating a sub-directory by that name. 5: Create the user home directory by converting the UNIX user name to lower case.
userHomeDirectoryPath	String	The user home directory path. Min = 0, max = 127.
followSymbolicLinks	Boolean	Whether to enable CIFS clients to follow symbolic links using Microsoft DFS mechanism for this share.
followGlobalSymbolicLinks	Boolean	Whether to enable CIFS clients to follow global (absolute) symbolic links using Microsoft DFS mechanism for this share.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
fileSystem	String	URI that includes the file system ID.
evs	String	URI that includes the Virtual File Server ID.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.108/v1/file/storage-systems/410209/file-systems/
020187A3A0C67BD40000000000000000/shares/68b47fa0-63f0-11d1-965d-040100020009
```

JSON response:


```
    {
        "id": "68b47fa0-63f0-11d1-965d-040100020009",
        "label": "testCreateShare",
        "fileSystemPath": "\pretty3",
        "fileSystemId": "020187A3A0C67BD40000000000000000",
        "evsId": 1,
        "permissions":
        [
            {
                "name": "Everyone",
                "permissionType":
                {
                    "allowFullControl": false,
                    "allowChange": true,
                    "allowRead": true,
                    "denyFullControl": false,
                    "denyChange": false,
                    "denyRead": false
                }
            }
        ],
        "accessConfiguration": "",
        "maxConcurrentUsers": -1,
        "snapshotOptions": "HIDE_AND_DISABLE_ACCESS",
        "cacheOptions": "MANUAL_CACHING_DOCS",
        "transferToReplicationTarget": "UseFSDefault",
        "userHomeDirectoryMode": "Off",
        "userHomeDirectoryPath": "",
        "followSymbolicLinks": true,
        "followGlobalSymbolicLinks": false,
        "links":
        [
            {
                "rel": "_self",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
systems/020187A3A0C67BD40000000000000000/shares/68b47fa0-63f0-11d1-965d-040100020009"
            },
            {
                "rel": "_filesystem1",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
systems/020187A3A0C67BD40000000000000000"
            },
```

```
            {
                "rel": "_evs",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/evs/
4ae98a4a-5e1b-11d1-9004-040100020009"
            }
        ]
    }
```

Creating a share

You can create a share.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/file/storage-systems/storageSystemId/shares
```

Use the ID of the storage system as the *storageSystemId.*

Request structure

The request body structure is shown below:

```
{
   "shareName":"",
   "fileSystemPath":"",
   "fileSystemId":""
}
```

Parameter	Required	Type	Description
shareName	Yes	String	The name of the share. Min = 1, max = 80.
fileSystemPath	Yes	String	The file system path to be accessed through the share. Min = 1, max = 255.
fileSystemId	No	String	ID of the file system.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
  {
      "text": "",
      "messageCode": "",
```

```
      "parameters":
      {
      }
  },
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports":
 [
     {
          "reportMessage":
     {
             "text": "",
             "messageCode": "",
             "parameters":
             {
                 "fileSystemId": ""
             }
         },
         "severity": "",
         "creationDate":
    }
 ],
 "links":
 [
      {
        "rel": "_self",
        "href": "/v1/jobs/"
 }
 ],
 "tags":
 [
 ],
 "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.

Parameter	Type	Description
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Example request

```
{
   "shareName":"NewShare",
   "fileSystemPath":"\ShareFolder",
   "fileSystemId":"020187A3A0C67BD40000000000000000"
}
```

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/shares
```

Example response

```
{
 "jobId": "a88bd309-fe36-4d68-b3b3-342d1edf20e8",
  "title": {
     "text": "Creating share",
```

```
     "messageCode": "CreateShareJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129643172,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/a88bd309-fe36-4d68-b3b3-342d1edf20e8"
        }
    ],
   "tags": [],
   "isSystem": false
}
```

Modifying a share

You can change the following parameters: fileSystemPath, accessConfiguration, or permissions.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/shares/shareId
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Use the ID of the share as the *shareId*.

Request structure

The request body structure is shown below:

```
{
  "fileSystemPath": "",
  "accessConfiguration" : "",

  "permissions": [
    {
    "groupName": "",
    "permissionType": {
      "allowFullControl": ,
      "allowChange": ,
      "allowRead": ,
      "denyFullControl": ,
```

```
      "denyChange": ,
      "denyRead":
    }
   }
  ]
}
```

Parameter	Required	Type	Description
fileSystemPath	Yes	String	The file system path to be accessed through the share. Min = 1, max = 255.
accessConfiguration	No	String	The access security for this share. Min = 1, max = 5957. If the value is specified, it results in all clients being granted access.
permissions	No	String	Security permissions that grant or deny access to files and folders.
groupName	No	String	Permissions associated with this group.
permissionType	No	String	Permission type, such as full control or read-only.
allowFullControl	No	Boolean	Permits reading, writing, changing, and deleting of files and folders.
allowChange	No	Boolean	Permits reading and writing of files and folders; allows deletion of the folder.
allowRead	No	Boolean	Permits viewing and listing of files and folders.
denyFullControl	No	Boolean	Restricts reading, writing, changing, and deleting of files and folders.
denyChange	No	Boolean	Restricts reading and writing of files and folders.
denyRead	No	Boolean	Restricts viewing and listing of files and folders.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
  {
      "text": "",
      "messageCode": "",
```

```
      "parameters":
      {
      }
  },
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports":
 [
     {
          "reportMessage":
     {
             "text": "",
             "messageCode": "",
             "parameters":
             {
                 "fileSystemId": ""
             }
         },
         "severity": "",
         "creationDate":
    }
 ],
 "links":
 [
      {
        "rel": "_self",
        "href": "/v1/jobs/"
 }
 ],
 "tags":
 [
 ],
 "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.

Parameter	Type	Description
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
  "fileSystemPath": "\\homedir3",
  "accessConfiguration" : "",

  "permissions": [
    {
    "groupName": "Everyone",
    "permissionType": {
      "allowFullControl": false,
      "allowChange": true,
      "allowRead": false,
      "denyFullControl": false,
      "denyChange": false,
      "denyRead": false
    }
   }
  ]
}
```

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/file-systems/
020344B00E161D570000000000000000/shares/a88bd309-fe36-4d68-b3b3-342d1edf20e8
```

Deleting a share

You can delete a share.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/shares/shareId
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Use the ID of the share as the *shareId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
  {
      "text": "",
      "messageCode": "",
      "parameters":
      {
      }
  },
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports":
 [
     {
          "reportMessage":
     {
             "text": "",
             "messageCode": "",
             "parameters":
             {
                 "fileSystemId": ""
             }
         },
         "severity": "",
         "creationDate":
```

```
    }
  ],
  "links":
  [
       {
         "rel": "_self",
         "href": "/v1/jobs/"
  }
  ],
  "tags":
  [
  ],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.

Parameter	Type	Description
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.108/v1/file/storage-systems/410209/file-systems/
020187A3A0C67BD40000000000000000/shares/e647c72a-628c-11d1-95ff-040100020009
```

JSON response:

```
    {
        "jobId": "f2dfb8e9-3192-40e6-a0f8-ce8fe90eb4c4",
        "title":
        {
            "text": "Deleting share using following information - shareId e647c72a-
```

```
628c-11d1-95ff-040100020009 evsId 1",
            "messageCode": "DeleteSharePreStepMessage",
            "parameters":
            {
            }
        },
        "user": "sysadmin",
        "status": "IN_PROGRESS",
        "startDate": 1455153845049,
        "endDate": null,
        "parentJobId": null,
        "reports":
        [
        ],
        "links":
        [
            {
                "rel": "_self",
                "href": "/v1/jobs/f2dfb8e9-3192-40e6-a0f8-ce8fe90eb4c4"
            }
        ],
        "tags":
        [
        ],
        "isSystem": false
    }
```


Export management resources

Request	Method	URI	Role
Listing all exports in a storage system (on page 501)	GET	/v1/file/storage-systems/*storageSystemId*/exports	Storage administrator System administrator Security administrator
Listing exports in a file system (on page 504)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/exports	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Getting an export (on page 507)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/exports/*exportId*	Storage administrator System administrator Security administrator
Creating an export (on page 510)	POST	/v1/file/storage-systems/*storageSystemId*/exports	Storage administrator
Modifying an export (on page 514)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/exports/*exportId*	Storage administrator
Deleting an export (on page 518)	DELETE	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/exports/*exportId*	Storage administrator

Listing all exports in a storage system

You can display a list of exports in the specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/exports
```

Use the ID of the storage system as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "exports":
    [
        {
            "id": "",
            "name": "",
            "fileSystemPath": "",
            "fileSystemId": "",
            "evsId": 1,
```

```
            "accessConfiguration": "",
            "snapshotOptions": "",
            "transferToReplicationTarget": "",
            "links":
            [
                {
                    "rel": "_self",
                    "href": ""
                },
                {
                    "rel": "_fileSystem",
                    "href": ""
                }
                                                                    {
                    "rel": "_vfs",
                    "href": ""
                }
            ]
        }
    ]
}
```


Parameter	Type	Description
id	Integer	ID of the export.
name	String	Name of the resource.
fileSystemPath	String	The file system location to be accessed through the resource. Min = 1, max = 80.
fileSystemId	String	ID of the file system. Min = 0, max = 256.
evsId	Integer	ID of the virtual file server.
accessConfiguration	String	The access security for this resource. Min = 1, max = 5957.
snapshotOptions	String	0: Hides and disallows access to snapshots. 1: Hides snapshots, but still allows access to hidden snapshots. 3: Displays and allows access to snapshots.
transferToReplicationTarget	String	0: NFS exports are not transferred to recovered file systems. 1: When the target file system is brought online, NFS exports are transferred. 2: NFS exports are transferred to recovered file systems.

Parameter	Type	Description
links	List	Displays related resources.
self	String	URI that includes the resource ID.
fileSystem	String	URI that includes the file system ID.
vfs	String	URI that includes the virtual file server ID.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.108/v1/file/storage-systems/410209/exports
```

JSON response:


```
{
    "exports":
    [
        {
            "id": "9371b28a-6323-11d1-9605-040100020009",
            "name": "/Export-EL1",
            "fileSystemPath": "/SA",
            "fileSystemId": "02017A80F9A478B70000000000000000",
            "evsId": 1,
            "accessConfiguration": "",
            "snapshotOptions": "HIDE_AND_DISABLE_ACCESS",
```

```
            "transferToReplicationTarget": "UseFSDefault",
            "links":
            [
                {
                    "rel": "_self",
                    "href": "http://172.17.64.108/v1/file/storage-systems/410209/
exports"
                },
                {
                    "rel": "_filesystem",
                    "href": "http://172.17.64.108/v1/file/storage-systems/
410209/02017A80F9A478B70000000000000000"
                }
                                                                    {
                    "rel": "_vfs",
                    "href": "http://172.17.64.109/v1/file/storage-systems/410500/vfs/
55e9ac86-5cf4-11d1-9005-040100050000"
                }
            ]
        }
    ]
}
```

Listing exports in a file system

You can display a list of exports in the specified file system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/exports
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "exports":
    [
        {
            "id": "",
            "name": "",
            "fileSystemPath": "",
```

```
            "fileSystemId": "",
            "evsId": 1,
            "accessConfiguration": "",
            "snapshotOptions": "",
            "transferToReplicationTarget": "",
            "links":
            [
                {
                    "rel": "_self",
                    "href": ""
                },
                {
                    "rel": "_fileSystem",
                    "href": ""
                }
                                                                    {
                    "rel": "_vfs",
                    "href": ""
                }
                                                                {
                    "rel": "_vfs",
                    "href": ""
                }
            ]
        }
    ]
}
```


Parameter	Type	Description
id	Integer	ID of the export.
name	String	Name of the resource.
fileSystemPath	String	The file system location to be accessed through the resource. Min = 1, max = 80.
fileSystemId	String	ID of the file system. Min = 0, max = 256.
evsId	Integer	ID of the virtual file server.
accessConfiguration	String	The access security for this resource. Min = 1, max = 5957.
snapshotOptions	String	0: Hides and disallows access to snapshots. 1: Hides snapshots, but still allows access to hidden snapshots. 3: Displays and allows access to snapshots.

Parameter	Type	Description
transferToReplicationTarget	String	0: NFS exports are not transferred to recovered file systems. 1: When the target file system is brought online, NFS exports are transferred. 2: NFS exports are transferred to recovered file systems.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
fileSystem	String	URI that includes the file system ID.
vfs	String	URI that includes the virtual file server ID.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.108/v1/file/storage-systems/410209/file-systems/
020187A3A0C67BD40000000000000000/exports
```

JSON response:

```
{
    "exports":
```

```
    [
        {
            "id": "9371b28a-6323-11d1-9605-040100020009",
            "name": "/Export-EL1",
            "fileSystemPath": "/SA",
            "fileSystemId": "02017A80F9A478B70000000000000000",
            "evsId": 1,
            "accessConfiguration": "",
            "snapshotOptions": "HIDE_AND_DISABLE_ACCESS",
            "transferToReplicationTarget": "UseFSDefault",
            "links":
            [
                {
                    "rel": "_self",
                    "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
systems/020187A3A0C67BD40000000000000000/exports"
                },
                {
                    "rel": "_filesystem",
                    "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
systems/02017A80F9A478B70000000000000000"
                }
            ]
        }
    ]
}
```

Getting an export

You can get information about an export in the specified file system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/exports/exportId
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Use the ID of the export as the *exportId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
    {
        "id": "",
```

```
        "name": "",
        "fileSystemPath": "",
        "fileSystemId": "",
        "evsId": ,
        "accessConfiguration": "",
        "snapshotOptions": "",
        "transferToReplicationTarget": "",
        "links":
        [
            {
                "rel": "_self",
                "href": ""
            },
            {
                "rel": "_filesystem",
                "href": ""
            },
            {
                "rel": "_vfs",
                "href": ""
            }
        ]
    }
```

Parameter	Type	Description
id	String	ID of the share.
name	String	Name of the resource.
fileSystemPath	String	The file system location to be accessed through the resource. Min = 1, max = 80.
fileSystemId	String	ID of the file system. Min = 0, max = 256.
evsId	Integer	ID of the virtual file server.
accessConfiguration	String	The access security for this resource. Min = 1, max = 5957.
snapshotOptions	String	0: Hides and disallows access to snapshots. 1: Hides snapshots, but still allows access to hidden snapshots. 3: Displays and allows access to snapshots.
transferToReplicationTarget	String	0: NFS exports are not transferred to recovered file systems.

Parameter	Type	Description
		1: When the target file system is brought online, NFS exports are transferred. 2: NFS exports are transferred to recovered file systems.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
fileSystem	String	URI that includes the file system ID.
evs	String	URI that includes the Virtual File Server ID.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.108/v1/file/storage-systems/410209/file-systems/
020187A3A0C67BD40000000000000000/exports/e647c72a-628c-11d1-95ff-040100020009
```

JSON response:

```
    {
        "id": "c5d2b498-63f7-11d1-9660-040100020009",
        "name": "/testCreateExport",
        "fileSystemPath": "/modifiedPath",
        "fileSystemId": "020187A3A0C67BD40000000000000000",
```

```
        "evsId": 1,
        "accessConfiguration": "192.2",
        "snapshotOptions": "HIDE_AND_DISABLE_ACCESS",
        "transferToReplicationTarget": "UseFSDefault",
        "links":
        [
            {
                "rel": "_self",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
systems/020187A3A0C67BD400000/exports/c5d2b498-63f7-11d1-9660-040100020009"
            },
            {
                "rel": "_filesystem",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/file-
systems/020187A3A0C67BD40000000000000000"
            },
            {
                "rel": "_vfs",
                "href": "http://172.17.64.108/v1/file/storage-systems/410209/evs/
4ae98a4a-5e1b-11d1-9004-040100020009"
            }
        ]
    }
```

Creating an export

You can create an export of a file system. An export is a shared resource in the Linux OS and is used for sharing file systems.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/file/storage-systems/storageSystemId/exports
```

Use the ID of the storage system as the *storageSystemId*.

Request structure

The request body structure is shown below:

```
{
   "exportName":"",
   "fileSystemPath":"",
   "fileSystemId":""
}
```

Parameter	Required	Type	Description
exportName	Yes	String	The name of the export. Min = 1, max = 80.
fileSystemPath	Yes	String	The file system path to be accessed through the share. Min = 1, max = 255.
fileSystemId	No	String	ID of the file system.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
  {
      "text": "",
      "messageCode": "",
      "parameters":
      {
      }
  },
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports":
 [
     {
          "reportMessage":
     {
             "text": "",
             "messageCode": "",
             "parameters":
             {
                 "fileSystemId": ""
             }
         },
         "severity": "",
         "creationDate":
    }
 ],
 "links":
 [
      {
        "rel": "_self",
        "href": "/v1/jobs/"
```

```
  }
  ],
  "tags":
  [
  ],
  "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.

Parameter	Type	Description
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Example request

```
{
   "exportName":"NewExport",
   "fileSystemPath":"\ExportFolder",
   "fileSystemId":"020187A3A0C67BD40000000000000000"
}
```

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/exports
```

Example response

```
{
 "jobId": "a88bd309-fe36-4d68-b3b3-342d1edf20e8",
  "title": {
     "text": "Creating Export",
     "messageCode": "CreateExportSystemJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129643172,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/a88bd309-fe36-4d68-b3b3-342d1edf20e8"
        }
    ],
   "tags": [],
   "isSystem": false
}
```

Modifying an export

You can modify an export and change the following parameters: fileSystemPath and accessConfiguration.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/exports/exportId
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Use the ID of the export as the *exportId*.

Request structure

The request body structure is shown below:

```
{
   "fileSystemPath":"",
   "accessConfiguration":""
}
```

Parameter	Required	Type	Description
fileSystemPath	Yes	String	The file system path to be accessed through the share. Min = 1, max = 255.
accessConfiguration	No	String	The access security for this share. Min = 1, max = 5957. If the value is specified, it results in all clients being granted access.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
  {
      "text": "",
      "messageCode": "",
      "parameters":
      {
      }
  },
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports":
 [
     {
          "reportMessage":
     {
             "text": "",
             "messageCode": "",
             "parameters":
             {
                 "fileSystemId": ""
```

```
            }
        },
        "severity": "",
        "creationDate":
    }
 ],
 "links":
 [
      {
        "rel": "_self",
        "href": "/v1/jobs/"
 }
 ],
 "tags":
 [
 ],
 "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.

Parameter	Type	Description
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   "fileSystemPath":"\ExportFolder",
   "accessConfiguration":""
}
```

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/file-systems/
020131B76DBF4DA60000000000000000/exports/e647c72a-628c-11d1-95ff-040100020009
```

Example response


```
{
 "jobId": "a88bd309-fe36-4d68-b3b3-342d1edf20e8",
  "title": {
     "text": "Modifying Export",
     "messageCode": "ModifyExportSystemJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129643172,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/a88bd309-fe36-4d68-b3b3-342d1edf20e8"
        }
    ],
   "tags": [],
   "isSystem": false
}
```


Deleting an export

You can delete an export.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/file/storage-systems/storageSystemId/file-systems/
fileSystemId/exports/exportId
```

Use the ID of the storage system as the *storageSystemId*.

Use the ID of the file system as the *fileSystemId*.

Use the ID of the export as the *exportId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "jobId": "",
  "title":
  {
      "text": "",
      "messageCode": "",
      "parameters":
      {
      }
  },
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports":
 [
     {
          "reportMessage":
     {
             "text": "",
             "messageCode": "",
             "parameters":
             {
                 "fileSystemId": ""
             }
         },
         "severity": "",
         "creationDate":
    }
 ],
 "links":
 [
      {
        "rel": "_self",
        "href": "/v1/jobs/"
 }
 ],
 "tags":
 [
 ],
 "isSystem":
}
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
200	OK	Success.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/file-systems/
020187A3A0C67BD40000000000000000/exports/e647c72a-628c-11d1-95ff-040100020009
```

Example response


```
{
 "jobId": "a88bd309-fe36-4d68-b3b3-342d1edf20e8",
  "title": {
     "text": "Deleting Export with the following information...",
     "messageCode": "DeleteExportSystemJobPreTitleMessage",
     "parameters": {}
    },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1452129643172,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
      {
          "rel": "_self",
          "href": "/v1/jobs/a88bd309-fe36-4d68-b3b3-342d1edf20e8"
        }
    ],
   "tags": [],
   "isSystem": false
}
```

Chapter 4: Server management resources

This module describes the server management operations.

Request	Method	URI	Role
Listing servers (on page 524)	GET	/v1/compute/servers	Storage administrator System administrator Security administrator
Getting a server (on page 531)	GET	/v1/compute/servers/*serverId*	Storage administrator System administrator Security administrator
Getting servers summary (on page 537)	GET	/v1/compute/servers/summary	Storage administrator System administrator Security administrator
Adding servers (on page 538)	POST	/v1/compute/servers	System administrator
Updating a server (on page 544)	POST	/v1/compute/servers/*serverId*	System administrator
Deleting a server (on page 548)	DELETE	/v1/compute/servers/*serverId*	System administrator
Deleting multiple servers (on page 551)	POST	/v1/compute/servers/delete	System administrator
Updating world wide port names (on page 555)	POST	/v1/compute/servers/*serverId*/update-wwpns	System administrator

Request	Method	URI	Role
Listing attached volumes (on page 559)	GET	/v1/compute/servers/attached-volumes/?q=serverId:*serverId* AND storageSystemId:*storageSystemId*	Storage administrator System administrator Security administrator
Updating iSCSI settings (on page 571)	POST	/v1/compute/servers/*serverId*/update-iscsi-settings	System administrator
Scanning host groups (on page 576)	POST	/v1/compute/servers/scan-host-groups	System administrator
Getting a list of server groups (on page 580)	GET	/v1/compute/server-groups	Storage administrator System administrator Security administrator
Getting a server group (on page 583)	GET	/v1/compute/server-groups/*serverGroupId*	Storage administrator System administrator Security administrator
Listing volumes attached to servers in a server group (on page 585)	GET	/v1/compute/server-groups/*serverGroupId*/volumes	Storage administrator System administrator Security administrator
Creating a server group (on page 596)	POST	/v1/compute/server-groups	System administrator
Updating a server group (on page 600)	POST	/v1/compute/server-groups/*serverGroupId*	System administrator
Adding servers to a server group (on page 604)	POST	/v1/compute/server-groups/*serverGroupId*/add-servers	System administrator
Deleting a server group (on page 608)	DELETE	/v1/compute/server-groups/*serverGroupId*	System administrator

Request	Method	URI	Role
Removing multiple servers from a server group (on page 611)	POST	/v1/compute/server-groups/*serverGroupId*/remove-servers	System administrator
Use existing LUN paths (on page 614)	POST	/v1/compute/servers/create-similar-paths	System administrator

Listing servers

You can display a list of servers.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/servers
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources": [
        // For FC Server
        {
            "serverId": "",
            "protocol": "",
            "serverName": "",
            "description": "",
            "ipAddress": "",
            "wwpns": [
                ""
            ],
            "wwpnsWithUserDefinedName": [
                {
                    "wwpn": "",
                    "wwpnUserDefinedName": ""
                }
            ],
            "iscsiNames": [],
            "iscsiNamesWithUserDefinedName": [],
            "osType": "",
            "chapUser": "",
            "attachedVolumeCount": ,
```

```
            "dataProtectionSummary": {
                "replicationType": [],
                "protection": "",
                "hasFailures":
            },
            "dpStatus": "",
            "storageSystemIds": [
                ""
            ],
            "storageSystems": [
                {
                    "id": "",
                    "name": ""
                }
            ]
        },
        // For iSCSI Server
        {
            "serverId": ,
            "protocol": ,
            "serverName": "",
            "description": "",
            "ipAddress": "",
            "wwpns": [],
            "wwpnsWithUserDefinedName": [],
            "iscsiNames":
            [
                ""
            ],
            "iscsiNamesWithUserDefinedName":
            [
                {
                    "iscsiName": "",
                    "iscsiNameUserDefinedName": ""
                }
            ],
            "osType": "",
            "chapUser": "",
            "attachedVolumeCount": ,
            "dataProtectionSummary":
            {
                "replicationType":
                [
                ],
                "protection": "",
                "hasFailures":
            },
            "dpStatus": ""
            "storageSystemIds":
            [
                ""
```

```
            ],
            "storageSystems": [
                {
                    "id": "",
                    "name": ""
                }
            ]
        },
        ...
    ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
dpStatus	String	Data protection status on the server. If data protection succeeded, the status is success. If data protection failed for any volume, the status is failure.
storageSystemIds	List	List of storage serial numbers attached to the server.
storageSystems	List	List of the storage systems attached to the server.
id	String	Storage system serial number attached to the server.
name	String	Storage system name attached to the server.
description	String	Description of the resource.
ipAddress	String	IP address of the resource.
wwpns	List	List of World Wide Port Names formatted as a 16-digit hexadecimal number. **Note:** This parameter is deprecated and will be removed in a future version. Use the wwpn parameter of the wwpnsWithUserDefinedName object instead.
wwpnsWithUserDefinedName	Object	List of combinations of World Wide Port Name and user-defined name.
wwpn	String	World Wide Port Name formatted as a 16-digit hexadecimal number.

Parameter	Type	Description
wwpnUserDefinedName	String	User-defined name for World Wide Port Name.
iscsiNamesWithUserDefined Name	Object	List of combinations of iSCSI name and user-defined name.
iscsiName	String	iSCSI name formatted as iSCSI qualified name (IQN) or extended unique identified (EUI) format.
iscsiNameUserDefinedName	String	User-defined name for iSCSI name.
osType	String	List of supported operating systems on the server.
attachedVolumeCount	Integer	Total number of the server attached volumes.
dataProtectionSummary	List	List of the data protection attributes.
replicationType	String	Volume replication type. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
protection	String	Data protection type. Valid values: PROTECTED, UNPROTECTED, or PARTIAL. ▪ if there are no volumes attached to a server or all of the attached volumes are unprotected, the status is UNPROTECTED. ▪ If all the volumes that are attached to a server are PRIMARY volumes, the status is PROTECTED.

Parameter	Type	Description
		▪ If all the volumes that are attached to a server are SECONDARY volumes, the status is PARTIAL. ▪ If its mix of primary, secondary, and unprotected volumes, the status is PARTIAL.
hasFailures	Boolean	Whether the volume has replication failures.
serverName	String	Name of the server.
serverId	Integer	ID of the server.
protocol	Enum	Server HBA protocol. ▪ FIBRE: For FC HBA server. ▪ ISCSI: For iSCSI HBA server.
iscsiNames	List	List of iSCSI names formatted as iSCSI qualified name (IQN) or extended unique identified (EUI) format. **Note:** This parameter is deprecated and will be removed in a future version. Use the iscsiName parameter of the iscsiNamesWithUserDefinedName object instead.
chapUser	String	Displays the CHAP user name of the iSCSI initiator (host). NULL for FC servers.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target (host). NULL for FC servers.
total	Long	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=`

Parameter	Type	Description
		cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/compute/servers
```

Example response

```
{
    "resources": [
        // For FC Server
        {
            "serverId": 2,
            "protocol": "FIBRE",
            "serverName": "ESX-6425",
            "description": "ESX-6425",
            "ipAddress": "172.17.64.25",
            "wwpns": [
                "5000087000536424"
            ],
            "wwpnsWithUserDefinedName": [
                {
                    "wwpn": "5000087000536424",
                    "wwpnUserDefinedName": "ESX-6425_HBA1"
```

```
                }
            ],
            "iscsiNames": [],
            "iscsiNamesWithUserDefinedName": [],
            "osType": "VMWARE_EX",
            "chapUser": null,
            "attachedVolumeCount": 0,
            "dataProtectionSummary": {
                "replicationType": [],
                "protection": "UNPROTECTED",
                "hasFailures": false
            },
            "dpStatus": "Success",
            "storageSystemIds": [
                "41020"
            ],
            "storageSystems": [
                {
                    "id": "41020",
                    "name": "RN-SC-41020-HID_SVOS7.3-Gsd"
                }
            ]
        },
        // For iSCSI Server
        {
            "serverId": 2,
            "protocol": "ISCSI",
            "serverName": "ESX-6426",
            "description": "ESX-6426",
            "ipAddress": "172.17.64.26",
            "wwpns": [],
            "wwpnsWithUserDefinedName": [],
            "iscsiNames": [
                "iqn.esx.6426"
            ],
            "iscsiNamesWithUserDefinedName":
            [
                {
                    "iscsiName": "iqn.esx.6426",
                    "iscsiNameUserDefinedName": "ESX-6426_HBA1"
                }
            ],
            "osType": "WIN_EX",
            "chapUser": "user1",
            "attachedVolumeCount": 0,
            "dataProtectionSummary": {
                "replicationType": [],
                "protection": "UNPROTECTED",
                "hasFailures": false
            },
            "dpStatus": "Success",
```

```
            "storageSystemIds":
            [
                "41020"
            ],
            "storageSystems": [
                {
                    "id": "41020",
                    "name": "RN-SC-41020-HID_SVOS7.3-Gsd"
                }
            ]
        }
    ],
    "total": 2,
    "nextToken": null
}
```

Getting a server

You can display details on a specific server.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/servers/serverId
```

Use the ID of the server as the *serverId*.

Request structure

Not applicable.

Response structure

```
// For FC Server
{
    "serverId": ,
    "protocol": ,
    "serverName": "",
    "description": "",
    "ipAddress": "",
    "wwpns": [
        ""
    ],
    "wwpnsWithUserDefinedName": [
        {
            "wwpn": "",
            "wwpnUserDefinedName": ""
        }
    ],
    "iscsiNames": [],
```

```
    "iscsiNamesWithUserDefinedName": [],
    "osType": "",
    "chapUser": "",
    "attachedVolumeCount": ,
    "dataProtectionSummary": {
        "replicationType": [],
        "protection": "",
        "hasFailures":
    },
    "dpStatus": "",
    "storageSystemIds": [
        ""
    ],
    "storageSystems": [
        {
            "id": "",
            "name": ""
        }
    ]
}
// For iSCSI Server
{
    "serverId": ,
    "protocol": ,
    "serverName": "",
    "description": "",
    "ipAddress": "",
    "wwpns": [],
    "wwpnsWithUserDefinedName": [],
    "iscsiNames": [
        ""
    ],
    "iscsiNamesWithUserDefinedName": [
        {
            "iscsiName": "",
            "iscsiNameUserDefinedName": ""
        }
    ],
    "osType": "",
    "chapUser": "",
    "attachedVolumeCount": ,
    "dataProtectionSummary": {
        "replicationType": [],
        "protection": "",
        "hasFailures":
    },
    "dpStatus": "",
    "storageSystemIds": [
        ""
    ],
    "storageSystems": [
```

```
        {
            "id": "",
            "name": ""
        }
    ]
}
```

Parameter	Type	Description
dpStatus	String	Data protection status on the server. If data protection succeeded, the status is success. If data protection failed for any volume, the status is failure.
storageSystemIds	List	List of storage serial numbers attached to the server.
storageSystems	List	List of the storage systems attached to the server.
id	String	Storage system serial number attached to the server.
name	String	Storage system name attached to the server.
description	String	Brief description of the server.
ipAddress	String	IP address of the resource.
wwpns	List	List of World Wide Port Names formatted as a 16-digit hexadecimal number. **Note:** This parameter is deprecated and will be removed in a future version. Use the wwpn parameter of the wwpnsWithUserDefinedName object instead.
wwpnsWithUserDefinedName	Object	List of combinations of World Wide Port Name and user-defined name.
wwpn	String	World Wide Port Name formatted as a 16-digit hexadecimal number.
wwpnUserDefinedName	String	User-defined name for World Wide Port Name.
iscsiNamesWithUserDefinedName	Object	List of combinations of iSCSI name and user-defined name.

Parameter	Type	Description
iscsiName	String	iSCSI name formatted as iSCSI qualified name (IQN) or extended unique identified (EUI) format.
iscsiNameUserDefinedName	String	User-defined name for iSCSI name.
osType	String	List of supported operating systems on the server.
attachedVolumeCount	Integer	Total number of the server attached volumes.
dataProtectionSummary	Object	List of the data protection attributes of the volume.
replicationType	String	Volume replication type. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
protection	String	Data protection type. Valid values: P-VOL, S-VOL, or UNPROTECTED.
hasFailures	Boolean	Whether or not the volume has replication failures.
serverName	String	Name of the server.
serverId	Integer	ID of the server.
protocol	Enum	Server HBA protocol. ▪ FIBRE: For FC HBA server. ▪ ISCSI: For iSCSI HBA server.

Parameter	Type	Description
iscsiNames	List	List of iSCSI names formatted as iSCSI qualified name (IQN) or extended unique identified (EUI) format. **Note:** This parameter is deprecated and will be removed in a future version. Use the iscsiName parameter of the iscsiNamesWithUserDefinedName object instead.
chapUser	String	Displays the CHAP user name of the iSCSI initiator (host). NULL for FC servers.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target (host). NULL for FC servers.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/compute/servers/2
```

Example response

```
// For FC Server
{
```

```
    "serverId": 2,
    "protocol": "FIBRE",
    "serverName": "ESX-6425",
    "description": "ESX-6425",
    "ipAddress": "172.17.64.25",
    "wwpns": [
        "5000087000536424"
    ],
    "wwpnsWithUserDefinedName": [
        {
            "wwpn": "5000087000536424",
            "wwpnUserDefinedName": "ESX-6425_HBA1"
        }
    ],
    "iscsiNames": [],
    "iscsiNamesUserDefinedNames": [],
    "osType": "VMWARE_EX",
    "chapUser": null,
    "attachedVolumeCount": 1,
    "dataProtectionSummary": {
        "replicationType": [],
        "protection": "UNPROTECTED",
        "hasFailures": false
    },
    "dpStatus": "Success",
    "storageSystemIds": [
        "41020"
    ],
    "storageSystems": [
        {
            "id": "41020",
            "name": "RN-SC-41020-HID_SVOS7.3-Gsd"
        }
    ]
}
// For iSCSI Server
{
    "serverId": 3,
    "protocol": "ISCSI",
    "serverName": "ESX-7425",
    "description": "ESX-7425",
    "ipAddress": "172.17.74.25",
    "wwpns": [],
    "wwpnsUserDefinedNames": [],
    "iscsiNames": [
        "iqn.esx.7425"
    ],
    "iscsiNamesWithUserDefinedName": [
        {
            "iscsiName": "iqn.esx.6426",
            "iscsiNameUserDefinedName": "ESX-6426_HBA1"
```

```
        }
    ],
    "osType": "LINUX",
    "chapUser": "user1",
    "attachedVolumeCount": 1,
    "dataProtectionSummary": {
        "replicationType": [],
        "protection": "UNPROTECTED",
        "hasFailures": false
    },
    "dpStatus": "Success",
    "storageSystemIds": [
        "41020"
    ],
    "storageSystems": [
        {
            "id": "41020",
            "name": "RN-SC-41020-HID_SVOS7.3-Gsd"
        }
    ]
}
```

Getting servers summary

You can display a list of servers by operating system type.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/servers/summary
```

Request structure

Not applicable.

Response structure

```
{
  "osTypeCount":
    {
     "WIN":
    },
  "totalHost":
}
```

Parameter	Type	Description
osTypeCount	List	List of supported operating systems on the server.
totalHost	Integer	Total number of host operating systems.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/compute/servers/summary
```

Example response

```
{
  "osTypeCount":
    {
     "WIN": 1
    },
        "totalHost": 1
}
```

Adding servers

You can add servers with information about the server name, IP address, short description, World Wide Port Name (WWPN), and the supported OS types.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/servers
```

Request Structure

The request body structure is shown below:

```
{
    "servers": [
        // For FC servers
        {
            "protocol": "FIBRE",
            "serverName": "",
            "ipAddress": "",
            "osType": "",
            "wwpns": [],
            "wwpnsWithUserDefinedName":
            [
                {
                    "wwpn": "",
                    "wwpnUserDefinedName": ""
                }
            ],
            "description": ""
        }
        // For iSCSI servers
        {
            "protocol": "ISCSI",
            "serverName": "",
            "ipAddress": "",
            "osType": "",
            "iscsiNames": [],
            "iscsiNamesWithUserDefinedName":
            [
                {
                    "iscsiName": "",
                    "iscsiNameUserDefinedName": ""
                }
            ],
            "description": "",
            "chapUser": {
                "userName": "",
                "secret": ""
            }
        }
    ]
}
```

Parameter	Required	Type	Description
serverName	Yes	String	Name of the server. Enter up to 256 alphanumeric characters. The only special characters that are supported are the hyphen ("-") and underscore ("_") .
ipAddress	No	String	IP address of the resource.
osType	Yes	String	List of supported OS.
wwpns	No	List	List of World Wide Port Names formatted as a 16 digit hexadecimal number. wwpnsWithUserDefinedName or wwpns is required if FIBRE is specified as the protocol.
wwpnsWithUserDefinedName	No	Object	List of combinations of World Wide Port Name and user-defined name. wwpnsWithUserDefinedName or wwpns is required if FIBRE is specified as the protocol.
wwpn	No	String	World Wide Port Names formatted as a 16-digit hexadecimal number. wwpn is required if wwpnsWithUserDefinedName is specified.
wwpnUserDefinedName	No	String	User-defined name for World Wide Port Name. Enter up to 64 alphanumeric characters, periods(.), at marks (@), underscore (_) and hyphens(-) in the name, but it must not start with a hyphen.
iscsiNamesWithUserDefinedName	No	Object	List of combinations of f iSCSI name and user-defined name. iscsiNamesWithUserDefinedName or iscsiNames is required if ISCSI is specified as the protocol.
iscsiName	No	String	iSCSI names formatted as iSCSI qualified name (IQN) or extended unique identified (EUI) format. iscsiName is required if iscsiNamesWithUserDefinedName is specified.
iscsiNameUserDefinedName	No	String	User-defined name for iSCSI name. Enter up to 32 alphanumeric characters, periods(.), at marks (@), underscore (_) and hyphens(-) in the name, but it must not start with a hyphen.

Parameter	Required	Type	Description
description	No	String	Brief description of the server, up to 128 characters.
protocol	No	Enum	Server HBA protocol to create with the below values. ▪ FIBRE: For FC HBA server. ▪ ISCSI: For iSCSI HBA server. For payload consistency from v2.2 or older, a payload is processed as FC if not specified.
iscsiNames	No	List	List of iSCSI names formatted as IQN or EUI format. iscsiNamesWithUserDefinedName or iscsiNames is required if ISCSI is specified as the protocol.
chapUser	No	Object	CHAP user name and secret of the iSCSI initiators (hosts). ISCSI targets (storages) authenticate the initiators with this information.
userName	No	String	User name of the new CHAP user. Both user name and secret are required when specifying a CHAP user.
secret	No	String	User secret of the new CHAP user. Both user name and secret are required when specifying a CHAP user.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
```

```
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/compute/servers
```

Example request

```
{
    "servers": [
        // For FC servers
        {
            "protocol": "FIBRE",
            "serverName": "Windows_Server",
            "ipAddress": "10.20.90.243",
            "osType": "WIN_EX",
            "wwpnsWithUserDefinedName":
            [
                {
                    "wwpn": "100000053326f721",
                    "wwpnUserDefinedName": "Windows_Server_HBA1"
                }
            ],
            "description": ""
        }
        // For iSCSI servers
        {
            "protocol": "ISCSI",
            "serverName": "Windows_Server",
            "ipAddress": "10.20.90.243",
            "osType": "WIN_EX",
            "iscsiNamesWithUserDefinedName":
            [
                {
                    "iscsiName": "iqn.esx.243",
                    "iscsiNameUserDefinedName": "Windows_Server_HBA1"
                }
            ],
            "description": "",
            "chapUser": {
                "userName": "user1",
                "secret": "123456789012"
            }
        }
    ]
}
```

Updating a server

You can update the server name, IP address, short description, or supported OS types.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/servers/serverId
```

Use the ID of the server as the *serverId*.

Request structure

The request body structure is shown below:

```
{
  "serverName": "",
  "ipAddress": "",
  "osType": "",
  "description": ""
}
```

Parameter	Required	Type	Description
serverName	Yes	String	Name of the server. Enter up to 256 alphanumeric characters. The only special characters that are supported are the hyphen ("-") and underscore ("_") .
ipAddress	No	String	IP address of the resource.
osType	Yes	String	List of supported OS.
description	No	String	Brief description of the server, up to 128 characters.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
```

```
    [
    ],
    "links":
    [
       {
          "rel": "_self",
          "href": "/v1/jobs/jobId"
       }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
"serverName": "Win-MD",
"ipAddress": "172.17.91.21",
"osType": "Win_EX",
"description": "Updating server info"
}
```

Deleting a server

You can delete a server if there are no volumes attached to the server. You should verify that no volumes are attached to the server before you delete the server.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/compute/servers/serverId
```

Use the ID of the server as the *serverId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
```

```
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response


```
{
    "jobId": "104f169c-89f0-4f3c-a188-242593005a86",
    "title":
    {
        "text": "Delete server",
        "messageCode": "DeleteServerJobTitleMessage",
        "parameters":
        {
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1456970658084,
    "endDate": null,
    "parentJobId": null,
    "reports":
    [
    ],
    "links":
    [
        {
            "rel": "_self",
            "href": "/v1/jobs/104f169c-89f0-4f3c-a188-242593005a86"
        }
    ],
    "tags":
    [
```

```
        ],
        "isSystem": false
    }
```

Deleting multiple servers

You can delete multiple servers.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/servers/delete
```

Request structure

The request body structure is shown below:

```
{
   "serverIds": [],
   "forceDelete":
}
```

Parameter	Required	Type	Description
serverIds	Yes	List	The list of server IDs to be deleted. The server ID type is integer.
forceDelete	No	Boolean	Specifies whether to delete the servers when volumes are attached to them. Valid values are True or False. The default value is False.

Example

```
{
   "serverIds": [1, 3],
   "forceDelete": true
}
```

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Response Code

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
400	Bad Request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response


```
{
    "jobId": "707929b6-1b1f-4a19-8bfa-62b303c6390d",
    "title": {
        "text": "Delete servers",
        "messageCode": "DeleteServersJobTitleMessage",
        "parameters": {
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1576630177992,
    "endDate": null,
    "parentJobId": null,
    "reports": [
    ],
    "links": [
        {
            "rel": "_self",
            "href": "/v1/jobs/707929b6-1b1f-4a19-8bfa-62b303c6390d"
        }
    ],
    "tags": [
        {
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Updating world wide port names

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/servers/serverId/update-wwpns
```

Parameter	Required	Type	Description
serverId	Yes	Integer	ID of the server.

Request structure

```
{
  "updateAttachedVolumes" : ,
  "updateZones" : ,
  "updates" : [
      {
        "currentValue": "",
        "newValue": "",
        "newUserDefinedName": "",
        "reference": ""
      }
   ],
}
```

Parameter	Required	Type	Description
updateAttachedVolumes	Yes	Boolean	Use `TRUE` to update WWN of already attached volumes.
updateZones	Yes	Boolean	Use `TRUE` to update WWN of already attached volumes.
currentValue	Yes	String	The current value for the WWN to be overwritten by newValue. If NULL is specified, just add newValue.

Parameter	Required	Type	Description
newValue	Yes	String	The new value for the WWN to be added in place of currentValue. If NULL is specified and newUserDefinedName is not specified, just remove the oldValue. If NULL is specified and newUserDefinedName is specified, just overwritten the current user-defined name.
newUserDefinedName	No	String	The new user-defined name for the WWN specified in currentValue or newValue. Enter up to 64 alphanumeric characters, periods(.), at marks (@), underscore (_) and hyphens(-) in the name, but it must not start with a hyphen.
reference	No	String	Specifying this value with newValue adds the new WWN name to the WWN target to which the reference WWN name belongs. If NULL is specified, newValue is not added to any WWN targets.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
```

```
    {
      "text": "",
      "messageCode": "",
      "parameters":
       {
       }
    },
    "user": "",
    "status": "",
    "createdDate":,
    "scheduledDate":,
    "startDate": ,
    "endDate": ,
    "parentJobId": ,
    "reports":
    [
    ],
    "links":
    [
       {
          "rel": "_self",
          "href": "/v1/jobs/jobId"
       }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
400	Error	The executing APIs are not for a Fibre server.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "updateAttachedVolumes": false,
    "updateZones": false,
    "updates": [
```

```
        {
            "currentValue": "900000053326C725",
            "newValue": "910000053326C725",
            "newUserDefinedName": "Windows_Server244_HBA1"
        }
    ]
}
```

Listing attached volumes

You can display a list of all attached volumes from a specific storage system and the path to the attached volume.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/servers/attached-volumes/?q=serverId:serverId AND
storageSystemId:storageSystemId
```

Use the ID of the server as the *serverId*.

Use the ID of the storage system as the *storageSystemId*.

Request structure

Not applicable.

Response structure

```
{
  "resources": [
    {
      "volumeId": ,
      "storageSystemId": "",
      "storageSystemName": "",
      "poolId": "",
      "label": "",
      "size": ,
      "usedCapacity": ,
      "availableCapacity": ,
      "utilization": ,
      "attributes": [""],
      "status": "",
      "type": "",
      "provisioningStatus": "",
      "dataProtectionSummary": {
        "replicationType": [],
        "volumeType": [
          ""
        ],
```

```
        "replicationGroupIdMap": {},
        "hasFailures": false,
        "secondaryVolumeCount": ,
        "secondaryVolumeFailures":
      },
      "gadSummary": {
        "vsmId": ,
        "virtualLdevId": ,
        "volumeType": "",
        "pairStatus": "",
        "consistencyId": ,
        "mirrors" : [
              {
                  "mirrorId": ,
                  "volumeType": "",
                  "pairStatus": "",
                  "consistencyId": ,
              },
              ...
      },
      "dkcDataSavingType": "",
      "virtualStorageMachineInformation": {
        "virtualStorageMachineId": "",
        "storageSystemId": "",
        "model": "",
        "virtualVolumeId":
      },
      "migrationSummary": {
        "ownerTaskId": ,
        "migrationType": ""
      },
      "aluaEnabled": ,
      "serverId": ,
      "paths": [
        {
          "storagePortId": "",
          "storageSystemId": "",
          "lun": ,
          "hostGroupId": "",
          "name": "",
          "hostMode": "",
          "wwns": [
            ""
          ],
          "hostModeOptions": [],
          "iscsiTargetInformation": ,
          "preferredPath":
        },
        {
          "storagePortId": "",
          "storageSystemId": "",
```

```
          "lun": ,
          "hostGroupId": "",
          "name": "",
          "hostMode": "",
          "wwns": [
            ""
          ],
          "hostModeOptions": [],
          "iscsiTargetInformation": ,
          "preferredPath":
        }
      ],
      "compressionAcceleration": ,
      "commandDevice": {
        "securityEnabled": ,
        "userAuthenticationEnabled": ,
        "deviceGroupSettingEnabled":
      }
    },
    ...
  ],
  "total": ,
  "nextToken":
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
storageSystemId	String	ID of the storage system.
storageSystemName	String	The name of the storage system.
poolId	String	ID of the pool from which the resource is allocated.
poolName	String	Name of the pool from which the resource is allocated.
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.

Parameter	Type	Description
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage= (usedCapacity/size) *100.
attributes	List	List of the attributes of the volume. Valid values: ▪ THIN: a volume for thin provisioning. ▪ CMD: a volume used as a command device. ▪ VVOL: a secondary volume for creating snapshots. ▪ GUARD: a volume for Data Retention Utility. ▪ MIGRATION_RESERVED: a volume for the data migration. ▪ HA: a primary or secondary volume for High Availability. ▪ HA_RESERVED: a reserved volume for High Availability. ▪ NAS_TYPE_USER: a volume used as a user LU of the storage system includes NAS modules. ▪ ALUA: a volume of which ALUA mode is enabled. ▪ T10PI: a volume of which T10PI mode is enabled. ▪ COMPRESSION: a volume of which compression is enabled. ▪ DEDUPLICATION: a volume of which deduplication is enabled. ▪ DRS: a volume of which DRS is enabled.
status	String	Volume status. Valid values: NORMAL, BLOCKED, BUSY, SHREDDING, UNKNOWN, or NONE.
type	String	Type of pool from which the volume is allocated. Valid values: THIN, TIERED, or SNAP.

Parameter	Type	Description
provisioningStatus	String	Provisioning status of a volume. Valid values: ATTACHED, UNATTACHED, or UNMANAGED.
portIds	List	List of the storage port IDs.
hostGroupNames	List	List of the host group names.
luns	List	List of the LUN IDs.
numberOfLunPaths	Integer	The number of paths from WWNs or iSCSI names to volumes (excluding paths where LUN security is disabled).
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSIO N, and NONE
aluaEnabled	Boolean	Whether or not ALUA mode of the volume is enabled.
migrationSummary	Object	List of migration attributes for the volume.
ownerTaskId	String	The ID of the owner migration task.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE
virtualStorageMachineInform ation	Object	Displays the virtual storage machine information for the volume. Returns null if there are no VSMs.
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	The serial number of the VSM to which the volume belongs.
model	String	The model of the VSM to which the volume belongs.
virtualVolumeId	Long	The virtual volume ID. If the virtual volume is not defined, returns null.
dataProtectionSummary	Object	List of the data protection attributes of the volume.

Parameter	Type	Description
replicationType	String	Volume replication type. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
volumeType	Set	Type of volume in the replication. Valid values: P-VOL, S-VOL, or UNPROTECTED.
replicationGroupIdMap	Object	Replication group ID map. Consisting of the replication group ID and the replication group name for each of the replication group the volume belongs to.
hasFailures	Boolean	Whether the volume has replication failures.
secondaryVolumeCount	Integer	Count of secondary volume pairs protecting the primary volume.
secondaryVolumeFailures	Integer	Count of failed volume pairs where this volume is an S-VOL.
gadSummary	Object	List of the GAD attributes of the volume. If there is no GAD pair, a NULL value is returned.
vsmId	String	ID number of the virtual storage machine (VSM).
virtualLdevID	String	ID number of the virtual volume.
volumeType	String	Volume type. Valid values: Active-Primary, Active-Secondary **Note:** This parameter is deprecated and will be removed in a future version. Use the `volumeType` parameter of the `mirrors` object instead.

Parameter	Type	Description
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ UNKNOWN: a volume pair is in unknown status. ▪ NONE: a volume is not paired. **Note:** This parameter is deprecated and will be removed in a future version. Use the `pairStatus` parameter of the `mirrors` object instead.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. **Note:** This parameter is deprecated and will be removed in a future version. Use the `consistencyId` parameter of the `mirrors` object instead.
mirrors	Object	List of the GAD attributes per mirror of the volume.
volumeType	String	Volume type. Valid values: ACTIVE_PRIMARY, ACTIVE_SECONDARY, NOT_AVAILABLE

Parameter	Type	Description
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: the volume is in paired status. ▪ PSUS: the volume pair is in suspended status for the primary volume. ▪ SSUS: the volume pair is in suspended status for the secondary volume. ▪ COPY: the volume pair is in data synchronizing status. ▪ PSUE: the volume pair is in suspended status with error. ▪ SSWS: the volume pair is in suspended status for swapping the secondary volume.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. For storage systems without an SVP, a NULL value is returned.
serverId	Integer	ID of the server.
paths	Object	Path that is being used to attach the volume to the server.
storagePortId	String	ID of the storage port where the volume is attached to the host.
storageSystemId	String	ID of the storage system.
lun	Integer	LUN identifier for the volume where it connects to the port.
name	String	Name of the path from the storage port to the host port.
hostMode	String	Host mode set for the volume.
wwns	List	List of WWNs of connected hosts formatted in IQN or EUI format. NULL for iSCSI path.

Parameter	Type	Description
preferredPath	Boolean	Whether the LU path (host group) is preferred or not.
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
iscsiTargetName	String	Displays the iSCSI name of the iSCSI target.
iscsiInitiatorNames	String	Displays the list of iSCSI names of the host bus adapters registered in the iSCSI target.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target.
chapUsers	String	Displays the list of CHAP users of the host bus adapters registered in the iSCSI target.
authenticationMode	Enum	CHAP authentication mode for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ CHAP: CHAP-authentication mode. ▪ NONE: No-authentication mode. ▪ BOTH: Both CHAP-authentication mode and no-authentication mode.
authenticationDirection	Enum	CHAP authentication direction for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ One-way: The iSCSI target authenticates the iSCSI initiator. ▪ Mutual: The iSCSI target and the iSCSI initiator authenticate each other.
hostModeOptions	List of Integers	Host mode options for the volume.
compressionAcceleration	String	Whether the compression accelerator is enabled for the volume. Valid values: ENABLED, DISABLED, -

Parameter	Type	Description
commandDevice	Object	Command device settings for the volume. The value of this parameter is null in case of storage systems without SVP or not command device.
securityEnabled	Boolean	Whether or not the command device security setting is enabled.
userAuthenticationEnabled	Boolean	Whether or not user authentication for the command device is enabled.
deviceGroupSettingEnabled	Boolean	Whether or not device group information authentication for the command device is enabled.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
GET https://10.76.48.147/v1/compute/servers/attached-volumes?q=serverId:4
```

Example response

```
{
  "resources": [
    {
      "volumeId": 10,
```

```
    "storageSystemId": "41020",
    "storageSystemName": "RN-SC-41020-HID_SVOS7.3-Gsd",
    "poolId": "11",
    "label": "LDS",
    "size": 1073741824,
    "usedCapacity": 308281344,
    "availableCapacity": 765460480,
    "utilization": 28,
    "attributes": [
        "THIN"
    ],
    "status": "NORMAL",
    "type": "TIERED",
    "provisioningStatus": "ATTACHED",
    "dataProtectionSummary": {
      "replicationType": [],
      "volumeType": [
        "UNPROTECTED"
      ],
      "replicationGroupIdMap": {},
      "hasFailures": false,
      "secondaryVolumeCount": 0,
      "secondaryVolumeFailures": 0
    },
    "gadSummary": {
      "vsmId": 7,
      "virtualLdevId": 2657,
      "volumeType": "ACTIVE_PRIMARY",
      "pairStatus": "PAIR",
      "consistencyId": 15,
      "mirrors" : [
               {
                 "mirrorId": 0,
                 "volumeType": "ACTIVE_SECONDARY",
                 "pairStatus": "PAIR",
                 "consistencyId": 15
               },
               {
                 "mirrorId": 1,
                 "volumeType": "ACTIVE_PRIMARY",
                 "pairStatus": "COPY",
                 "consistencyId": 17
               }
           ]
        ...
    "dkcDataSavingType": "NONE",
    "virtualStorageMachineInformation": {
      "virtualStorageMachineId": "41020-VSPF800andVSPG800",
      "storageSystemId": "41020",
      "model": "VSP F800 and VSP G800",
      "virtualVolumeId": 10
```

```
      },
      "migrationSummary": {
        "ownerTaskId": null,
        "migrationType": "NONE"
      },
      "aluaEnabled": false,
      "serverId": 4,
      "paths": [
        {
          "storagePortId": "CL1-E",
          "storageSystemId": "41020",
          "lun": 20,
          "hostGroupId": "CL1-E-2",
          "name": "win-9121",
          "hostMode": "WIN",
          "wwns": [
            "100000051EF972A9"
          ],
          "hostModeOptions": [],
          "iscsiTargetInformation": null,
          "preferredPath": true
        },
        {
          "storagePortId": "CL4-F",
          "storageSystemId": "41020",
          "lun": 20,
          "hostGroupId": "CL4-F-2",
          "name": "win-9121",
          "hostMode": "WIN",
          "wwns": [
            "100000051EF972A9"
          ],
          "hostModeOptions": [],
          "iscsiTargetInformation": null,
          "preferredPath": true
        }
      ],
      "compressionAcceleration": "ENABLED",
      "commandDevice": {
        "securityEnabled": true,
        "userAuthenticationEnabled": false,
        "deviceGroupSettingEnabled": false
      }
    },
    ...
  ],
  "total": 31,
  "nextToken": null
}
```

Updating iSCSI settings

You can update server iSCSI names and CHAP user settings in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1
/compute/servers/serverId/update-iscsi-settings
```

Request structure

The request body structure is shown below:

```
{
    "updateAttachedVolumes" : ,
    "iscsiNameUpdates" : [
        {
            "currentValue": "",
            "newValue": "",
            "newUserDefinedName": "",
            "reference": ""
        }
    ],
    "chapUser": {
      "userName": "",
      "secret": ""
    }
}
```

Parameter	Required	Type	Description
updateAttachedVolumes	Yes	Boolean	Use `TRUE` to update iSCSI names of already attached volumes.
iscsiNameUpdates	No	List	List of updated iSCSI names. Each update must contain either currentValue or newValue.

Parameter	Required	Type	Description
currentValue	No	String	The current value for the iSCSI name to be overwritten by newValue. If NULL is specified, just add newValue.
newValue	No	String	The new value for the iSCSI name to be added in place of currentValue. If NULL is specified and newUserDefinedName is not specified, just remove the oldValue. If NULL is specified and newUserDefinedName is specified, just overwritten the current user-defined name.
newUserDefinedName	No	String	The new user-defined name for the iSCSI name specified in currentValue or newValue. Enter up to 32 alphanumeric characters, periods(.), at marks (@), underscore (_) and hyphens(-) in the name, but it must not start with a hyphen.

Parameter	Required	Type	Description
reference	No	String	Specifying this value with newValue adds the new iSCSI name to the iSCSI target to which the reference iSCSI name belongs. If NULL is specified, newValue is not added to any iSCSI targets.
chapUser	No	Object	Updates initiator(host) CHAP user. There are 3 types of updates: ▪ If NULL is specified, the CHAP user will not be updated. ▪ If NULL is not specified and both userName and secret are NULL, the CHAP user is deleted. ▪ If NULL is not specified and both userName and secret are not NULL, the CHAP user is updated. If the specified CHAP user already exists on the storage port, Hitachi Ops Center Administrator posts a job report regarding overwriting the CHAP secret.

Parameter	Required	Type	Description
userName	No	String	User name of the new CHAP user. If the specified user name is the same as the current name of the server, only update secret.
secret	No	String	User secret of the new CHAP user.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "updateAttachedVolumes": false,
    "iscsiNameUpdates": [
        {
            "currentValue": "iqn.esx.243",
            "newValue": "iqn.esx.244",
            "newUserDefinedName": "Windows_Server244_HBA1"
        }
    ],
    "chapUser": {
      "userName": "user1",
      "secret": "123456789012"
    }
}
```

Scanning host groups

You can add servers by scanning the host groups of the storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/servers/scan-host-groups
```

Request structure

The request body structure is shown below:

```
{
   "storageSystemIds": [""],
   "allStorageSystems":
}
```

Parameter	Required	Type	Description
storageSystemIds*	Yes	List	The list of storage system IDs to be scanned. The storage system ID type is String.
allStorageSystems*	Yes	Boolean	Specifies whether all managed storage systems are scanned. Valid values are True or False. The default value is False.
*: You must specify either one. You cannot specify both at the same time.			

Example 1

```
{
   "storageSystemIds": ["15283", "51305", "415248"]
}
```

Example 2

```
{
   "allStorageSystems": true
}
```

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
```

```
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Example response

```
{
    "jobId": "6833e930-f107-49f5-9133-b096647a34ba",
    "title": {
        "text": "Scan host groups",
        "messageCode": "ScanServersJobTitleMessage",
        "parameters": {
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1576654327103,
    "endDate": null,
    "parentJobId": null,
    "reports": [
    ],
    "links": [
```

```
        {
            "rel": "_self",
            "href": "/v1/jobs/6833e930-f107-49f5-9133-b096647a34ba"
        }
    ],
    "tags": [
        {
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Response Code

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad Request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Getting a list of server groups

You can display a list of server groups

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/server-groups
```

Request structure

Not applicable.

Response structure

```
{

  "resources": [
    {
      "serverGroupId": ,
      "serverGroupName": "",
      "description": "",
      "serverIds": [],
      "numberOfServers": ,
      "numberOfVolumes": ,
      "totalCapacity": ,
      "usedCapacity": ,
      "availableCapacity":
    }
  ],

  "total": ,
  "nextToken":
}
```

Parameter	Type	Description
availableCapacity	Long	Unused capacity of volumes in the given server in the server group.
description	String	Server group description.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken= cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`
numberOfServers	Integer	Number of servers in the server group.
numberOfVolumes	Integer	Number of volumes in the given server in the server group.

Parameter	Type	Description
serverIds	List	List of server IDs. Server ID type is integer.
serverGroupId	Integer	ID of the server group.
serverGroupName	String	Name of the server group.
total	Long	Total number of resources.
totalCapacityInBytes	Long	Total capacity of volumes in the given server in the server group.
usedCapacity	Long	Used capacity of volumes in the given server in the server group.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/compute/server-groups
```

Example response

```
{
    "resources": [
        {
            "serverGroupId": 1,
            "serverGroupName": "TWServerGroupAlpha",
            "description": "Japan servers",
            "serverIds": [
```

```
                1,
                3
            ],
            "numberOfServers": 2,
            "numberOfVolumes": 3,
            "totalCapacity": 4294967296,
            "usedCapacity": 0,
            "availableCapacity": 4294967296
        },
        {
            "serverGroupId": 2,
            "serverGroupName": "TWServerGroupBeta",
            "description": "These servers are located in SC",
            "serverIds": [
                1,
                4
            ],
            "numberOfServers": 2,
            "numberOfVolumes": 3,
            "totalCapacity": 4294967296,
            "usedCapacity": 0,
            "availableCapacity": 4294967296
        }
    ],
    "total": 2,
    "nextToken": null
}
```

Getting a server group

You can display a server group.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/server-groups/serverGroupId
```

Request structure

Not applicable.

Response structure

```
{
  "serverGroupId": ,
  "serverGroupName": "",
  "description": "",
  "serverIds": [],
  "numberOfServers": ,
  "numberOfVolumes": ,
```

```
  "totalCapacity": ,
  "usedCapacity": ,
  "availableCapacity":
}
```

Parameter	Type	Description
availableCapacity	Long	Unused capacity of the resource, in bytes.
description	String	Server group description.
numberOfServers	Integer	Number of servers in the server group.
numberOfVolumes	Integer	Number of volumes in the given server in the server group.
serverIds	List	List of server IDs. Server ID type is integer.
serverGroupId	Integer	ID of the server group.
serverGroupName	String	Name of the server group.
totalCapacityInBytes	Long	Total capacity of volumes in the given server in the server group.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
GET https://172.17.64.115/v1/compute/server-groups/1
```

Example response

```
{
    "serverGroupId": 1,
    "serverGroupName": "TWServerGroupAlpha",
    "description": null,
    "serverIds": [
        1,
        3
    ],
    "numberOfServers": 2,
    "numberOfVolumes": 3,
    "totalCapacity": 4294967296,
    "usedCapacity": 0,
    "availableCapacity": 4294967296
}
```

Listing volumes attached to servers in a server group

You can display a list of all volumes that are attached to servers in the given server group .

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/server-groups/serverGroupId/volumes
```

Use the ID of the server group as the *serverGroupId*.

Request structure

Not applicable.

Response structure

```
{
    "resources": [
        {
            "volumeId": ,
            "storageSystemId": "",
            "storageSystemName": "",
            "poolId": "",
            "poolName": "",
            "label": "",
            "size": ,
            "usedCapacity": ,
            "availableCapacity": ,
```

```
            "utilization": ,
            "attributes": [""],
            "status": "",
            "type": "",
            "portIds": [""],
            "hostGroupNames": [""],
            "luns": [],
            "numberOfLunPaths": ,
            "attachedVolumeServerSummary": [
                {
                    "serverId": ,
                    "serverName": "",
                    "paths": [
                        {
                            "storagePortId": "",
                            "storageSystemId": "",
                            "lun": ,
                            "name": "",
                            "hostMode": "",
                            "wwns": [""],
                            "hostModeOptions": [],
                            "iscsiTargetInformation": {
                                "iscsiTargetName": "",
                                "iscsiInitiatorNames": "",
                                "authenticationMode": "",
                                "authenticationDirection": "",
                                "chapUsers": "",
                                "mutualChapUser": ""
                            }
                        }
                    ]
                }
            ],
            "dataProtectionSummary": {
                "volumeType": [""],
                "replicationGroupIdMap": {},
                "hasFailures": ,
                "secondaryVolumeCount": ,
                "secondaryVolumeFailures":
              },
            "gadSummary": {
                "vsmId": "",
                "virtualLdevId": ,
                "volumeType": "",
                "pairStatus": "",
                "consistencyId":,
                "mirrors" : [
                    {
                        "mirrorId": ,
                        "volumeType": "",
                        "pairStatus": "",
```

```
                        "consistencyId":
                    },
                    ...
                ]
            },
            "serverGroupIds": [],
            "compressionAcceleration": ,
            "commandDevice": {
                "securityEnabled": ,
                "userAuthenticationEnabled": ,
                "deviceGroupSettingEnabled":
            }
        },
        ...
    ],
    "total": ,
    "nextToken": ""
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
storageSystemId	String	ID of the storage system.
storageSystemName	String	The name of the storage system.
poolId	String	ID of the pool from which the resource is allocated.
poolName	String	Name of the pool from which the resource is allocated.
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage= (usedCapacity/size) *100.

Parameter	Type	Description
attributes	List	List of the attributes of the volume. Valid values: ▪ THIN: a volume for thin provisioning. ▪ CMD: a volume used as a command device. ▪ VVOL: a secondary volume for creating snapshots. ▪ GUARD: a volume for Data Retention Utility. ▪ MIGRATION_RESERVED: a volume for the data migration. ▪ HA: a primary or secondary volume for High Availability. ▪ HA_RESERVED: a reserved volume for High Availability. ▪ NAS_TYPE_USER: a volume used as a user LU of the storage system includes NAS modules. ▪ ALUA: a volume of which ALUA mode is enabled. ▪ T10PI: a volume of which T10PI mode is enabled. ▪ COMPRESSION: a volume of which compression is enabled. ▪ DEDUPLICATION: a volume of which deduplication is enabled. ▪ DRS: a volume of which DRS is enabled.
status	String	Volume status. Valid values: NORMAL, BLOCKED, BUSY, SHREDDING, UNKNOWN, or NONE.
type	String	Type of pool from which the volume is allocated. Valid values: THIN, TIERED, or SNAP.
provisioningStatus	String	Provisioning status of a volume. Valid values: ATTACHED, UNATTACHED, or UNMANAGED.
portIds	List	List of the storage port IDs.

Parameter	Type	Description
hostGroupNames	List	List of the host group names.
luns	List	List of the LUN IDs.
numberOfLunPaths	Integer	The number of paths from WWNs or iSCSI names to volumes (excluding paths where LUN security is disabled).
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSIO N, and NONE
aluaEnabled	Boolean	Whether or not ALUA mode of the volume is enabled.
migrationSummary	Object	List of migration attributes for the volume.
ownerTaskId	String	The ID of the owner migration task.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE
virtualStorageMachineInform ation	Object	Displays the virtual storage machine information for the volume. Returns null if there are no VSMs.
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	The serial number of the VSM to which the volume belongs.
model	String	The model of the VSM to which the volume belongs.
virtualVolumeId	Long	The virtual volume ID. If the virtual volume is not defined, returns null.
dataProtectionSummary	Object	List of the data protection attributes of the volume.

Parameter	Type	Description
replicationType	String	Volume replication type. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
volumeType	Set	Type of volume in the replication. Valid values: P-VOL, S-VOL, or UNPROTECTED.
replicationGroupIdMap	Object	Replication group ID map. Consisting of the replication group ID and the replication group name for each of the replication group the volume belongs to.
hasFailures	Boolean	Whether the volume has replication failures.
secondaryVolumeCount	Integer	Count of secondary volume pairs protecting the primary volume.
secondaryVolumeFailures	Integer	Count of failed volume pairs where this volume is an S-VOL.
gadSummary	Object	List of the GAD attributes of the volume. If there is no GAD pair, a NULL value is returned.
vsmId	String	ID number of the virtual storage machine (VSM).
virtualLdevID	String	ID number of the virtual volume.
volumeType	String	Volume type. Valid values: Active-Primary, Active-Secondary **Note:** This parameter is deprecated and will be removed in a future version. Use the `volumeType` parameter of the `mirrors` object instead.

Parameter	Type	Description
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ UNKNOWN: a volume pair is in unknown status. ▪ NONE: a volume is not paired. **Note:** This parameter is deprecated and will be removed in a future version. Use the `pairStatus` parameter of the `mirrors` object instead.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. **Note:** This parameter is deprecated and will be removed in a future version. Use the `consistencyId` parameter of the `mirrors` object instead.
mirrors	Object	List of the GAD attributes per mirror of the volume.
volumeType	String	Volume type. Valid values: ACTIVE_PRIMARY, ACTIVE_SECONDARY, NOT_AVAILABLE

Parameter	Type	Description
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: the volume is in paired status. ▪ PSUS: the volume pair is in suspended status for the primary volume. ▪ SSUS: the volume pair is in suspended status for the secondary volume. ▪ COPY: the volume pair is in data synchronizing status. ▪ PSUE: the volume pair is in suspended status with error. ▪ SSWS: the volume pair is in suspended status for swapping the secondary volume.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. For storage systems without an SVP, a NULL value is returned.
serverId	Integer	ID of the server.
serverName	String	Name of the server.
paths	Object	Path that is being used to attach the volume to the server.
storagePortId	String	ID of the storage port where the volume is attached to the host.
storageSystemId	String	ID of the storage system.
lun	Integer	LUN identifier for the volume where it connects to the port.
name	String	Name of the path from the storage port to the host port.
hostMode	String	Host mode set for the volume.

Parameter	Type	Description
wwns	List	List of WWNs of connected hosts formatted in IQN or EUI format. NULL for iSCSI path.
preferredPath	Boolean	Whether the LU path (host group) is preferred or not.
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
iscsiTargetName	String	Displays the iSCSI name of the iSCSI target.
iscsiInitiatorNames	String	Displays the list of iSCSI names of the host bus adapters registered in the iSCSI target.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target.
chapUsers	String	Displays the list of CHAP users of the host bus adapters registered in the iSCSI target.
authenticationMode	Enum	CHAP authentication mode for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ CHAP: CHAP-authentication mode. ▪ NONE: No-authentication mode. ▪ BOTH: Both CHAP-authentication mode and no-authentication mode.
authenticationDirection	Enum	CHAP authentication direction for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ One-way: The iSCSI target authenticates the iSCSI initiator. ▪ Mutual: The iSCSI target and the iSCSI initiator authenticate each other.
hostModeOptions	List of Integers	Host mode options for the volume.

Parameter	Type	Description
compressionAcceleration	String	Whether the compression accelerator is enabled for the volume. Valid values: ENABLED, DISABLED, -
commandDevice	Object	Command device settings for the volume. The value of this parameter is null in case of storage systems without SVP or not command device.
securityEnabled	Boolean	Whether or not the command device security setting is enabled.
userAuthenticationEnabled	Boolean	Whether or not user authentication for the command device is enabled.
deviceGroupSettingEnabled	Boolean	Whether or not device group information authentication for the command device is enabled.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example request

```
GET https://10.76.48.147/v1/compute/server-groups/4/volumes
```

Example response

```
{
    "resources": [
        {
```

```
            "volumeId": 130,
            "storageSystemId": "41020",
            "storageSystemName": "RN-SC-41020-HID_SVOS7.3-Gsd",
            "poolId": "17",
            "poolName": "test-pool"
            "label": "100-41176_41180129",
            "size": 1073741824,
            "usedCapacity": 0,
            "availableCapacity": 1073741824,
            "utilization": 0,
            "attributes": [
                "THIN"
            ],
            "status": "NORMAL",
            "type": "THIN",
            "portIds": [
                "CL1-E",
                "CL3-F"
            ],
            "hostGroupNames": [
                "DocServer",
                "windows16"
            ],
            "luns": [
                1,
                2
            ],
            "numberOfLunPaths": 2,
            "attachedVolumeServerSummary": [
                {
                    "serverId": 2,
                    "serverName": "DocServer",
                    "paths": [
                        {
                            "storagePortId": "CL7-A",
                            "storageSystemId": "41020",
                            "lun": 1,
                            "name": "ESX_6524",
                            "hostMode": "VMWARE",
                            "wwns": [
                                "5000000000000001"
                            ],
                            "hostModeOptions": [],
                            "iscsiTargetInformation": null,
                        }
                    ]
                }
            ],
            "dataProtectionSummary": {
                "replicationType": [],
                "volumeType": [
```

```
                    "UNPROTECTED"
                ],
                "replicationGroupIdMap": {},
                "hasFailures": false,
                "secondaryVolumeCount": 0,
                "secondaryVolumeFailures": 0
            },
            "gadSummary": {
                "vsmId": "7",
                "virtualLdevId": "2657",
                "volumeType": "ACTIVE_PRIMARY",
                "pairStatus": "PAIR",
                "consistencyId": 15,
                "mirrors" : [
                    {
                        "mirrorId": 0,
                        "volumeType": "ACTIVE_SECONDARY",
                        "pairStatus": "PAIR",
                        "consistencyId": 15
                    },
                    {
                        "mirrorId": 1,
                        "volumeType": "ACTIVE_PRIMARY",
                        "pairStatus": "COPY",
                        "consistencyId": 17
                    }
                    ...,
                ]
            },
            "serverGroupIds": [1],
            "compressionAcceleration": "ENABLED",
            "commandDevice": {
                "securityEnabled": true,
                "userAuthenticationEnabled": false,
                "deviceGroupSettingEnabled": false
            }
        },
    ],
    "total": ,
    "nextToken": ""
}
```


Creating a server group

You can create a new server group.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/server-groups
```

Request structure

```
{
   "serverGroupName":"",
   "description":"",
   "serverIds":[]
 }
```

Parameter	Required	Type	Description
description	No	String	Server group description.
serverIds	Yes	List	List of server IDs that belong to this server group. Server ID type is Integer. All servers in a single server group must use the same protocol.
serverGroupName	Yes	String	Name of the server group.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
```

```
        {
           "rel": "_self",
           "href": "/v1/jobs/jobId"
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Parameter	Type	Description
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   "serverGroupName":"TWserverGroupofThree",
   "description":"a cluster for application VMs",
   "serverIds":[1, 4, 3]
 }
```

Example request

```
POST https://172.17.64.115/v1/compute/server-groups/
```

Example response

```
{
    "jobId": "5df76ea2-445b-4a32-9939-1967ed67be78",
```

```
    "title": {
        "text": "Creating a server group TWserverGroupofThree",
        "messageCode": "CreateServerGroupJobTitleMessage",
        "parameters": {
            "serverGroupName": "TWserverGroupofThree"
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1559339466700,
    "endDate": null,
    "parentJobId": null,
    "reports": [],
    "links": [
        {
            "rel": "_self",
            "href": "/v1/jobs/5df76ea2-445b-4a32-9939-1967ed67be78"
        }
    ],
    "tags": [
        {
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Updating a server group

You can update a server group name and description.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/server-groups/serverGroupId
```

Request structure

```
{
   "serverGroupName":"",
   "description":""
}
```

Parameter	Required	Type	Description
description	No	String	Server group description.

Parameter	Required	Type	Description
serverGroup Name	No	String	Updated name of the server group.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.

Parameter	Type	Description
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   "serverGroupName":"NewServerName",
   "description":"a description for application VMs",
 }
```

Example request

```
POST https://172.17.64.115/v1/compute/server-groups/1
```

Example response

```
{
    "jobId": "84ec8cf2-d35a-4286-9cb4-d98f69ec1266",
    "title": {
        "text": "Updating the server group 4",
        "messageCode": "UpdateServerGroupJobTitleMessage",
        "parameters": {
            "serverGroupId": 4
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1559342491261,
    "endDate": null,
    "parentJobId": null,
    "reports": [],
```

```
    "links": [
        {
            "rel": "_self",
            "href": "/v1/jobs/84ec8cf2-d35a-4286-9cb4-d98f69ec1266"
        }
    ],
    "tags": [
        {
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Adding servers to a server group

You can add servers to a server group.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/server-groups/serverGroupId/add-servers
```

Request structure

```
{
   "serverIds":[]
 }
```

Parameter	Required	Type	Description
serverIds	Yes	List	List of server IDs to add to this server group. Server ID type is Integer. All servers in a single server group must use the same protocol.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
```

```
      "messageCode": "",
      "parameters":
       {
       }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   "serverIds":[3]
 }
```

Example request

```
POST https://172.17.64.115/v1/compute/server-groups/4/add-servers
```

Example response

```
{
    "jobId": "cd0d01da-5da7-4c52-8efd-b10054f6236c",
    "title": {
        "text": "Adding servers 3 to the server group 4",
        "messageCode": "AddServersToServerGroupJobTitleMessage",
        "parameters": {
            "serverIdList": "3",
            "serverGroupId": 4
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1559343194536,
    "endDate": null,
    "parentJobId": null,
    "reports": [],
    "links": [
        {
            "rel": "_self",
            "href": "/v1/jobs/cd0d01da-5da7-4c52-8efd-b10054f6236c"
        }
    ],
    "tags": [
        {
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Deleting a server group

You can delete a server group.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/compute/server-groups/serverGroupId
```

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
DELETE https://172.17.64.115/v1/compute/server-groups/1
```

Example response


```
{
    "jobId": "66388bf8-f2d2-4bd3-8eaf-8f0afbf03d32",
    "title": {
        "text": "Deleting the server group 1",
        "messageCode": "DeleteServerGroupJobTitleMessage",
        "parameters": {
            "serverGroupId": 1
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1559337235525,
    "endDate": null,
    "parentJobId": null,
    "reports": [],
    "links": [
        {
            "rel": "_self",
            "href": "/v1/jobs/66388bf8-f2d2-4bd3-8eaf-8f0afbf03d32"
        }
    ],
    "tags": [
        {
```

```
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Removing multiple servers from a server group

You can remove servers from a server group.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/server-groups/serverGroupId/remove-servers
```

Request structure

```
{
   "serverIds":[]
 }
```

Parameter	Required	Type	Description
serverIds	Yes	List	List of server IDs to remove from this server group. Server ID type is Integer.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
```

```
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
   "serverIds":[3]
 }
```

Example request

```
POST https://172.17.64.115/v1/compute/server-groups/4/remove-servers
```

Example response

```
{
    "jobId": "4ede4ac0-9bf1-4838-8f15-c01bb1511492",
    "title": {
        "text": "Removing servers 3 from the server group 4",
        "messageCode": "RemoveServersFromServerGroupJobTitleMessage",
        "parameters": {
            "serverIdList": "3",
            "serverGroupId": 4
        }
    },
    "user": "sysadmin",
    "status": "IN_PROGRESS",
    "startDate": 1559341234515,
    "endDate": null,
    "parentJobId": null,
    "reports": [],
    "links": [
        {
            "rel": "_self",
            "href": "/v1/jobs/4ede4ac0-9bf1-4838-8f15-c01bb1511492"
        }
    ],
    "tags": [
        {
            "tag": "rainier"
        }
    ],
    "isSystem": false
}
```

Use existing LUN paths

HTTP request syntax (URI)

```
POST https://ipAddress/v1
/compute/servers/create-similar-paths
```

Request structure

```
{
  "storageSystemId": "",
  "referenceServerId": ,
  "servers": [
    {
      "serverId": ,
```

```
      "paths": [
        {
          "serverWwns": [""],
          "iscsiInitiatorNames": [""],
          "storagePortIds": [""]
        },
        ...
      ]
    },
    ...
  ]
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the storage system.
referenceServerId	Yes	Integer	ID of the server to copy path connection information from.
serverId	Yes	Integer	ID of the server to create paths for.
serverWwns	No*	List of Strings	The WWNs of the server to create paths for.
iscsiInitiatorNames	No*	List of Strings	The iSCSI name of a server to create paths for.
storagePortIds	Yes	List of Strings	Ids of the storage port to create paths for.
*: This is either serverWwns or iscsiInitiatorNames but not both.			

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
```

```
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/compute/create-similar-paths
```

Example request

```
   // For FC servers
   {
  "storageSystemId": "410209",
  "referenceServerId": 1,
  "servers": [
    {
      "serverId": 2,
      "paths": [
        {
          "serverWwns": [ "5000000000000001", "5000000000000002" ],
          "storagePortIds": [ "CL1-A", "CL2-A" ]
        }
      ]
    }
  ]
}
// For iSCSI servers
{
  "storageSystemId": "410309",
  "referenceServerId": 3,
  "servers": [
    {
      "serverId": 4,
      "paths": [
        {
          "iscsiInitiatorNames": [
            "iqn.1991-05.com.example:example"
          ],
          "storagePortIds": [ "CL1-B", "CL2-B" ]
        }
      ]
    }
  ]
}
```

Chapter 5: Volume Migration resources

This module describes the Volume Migration operations.

Request	Method	URI	Role
Attaching volumes to storage (on page 621)	POST	/v1/volume-manager/attach-to-storage	Storage administrator System administrator Security administrator
Creating external volumes (on page 626)	POST	/v1/external-volume-manager/create	Storage administrator
Deleting external volumes (on page 634)	POST	/v1/external-volume-manager/delete	Storage administrator
Discovering external devices (on page 638)	POST	/v1/storage-systems/*storageSystemId*/external-devices/discover	Storage administrator
Listing external devices (on page 641)	GET	/v1/storage-systems/*storageSystemId*/external-devices	Storage administrator System administrator Security administrator
Listing external volumes (on page 643)	GET	/v1/storage-systems/*storageSystemId*/external-volumes	Storage administrator System administrator Security administrator
Getting a specific external volume (on page 649)	GET	/v1/storage-systems/*storageSystemId*/external-volumes/volumeId	Storage administrator

Request	Method	URI	Role
			System administrator Security administrator
Detaching volumes from storage (on page 655)	POST	/v1/storage-systems/*storageSystemId*/volumes/*volumeId*/detach-from-storage	Storage administrator System administrator Security administrator
Listing migration tasks (on page 658)	GET	/v1/storage-systems/*storageSystemId*/migration-tasks	Storage administrator System administrator Security administrator
Getting a specific migration task (on page 660)	GET	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*	Storage administrator System administrator Security administrator
Creating a migration task (on page 663)	POST	/v1/storage-systems/*storageSystemId*/migration-tasks	Storage administrator
Interrupting a running migration job (on page 667)	POST	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*/interrupt	Storage administrator
Updating a migration task (on page 670)	POST	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*	Storage administrator
Deleting a migration task (on page 675)	DELETE	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*	Storage administrator
Getting migration pairs (on page 678)	GET	/v1/storage-systems/*storageSystemId*/migration-pairs?	Storage administrator

Request	Method	URI	Role
		q=migrationTaskId:*migrationTaskId*	System administrator Security administrator

Attaching volumes to storage

You can set up connections between volumes on the source storage system and the target storage system according to FC or iSCSI protocols in Ops Center Administrator during Volume Migration.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/volume-manager/attach-to-storage
```

Request structure

The request body structure is shown below:

```
{
    "sourceStorageSystemId": "",
    "targetStorageSystemId" : "",
    "chapUser":
                 {
                    "userName" : "",
                    "secret" : ""
                 }
     "mutualUser" :
                 {
                    "userName" : "",
                    "secret" : ""
                 }
     "portsInfo" : [
                {
                    "srcPort" : "",
                    "targetPort": ""

                },
                {
                    "srcPort" : "",
                    "targetWwn" : "",
                    "targetPort": null
                }
    ],
    "volumes" : [
```

```
                {
                    "lun" : , (optional)
                    "volumeId" : 62
                }
    ]
}
```

Parameter	Required	Type	Description
sourceStorageSystemId	Yes	String	ID of the source storage system.
targetStorageSystemId	Yes	String	ID of the target storage system.
chapUser	No	Object	Information about the CHAP user.
userName	No	String	User name.
secret	No	String	Secret of the user.
mutualUser	No	Object	Information about the mutual user.
portsInfo	Yes	List	Information about the ports.
srcPort	Yes	String	Source port.
targetPort	Yes	String	Target port.
volumes	Yes	List	List of logical units.
lun	No	Integer	Logical unit.
volumeId	Yes	Integer	Volume ID.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
```

```
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).

Parameter	Type	Description
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP Name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified URI is not valid or the resource does not exist.

Example request

```
{
    "sourceStorageSystemId": "420209",
    "targetStorageSystemId": "430209",
  "portsInfo": [
    {
      "srcPort": "CL1-A",
      "targetPort": "CL1-A"
    },
    {
      "srcPort": "CL1-D",
      "targetPort": "CL1-C"
    }
  ],
  "volumes": [
    {
      "volumeId": 138
    }
  ]
}
```

Example response

```
 {
  "jobId": "660f1c51-2e0b-4fef-8b25-e68486ce419f",
  "title": {
    "text": "Attach volumes to servers.",
    "messageCode": "AttachVolumesToServersJobTitleMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "SUCCESS",
  "startDate": 1527037563303,
  "endDate": 1527037838400,
  "parentJobId": null,
  "reports": [
    {
        "reportMessage": {
        "text": "Storage System 410209. Attaching volumes with IDs: [113] to servers
with IDs: [13].",
        "messageCode": "AttachVolumesToServersPreStepMessage",
        "parameters": {
          "servers": [
            13
          ],
          "storageSystemId": "410209",
          "volumes": [
            113
```

```
          ]
        }
      },
      "severity": "INFORMATION",
      "creationDate": 1527037563355
    },
    {
      "reportMessage": {
        "text": "Storage System 410209. Completed attaching volumes with IDs: [113]
to servers with IDs: [13].",
        "messageCode": "AttachVolumesToServersPostStepMessage",
        "parameters": {
          "servers": [
            13
          ],
          "storageSystemId": "410209",
          "volumes": [
            113
          ]
        }
      },
      "severity": "INFORMATION",
      "creationDate": 1527037838345
    }
  ],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/660f1c51-2e0b-4fef-8b25-e68486ce419f"
    }
  ],
  "tags": [
    {
      "tag": "rainier"
    }
  ],
  "isSystem": false
}
```


Creating external volumes

You can create external volumes in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/external-volume-manager/create
```

Request structure

The request body structure is shown below:

```
{
 "storageSystemId": "",
 "externalDevices": [
   {
     "externalDeviceId": ""
     "externalPaths": [
       {
         "portId": "",
         "externalWwn": "",
         "externalIscsiInformation": [
           {
             "iscsiName": "",
             "ipAddress": ""
           }
         ],
         "externalLun": ""
       }
     ]
   }
 ],
 "attachExternalVolumeToServer":
 {
   "intendedImageType": "",
   "hostModeOptions": [],
   "enableZoning": ,
   "enableLunUnification": ,
   "forceOverwriteChapSecret": ,
   "shareHgByAllServers": ,
   "ports":[
   {
     "serverId": ,
     "serverWwns": [""],
     "iscsiInitiatorNames": [""],
     "portIds": [""]
   }]
 }
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the storage system.
externalDevices	Yes	Object	List of the available external devices.

Parameter	Required	Type	Description
externalDeviceId	Yes	String	ID of the external device.
externalPaths	No	Object	List of the available external paths. If you do not specify a path, the method automatically selects an available path.
portId	Yes	String	ID of the storage port of the internal storage system.
externalWwn	Yes	String	WWN of the storage port of the external storage system.
externalIscsiInformation	Yes	Object	iSCSI information of the storage port of the external storage system.
iscsiName	Yes	String	iSCSI target name of the storage port of the external storage system.
ipAddress	Yes	String	IP address of the storage port of the external storage system.
externalLun	Yes	Integer	ID of the LUN.
attachExternalVolumeToServer	No	Object	Information about the external volumes attached to the server.
intendedImageType	No	String	Host mode set for the volume.

Parameter	Required	Type	Description
hostModeOptions	No	List	Host mode options set for the volume. Default values are automatically set in case the server OS is either VMWARE_EX or WIN_EX. The valid value is a host mode options number without any prefix, or null for auto select.
enableZoning	No	Boolean	Whether or not zones are created on the SAN fabric. If enableZoning is set to false, then zoning is disabled. The default value is false. This is valid only for FC servers and must be NULL for iSCSI servers.
enableLunUnification	No	Boolean	Whether or not Lun (logical unit number) assignments for volumes that span multiple servers are consistent.
forceOverwriteChap Secret	No	Boolean	Whether or not Hitachi Ops Center Administrator overwrites the CHAP user secret when there is any port that exists with the same CHAP user name. The default value is FALSE.

Parameter	Required	Type	Description
shareHgByAllServers	No	Boolean	Whether to share host groups among servers. The default setting is False, which does not allow sharing. Specify True to share host groups among servers.
serverId	Yes	Integer	ID of the server.
serverWwns	No	List	The WWNs for a server. If a WWN is not specified, then all WWNs associated with the server are used. You must specify either serverWwns or iscsiInitiatorNames.
iscsiInitiatorNames	No	List	The iSCSI names of the server to attach. If iscsiInitiatorNames is not specified, then all iSCSI names of the server are used to attach. You must specify either serverWwns or iscsiInitiatorNames but not both.
portIds	No	List	Port IDs.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
```

```
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).

Parameter	Type	Description
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
          "storageSystemId": "410209",
"externalDevices": [
  {
           "externalDeviceId": " XYZ 50405F7702BC",
    "externalPaths": [
               {
                   "portId": "CL1-E",
                   "externalWwn": "50060E80125F7700",
                   "externalIscsiInformation": null,
                   "externalLun": 12
               },
               {
                   "portId": "CL1-E",
                   "externalWwn": "50060E80125F7710",
                   "externalIscsiInformation": null,
                   "externalLun": 12
               }
    ]
  }
],
"attachExternalVolumeToServer":
{
  "intendedImageType": "LINUX",
  "hostModeOptions": [ ],
  "enableZoning": false,
  "enableLunUnification": false,
  "forceOverwriteChapSecret": null,
  "shareHgByAllServers": true,
  "ports" :[
  {
    "serverId": 1,
    "serverWwns": ["50:00:00:11:22:33:44:55"],
    "iscsiInitiatorNames": null,
    "portIds": ["CL3-E"]
  }]
 }
}
```

External paths auto select

```
{
          "storageSystemId": "410209",
"externalDevices": [
  {
    "externalDeviceId": "ExampleCompany 50405F7701DC",
    "externalPaths": []
  }
],
```

```
"attachExternalVolumeToServer":
{
  "intendedImageType": "LINUX",
  "hostModeOptions": [ ],
  "enableZoning": false,
  "enableLunUnification": false,
  "forceOverwriteChapSecret": null,
  "ports" :[
  {
    "serverId": 1,
    "serverWwns": ["50:00:00:11:22:33:44:55"],
    "iscsiInitiatorNames": null,
    "portIds": ["CL3-E"]
  }]
}
}
```

Volume migration without attaching external volumes:

```
{
 "storageSystemId": "410209",
 "externalDevices": [
  {
    "externalDeviceId": "ExampleCompany 50405F7701DC",
    "externalPaths": []
  }
 ],
}
```

Deleting external volumes

You can delete external volumes in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/external-volume-manager/delete
```

Request structure

```
{
  "storageSystemId": "",
  "volumeIds": [],
  "cleanupZones":
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the storage system.
volumeIds	Yes	List	List of volume IDs. Volume ID type is long.
cleanupZones	No	Boolean	Remove zone for the Fibre Channel, if applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP Name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified URI is not valid or the resource does not exist.

Example request

Example response


```
{
 "jobId": "e15119d7-2ea0-4ffe-9c28-18f905df5c687",
 "title": {
    "text": "Deleting Volume",
    "messageCode": "DeletingExternalVolumeJobTitleMessage",
    "parameters": {}
 },
 "user": "sysadmin",
 "status": "IN_PROGRESS",
 "startDate": 1510816371239,
 "endDate": null,
 "parentJobId": null,
 "reports": [],
 "links": [
    {
       "rel": "_self",
       "href": "/v1/jobs/e15119d7-2ea0-4ffe-9c28-18f905df5c687"
    }
 ],
 "tags": [
    {
       "tag": "rainier"
```

```
    }
 ],
 "isSystem": false
}
```

Discovering external devices

You can update the external device cache of the specified port in Ops Center Administrator. If you are updating a different port between the last time and this time, the external device cache of the previous port is not changed.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/external-devices/discover
```

Request structure

The request body structure is shown below:

```
{
 "storagePortIds": [ "" ]
}
```

Parameter	Required	Type	Description
storagePortIds	Yes	List	The IDs of the storage port.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
```

```
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains invalid request payload, or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "storagePortIds": [ "CL1-A", "CL2-A" ]
}
```

Listing external devices

You can retrieve external devices in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/external-devices
```

Request structure

Not applicable.

Response structure

The request body structure is shown below:

```
{
  "resources":[{
  {
    "storageSystemId": "",
    "externalDeviceId": "",
    "size": ,
    "productId": ,
    "externalStorageSystemInformation":
    {
      "serialNumber": "",
      "vendorId": "",
      "productId": ""
    },
    "externalPaths": [{
      "portId": "",
      "externalWwn": "",
      "externalIscsiInformation"
      {
        "iscsiName": "",
        "ipAddress": ""
      },
      "externalLun":
    }],
    "mapped": ""
  }
 }]
 "total": ,
 "nextToken":
}
```

Parameter	Type	Description
storageSystemId	String	ID of the storage system.
externalDeviceId	String	ID of the external device.
size	Long	Size of the volume, in bytes.
productId	String	Product name of the external device.
externalStorageSystemInformation	Object	External storage system of the external device.
serialNumber	String	ID of the external storage system.
vendorId	String	Vendor name of the external storage system.
productId	String	Product name of the external storage system.
externalPaths	Object	List of the available external paths.
portId	String	ID of the storage port of the internal storage system.
externalWwn	String	WWN of the storage port of the external storage system.
externalIscsiInformation	Object	iSCSI information of the storage port of the external storage system.
iscsiName	String	iSCSI name of the storage port of the external storage system.
ipAddress	String	IP address of the storage port of the external storage system.
externalLun	String	ID of the LUN of the storage port of the external storage system.
mapped	Boolean	Whether the external device has already been mapped to an external parity group.

Return codes

Example response

```
{
   "resources": [
       {
           "storageSystemId": "410209",
           "externalDeviceId": "XYZ 50405F7702BC",
           "size": 1073741824,
           "productId": "OPEN-V",
           "externalStorageSystemInformation": {
               "serialNumber": "424439",
               "vendorId": "XYZ",
               "productId": "VSP Gx00"
           },
           "externalPaths": [
               {
                   "portId": "CL1-E",
                   "externalWwn": "50060E80125F7700",
                   "externalIscsiInformation": null,
                   "externalLun": 12
               },
               {
                   "portId": "CL1-E",
                   "externalWwn": "50060E80125F7710",
                   "externalIscsiInformation": null,
                   "externalLun": 12
               }
           ],
           "mapped": false
       },
   ],
   "total": 1,
   "nextToken": null
}
```

Listing external volumes

You can retrieve external volumes for Volume Migration in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/external-volumes
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources": [
        {
            "volumeId": ,
            "mappedVolumeId": ,
            "externalParityGroupId": "",
            "storageSystemId": "",
            "poolId": ,
            "label": "",
            "size": ,
            "usedCapacity": ,
            "availableCapacity": ,
            "utilization": ,
            "status": "",
            "type": "",
            "provisioningStatus": "",
            "attachedVolumeServerSummary":
            {
              [
                {
                  "serverId": ,
                  "paths":
                  [
                    {
                      "storagePortId": "",
                      "storageSystemId": "",
                      "lun": ,
                      "name": "",
                      "hostMode": "",
                      "wwns": [],
                      "hostModeOptions": [],
                      "preferredPath": ,
                      "iscsiTargetInformation": {
                        "iscsiTargetName": "",
                        "iscsiInitiatorNames": [""],
                        "mutualChapUser": "",
                        "chapUsers": [""],
                        "authenticationMode": "",
                        "authenticationDirection": ""
                      }
                    }
                  ]
                }
              ]
            },
            "migrationSummary": {
                "ownerTaskId": ,
```

```
                "migrationType": ""
            },
            "externalStorageSystemId": "",
            "externalStorageVendor": "",
            "externalStorageProduct": ""
        }
    ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
mappedVolumeId	Long	ID of the mapped volume.
externalParityGroupId	String	ID of the external parity group.
storageSystemId	String	ID of the storage system.
poolId	String	ID of the pool from which the resource is allocated.
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage=(usedCapacity/size)*100.
status	String	Volume status. Valid values: ▪ `NORMAL` ▪ `BLOCKED` ▪ `BUSY`

Parameter	Type	Description
		▪ `UNKNOWN` ▪ `NONE`
type	String	Type of pool from which the volume is allocated. Valid value: ▪ `EXTERNAL`
provisioningStatus	String	Provisioning status of a volume. Valid values: ▪ `ATTACHED` ▪ `UNATTACHED` ▪ `UNMANAGED`
attachedVolumeServerSummary	List	Volume provisioning summary details.
serverId	Integer	ID of the server.
paths	List	Paths that exist on the volume.
storagePortId	String	ID of the storage port.
storageSystemId	String	ID of the storage system.
lun	Integer	ID of the LUN.
name	String	Name of the resource.
hostMode	String	Host mode set for the volume.
wwns	List	List of WWNs of connected hosts. NULL for iSCSI path.
hostModeOptions	List of Integers	Host mode options for the volume.
preferredPath	Boolean	Whether the LU path (host group) is preferred or not.
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
iscsiTargetName	String	Displays the iSCSI name of the iSCSI target.

Parameter	Type	Description
iscsiInitiatorNames	String	Displays the list of iSCSI names of the host bus adapters registered in the iSCSI target formatted in IQN or EUI format.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target.
chapUsers	String	Displays the list of CHAP users of the host bus adapters registered in the iSCSI target.
authenticationMode	Enum	CHAP authentication mode for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ CHAP: CHAP authentication mode. ▪ NONE: No authentication mode. ▪ BOTH: Both CHAP authentication and no authentication mode.
authenticationDirection	Enum	CHAP authentication direction for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ ONEWAY: The iSCSI target authenticates the iSCSI initiator. ▪ MUTUAL: The iSCSI target and the iSCSI initiator authenticate each other.
migrationSummary	Object	List of migration attributes for the volume.
ownerTaskId	String	The ID of the owner migration task.

Parameter	Type	Description
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE
externalStorageSystemId	String	The ID of the external storage system.
externalStorageVendor	String	The vendor name of the external storage system.
externalStorageProduct	String	The model name of the external storage system.

Return codes

Status Code	HTTP Name	Description
200	OK	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
GET https://10.76.48.147/v1/storage-systems/410209/external-volumes
```

Example response

```
{
    "resources":[
        {
            "volumeId":87,
            "mappedVolumeId":70,
            "externalDeviceId":"XYZ 50402904033B",
            "externalParityGroupId":"1-5",
            "storageSystemId":"410209",
            "poolId":"7",
            "label":"",
```

```
            "size":4398046511104,
            "usedCapacity":4398426095616,
            "availableCapacity":0,
            "utilization":100,
            "status":"NORMAL",
            "type":"EXTERNAL",
            "provisioningStatus":"UNMANAGED",
            "attachedVolumeServerSummary":[
                {
                    "serverId":null,
                    "paths":[
                        {
                            "storagePortId":"CL1-F",
                            "storageSystemId":"410209",
                            "lun":1,
                            "hostGroupId":"CL1-F-2",
                            "name":"Win-9121_001",
                            "hostMode":"WIN_EX",
                            "wwns":["100000053326F7CC"
                            ],
                            "hostModeOptions":[40,
                                73
                            ],
                            "iscsiTargetInformation":null,
                            "preferredPath":null
                        }
                    ]
                }
            ],
            "migrationSummary":
            {
                "ownerTaskId":null,
                "migrationType":"NONE"
            }
            "externalStorageSystemId":"412345",
            "externalStorageVendor":"Hitachi",
            "externalStorageProduct":"VSP Gx00"

        },
        ...
    "total":11,
    "nextToken":null
}
```


Getting a specific external volume

You can retrieve a specific external volume for Volume Migration in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/external-volumes/volumeId
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "volumeId": ,
    "mappedVolumeId": ,
    "externalParityGroupId": "",
    "storageSystemId": "",
    "poolId": ,
    "label": "",
    "size": ,
    "usedCapacity": ,
    "availableCapacity": ,
    "utilization": ,
    "status": "",
    "type": "E",
    "provisioningStatus": "",
    "attachedVolumeServerSummary":
    {
      [
        {
          "serverId": ,
          "paths":
          [
            {
              "storagePortId": "",
              "storageSystemId": "",
              "lun": ,
              "name": "",
              "hostMode": "",
              "wwns": [],
              "hostModeOptions": [],
              "preferredPath": ,
              "iscsiTargetInformation": {
                "iscsiTargetName": "",
                "iscsiInitiatorNames": [""],
                "mutualChapUser": "",
                "chapUsers": [""],
                "authenticationMode": "",
                "authenticationDirection": ""
              }
            }
```

```
                ]
            }
        ]
    },
    "migrationSummary": {
        "ownerTaskId": ,
        "migrationType": ""
    }
    "externalStorageSystemId": "",
    "externalStorageVendor": "",
    "externalStorageProduct": ""
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
mappedVolumeId	Long	Mapped volume ID.
externalParityGroupId	String	ID of the external parity group.
storageSystemId	String	ID of the storage system.
poolId	String	ID of the pool from which the resource is allocated.
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage=(usedCapacity/size)*100.
status	String	Volume status. Valid values: ▪ `NORMAL` ▪ `BLOCKED` ▪ `BUSY`

Parameter	Type	Description
		▪ `UNKNOWN` ▪ `NONE`
type	String	Type of pool from which the volume is allocated. Valid value: ▪ `EXTERNAL`
provisioningStatus	String	Provisioning status of a volume. Valid values: ▪ `ATTACHED` ▪ `UNATTACHED` ▪ `UNMANAGED`
attachedVolumeServerSummary	List	Volume provisioning summary details.
serverId	Integer	ID of the server.
paths	List	Paths that exist on the volume.
storagePortId	String	ID of the storage port.
storageSystemId	String	ID of the storage system.
lun	Integer	ID of the LUN.
name	String	Name of the resource.
hostMode	String	Host mode set for the volume.
wwns	List	List of WWNs of connected hosts. NULL for iSCSI path.
hostModeOptions	List of Integers	Host mode options for the volume.
preferredPath	Boolean	Whether the LU path (host group) is preferred or not.
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
iscsiTargetName	String	Displays the iSCSI name of the iSCSI target.

Parameter	Type	Description
iscsiInitiatorNames	String	Displays the list of iSCSI names of the host bus adapters registered in the iSCSI target formatted in IQN or EUI format.
mutualChapUser	String	Displays the CHAP user name of the iSCSI target.
chapUsers	String	Displays the list of CHAP users of the host bus adapters registered in the iSCSI target.
authenticationMode	Enum	CHAP authentication mode for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ CHAP: CHAP authentication mode. ▪ NONE: No authentication mode. ▪ BOTH: Both CHAP authentication and no authentication mode.
authenticationDirection	Enum	CHAP authentication direction for the iSCSI target. This information is obtained in the case of an iSCSI port. ▪ ONEWAY: The iSCSI target authenticates the iSCSI initiator. ▪ MUTUAL: The iSCSI target and the iSCSI initiator authenticate each other.
migrationSummary	Object	List of migration attributes for the volume.
ownerTaskId	String	The ID of the owner migration task.

Parameter	Type	Description
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE
externalStorageSystemId	String	The ID of the external storage system.
externalStorageVendor	String	The vendor name of the external storage system.
externalStorageProduct	String	The model name of the external storage system.

Return codes

Status Code	HTTP Name	Description
200	OK	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response

```
{
    "volumeId":87,
    "mappedVolumeId":70,
    "externalDeviceId":"XYZ 50402904033B",
    "externalParityGroupId":"1-5",
    "storageSystemId":"410209",
    "poolId":"7",
    "label":"",
    "size":4398046511104,
    "usedCapacity":4398426095616,
    "availableCapacity":0,
    "utilization":100,
    "status":"NORMAL",
    "type":"EXTERNAL",
```

```
            "provisioningStatus":"UNMANAGED",
            "attachedVolumeServerSummary":[
                {
                    "serverId":null,
                    "paths":[
                        {
                            "storagePortId":"CL1-F",
                            "storageSystemId":"410209",
                            "lun":1,
                            "hostGroupId":"CL1-F-2",
                            "name":"Win-9121_001",
                            "hostMode":"WIN_EX",
                            "wwns":["100000053326F7CC"
                            ],
                            "hostModeOptions":
                            [40,
                                73
                            ],
                            "iscsiTargetInformation":null,
                            "preferredPath":null
                        }
                    ]
                }
            ],
            "migrationSummary":
            {
                "ownerTaskId":null,
                "migrationType":"NONE"
            }
            "externalStorageSystemId":"412345",
            "externalStorageVendor":"Hitachi",
            "externalStorageProduct":"VSP Gx00"
    }
```


Detaching volumes from storage

This operation deletes the paths from source storage system to target storage system in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/volumes/volumeId/detach-from-storage
```

Request structure

The request body structure is shown below:

```
{
  targetStorageSystemId : ""
}
```

Parameter	Required	Type	Description
targetStorageSystemId	Yes	String	ID of the target storage system.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
```

```
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP Name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified URI is not valid or the resource does not exist.

Listing migration tasks

You can retrieve a list of migration tasks for Volume Migration in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/migration-tasks
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
"resources": [
  {
   "migrationTaskId": "",
   "migrationTaskName": "",
   "comments": "",
   "jobId": "",
   "schedule": {
     "datetime": ""
```

```
    },
    "migrationPairCount": ,
    "volumeDeletion": ,
    "volumeShredding": ,
    "patterns": ["", ...]
   },
   ...
  ],
"total": ,
"nextToken":
}
```

Parameter	Type	Description
migrationTaskId	Integer	ID of the migration task.
migrationTaskName	String	Name of the migration task. Min=1, max=32 characters.
comments	String	Comment for the migration task. Min = 1, max = 255 characters.
jobId	String	ID of the corresponding migration job. This parameter is only available once the job is executed.
schedule	Object	Schedule of the migration job.
datetime	String	Scheduled date and time of the migration job to be executed (in ISO 8601 format).
migrationPairCount	Integer	Number of migration pairs defined in the task.
volumeDeletion	Boolean	Whether to delete source volumes after the migration is completed.
volumeShredding	Boolean	Whether to shred source volumes after the migration is completed.
patterns	List	List of the pattern strings used for shredding.

Return codes

Status Code	HTTP name	Description
200	OK	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response

```
{
    "resources": [
        {
            "migrationTaskId": 1,
            "migrationTaskName": "MigrationTest",
            "comments": null,
            "jobId": null,
            "schedule": {
                "datetime": "2018-01-01T00:00:00.000Z"
            },
            "migrationPairCount": 1,
            "volumeDeletion": true,
            "volumeShredding": false,
        }
    ],
    "total": 1,
    "nextToken": null
}
```

Getting a specific migration task

You can retrieve a specific migration task for Volume Migration in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/migration-tasks/
migrationTaskId
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "migrationTaskId": "",
  "migrationTaskName": "",
  "comments": "",
  "jobId": "",
  "schedule": {
    "datetime": ""
  },
  "migrationPairCount":
  "volumeDeletion": ,
  "volumeShredding": ,
  "patterns": ["", ...]
}
```

Parameter	Type	Description
migrationTaskId	Integer	ID of the migration task.
migrationTaskName	String	Name of the migration task. Min=1, max=32 characters.
comments	String	Comment for the migration task. Min=1, max=255 characters.
jobId	String	ID of the corresponding migration job. This parameter is only available once the job is executed.
schedule	Object	Schedule of the migration job.
datetime	String	Scheduled date and time of the migration job to be executed (in ISO 8601 format).
migrationPairCount	Integer	Number of migration pairs defined in the task.
volumeDeletion	Boolean	Whether to delete source volumes after the migration is completed.

Parameter	Type	Description
volumeShredding	Boolean	Whether to shred source volumes after the migration is completed.
patterns	List	List of the pattern strings used for shredding.

Return codes

Status Code	HTTP name	Description
200	OK	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response

```
{
    "resources": [
        {
            "migrationTaskId": 1,
            "migrationTaskName": "MigrationTest",
            "comments": null,
            "jobId": null,
            "schedule": {
                "datetime": "2018-01-01T00:00:00.000Z"
            },
            "migrationPairCount": 1,
            "volumeDeletion": true,
            "volumeShredding": false,
        }
    ],
    "total": 1,
    "nextToken": null
}
```

Creating a migration task

You can create a migration task for Volume Migration in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/migration-tasks
```

Request structure

The request body structure is shown below:

```
{
  "migrationTaskName": "",
  "comments": "",
  "schedule": {
    "datetime": ""
  },
  "volumeIdRange":{
      "from":"",
      "to":"",
  },
  "targetPoolId":,
  "sourceVolumeIds": [, ...],
  "dkcDataSavingType": ""
  "volumeDeletion": ,
  "volumeShredding": ,
  "patterns": ["", ...]
}
```

Parameter	Required	Type	Description
migrationTaskName	Yes	String	Name of the migration task. Min=1, max=32 characters.
comments	No	String	Comment for the migration task. Min=1, max=255 characters.
schedule	No	Object	Schedule information of the migration job, such as: ▪ datetime: Scheduled date and time of the migration job to be executed in ISO 8601 format (YYYY-MM-DDThh:mm:ssZ). If executing immediately, specify null.
volumeIdRange	No	Integer	A volume ID range to assign as migration target volumes.

Parameter	Required	Type	Description
targetPoolId	Yes	Integer	ID of the storage pool to be migrated.
sourceVolumeIds	Yes	List	List of up to 300 migration source volume IDs.
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are AUTO, NONE, COMPRESSION and DEDUPLICATION_AND_COMPRESSION. AUTO sets the target volume to the same setting as the source volume. NONE results in no capacity saving setting on the target volume. The deduplication setting of the target storage pool is automatically enabled if DEDUPLICATION_AND_COMPRESSION is selected, and if it is the first time a storage pool creates volumes using deduplication and compression. COMPRESSION and DEDUPLICATION_AND_COMPRESSION are not available for Snap pools. COMPRESSION and DEDUPLICATION_AND_COMPRESSION cannot be set for VSP 5000 series if the subscription limit of the pool is not unlimited. If the option is not set, Administrator selects type which is the same as the source volume. **Note:** If DEDUPLICATION_AND_COMPRESSION is enabled, the setting cannot later be changed to COMPRESSION only.
volumeDeletion	No	Boolean	Whether to delete source volumes after the migration is completed. The default is false.
VolumeShredding	No	Boolean	Whether to shred source volumes after the migration is completed. The default is false.

Parameter	Required	Type	Description
patterns	No	List	List of the pattern strings used for shredding. The maximum number of patterns is 7. If `patterns` is not specified and `volumeShredding` is set to true, basic shredding is done.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example request

```
 {
    "migrationTaskName": "DpPool_001",
    "comments": "",
    "schedule": {
        "datetime": "2020-11-07T13:18:38.331Z"
    },
    "volumeIdRange": {
        "from": 0,
        "to": 50000,
    },
    "targetPoolId": 1,
    "sourceVolumeIds": [1234, 5678],
    "dkcDataSavingType": "AUTO",
    "volumeDeletion": true
    "volumeShredding": false
}
```

Interrupting a running migration job

You can interrupt a running migration job in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/migration-tasks/
migrationTaskId/interrupt
```

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.

Parameter	Type	Description
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Updating a migration task

You can update a migration task for Volume Migration in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/migration-tasks/
migrationTaskId
```

Request structure

The request body structure is shown below:

```
{
  "migrationTaskName": "",
  "comments": "",
  "schedule": {
    "datetime": ""
},
  "volumeIdRange":{
    "from": "",
    "to": "",
},
  "targetPoolId":,
  "dkcDataSavingType": ""
  "volumeDeletion": ,
  "volumeShredding": ,
  "patterns": ["", ...]
```

```
}
```

Parameter	Required	Type	Description
migrationTaskName	No	String	Name of the migration task. Min=1, max=32 characters.
comments	No	String	Comment for the migration task. Min=1, max=255 characters.
schedule	No	Object	Schedule information for the migration job, such as: ▪ datetime: Scheduled date and time of the migration job to be executed in ISO 8601 format (YYYY-MM-DDThh:mm:ssZ). If executing immediately, specify null.
volumeIdRange	No	Integer	A volume ID range to assign as migration target volumes.
targetPoolId	No	Integer	ID of the target pool.
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are AUTO, NONE, COMPRESSION and DEDUPLICATION_AND_COMPRESSION. AUTO sets the target volume to the same setting as the source volume.

Parameter	Required	Type	Description
			NONE results in no capacity saving setting on the target volume. The deduplication setting of the target storage pool is automatically enabled if DEDUPLICATION_AND_COMPRESSION is selected, and if it is the first time a storage pool creates volumes using deduplication and compression. COMPRESSION and DEDUPLICATION_AND_COMPRESSION are not available for Snap pools. COMPRESSION and DEDUPLICATION_AND_COMPRESSION cannot be set for VSP 5000 series if the subscription limit of the pool is not unlimited. If the option is not set, Administrator selects type which is the same as the source volume. **Note:** If DEDUPLICATION_AND_COMPRESSION is enabled, the setting cannot later be changed to COMPRESSION only.

Parameter	Required	Type	Description
volumeDeletion	No	Boolean	Whether to delete source volumes after the migration is completed.
volumeShredding	No	Boolean	Whether to shred source volumes after the migration is completed.
patterns	No	List	List of the pattern strings used for shredding.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
```

```
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "migrationTaskName":"DpPool_001",
    "comments":"",
    "dkcDataSavingType":"AUTO",
    "schedule":{
      "datetime":"2020-11-07T13:18:38.331Z"
  },
    "volumeIdRange":{
      "from":0,
      "to":50000
  },
    "targetPoolId":1,
    "volumeDeletion": true,
    "volumeShredding": false,

}
```

Deleting a migration task

You can delete a migration task in Ops Center Administrator. There are two use cases for this method:

- After the job for the migration task is finished, you should delete the migration task in order to clean up the resource in Ops Center Administrator.
- If the migration task is scheduled for the future and the job has not started, you can cancel the job as well as cleaning up the resource in Ops Center Administrator.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/storage-systems/storageSystemId/migration-tasks/
migrationTaskId
```

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.

Parameter	Type	Description
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Getting migration pairs

You can retrieve a list of migration pairs for Volume Migration in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/migration-pairs?
q=migrationTaskId:migrationTaskId
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
 {
"migrationPairId": ,
"migrationTaskId": ,
"sourceVolumeId": ,
"sourcePoolId":,
"sourceExternalParityGroupId", ""
"targetVolumeId": ,
"targetPoolId": ,
"status": "",
"copyProgress":
"copyGroupName": "",
"dkcDataSavingType": ""
}
```

Parameter	Type	Description
migrationPairId	Integer	ID of the migration pair.
migrationTaskId	Integer	ID of the migration task.
sourceVolumeId	Long	ID of the migration source volume.
sourcePoolId	Integer	ID of the pool from which the migration source volume is allocated.
sourceExternalParityGroupId	String	ID of the external parity group from which the migration source volume is allocated.
targetVolumeId	Long	ID of the migration target volume.
targetPoolId	Integer	ID of the pool from which the migration target volume is allocated.
status	String	The status of the migration copy. Valid values: ▪ NOT_MIGRATED: Volume Migration has not started. ▪ MIGRATING: Volume Migration is in progress. ▪ MIGRATED: Volume Migration has completed. ▪ MIGRATED_POST_PROCESSING:Volume Migration has completed and post process is running.

Parameter	Type	Description
		▪ MIGRATED_POST_PROCESSED: Volume Migration has completed and post process is finished. Refer to the migration tasks's job result to check migration and post process result. ▪ INVALID: source or target volume does not exist, or the pool of source or target volume changed.
copyProgress	Integer	The progress of the migration copy (0-100).
copyGroupName	String	The name of the copy group for migration.
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSION, and NONE

Return codes

Status code	HTTP name	Description
200	OK	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response

```
{
 "resources": [
 {
```

```
    "migrationPairId": 2,
    "migrationTaskId": 2,
    "sourceVolumeId": 684,
    "sourcePoolId": 10,
    "sourceExternalParityGroupId": null,
    "targetVolumeId": null,
    "targetPoolId": 0,
    "status": "NOT_MIGRATED",
    "copyProgress": null,
    "copyGroupName": null,
    "dkcDataSavingType": "COMPRESSION"
  }
  ],
    "total": 1,
    "nextToken": null
  }
```

Chapter 6: Fabric switch management resources

This module describes the fabric switch management operations.

Request	Method	URI	Role
Getting a list of fabric switches (on page 682)	GET	/v1/san-fabrics	Storage administrator System administrator Security administrator
Getting information about a specific fabric switch (on page 684)	GET	/v1/san-fabrics/*sanFabricId*	Storage administrator System administrator Security administrator
Creating a fabric switch (on page 686)	POST	/v1/san-fabrics	System administrator
Editing a fabric switch (on page 689)	POST	/v1/san-fabrics/*sanFabricId*	System administrator
Deleting a fabric switch (on page 693)	DELETE	/v1/san-fabrics/*sanFabricId*	System administrator

List all fabric switches

You can display a list of fabric switches.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/san-fabrics
```

Request structure

Not applicable.

Response structure

```
{
    "resources":
    [
        {
            "sanFabricId": "",
            "switchType": "",
            "virtualFabricId": ,
            "principalSwitchAddress": "",
            "principalSwitchUsername": "",
            "principalSwitchPortNumber":
        },
...
    ]
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
sanFabricId	String	Fabric switch identifier.
switchType	String	Type of switch, such as CISCO or BROCADE.
virtualFabricId	Integer	Virtual fabric identifier. For Cisco switches, this is the user-defined virtual storage area network identifier (VSAN ID). For Brocade switches, this is null.
principalSwitchAddress	String	Fabric switch IP Address.
principalSwitchUsername	String	Fabric switch user name.
principalSwitchPortNumber	Integer	Fabric switch port.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/san-fabrics
```

Example response

```
{
    "resources":
    [
    {
            "sanFabricId": "2__4",
            "switchType": "BROCADE",
            "virtualFabricId": null,
            "principalSwitchAddress": "172.17.91.39",
            "principalSwitchUsername": "admin",
            "principalSwitchPortNumber": 22
        }
    ],
    "total": 4,
    "nextToken": null
}
```

List a fabric switch

You can display the details of a specific fabric switch.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/san-fabrics/sanFabricId
```

Use the fabric switch identifier for *sanFabricId*.

Request structure

Not applicable.

Response structure

```
        {
            "sanFabricId": "",
            "switchType": "",
```

```
            "virtualFabricId": "",
            "principalSwitchAddress": "",
            "principalSwitchUsername": "",
            "principalSwitchPortNumber":
        }
```

Parameter	Type	Description
sanFabricId	String	Fabric switch identifier.
switchType	String	Type of switch, such as CISCO or BROCADE.
virtualFabricId	Integer	Virtual fabric identifier. For Cisco switches, this is the user-defined virtual storage area network identifier (VSAN ID). For Brocade switches, this is null.
principalSwitchAddress	String	Fabric switch IP Address.
principalSwitchUsername	String	Fabric switch user name.
principalSwitchPortNumber	Integer	Fabric switch port.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Code

Request with JSON command:

```
https://10.20.88.199:443/v1/san-fabrics/1__1
```

JSON Response:

```
{
    "sanFabricId": "1__1",
    "switchType": "CISCO",
    "virtualFabricId": "15",
    "principalSwitchAddress": "10.20.90.83",
    "principalSwitchUsername": "admin",
    "principalSwitchPortNumber": 22
}
```

Create a fabric switch

You can create a fabric switch.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/san-fabrics
```

Request structure

```
 {
"fabrics": [
{
"principalSwitchAddress": "",
"principalSwitchUsername": "",
"principalSwitchPassword": "",
"principalSwitchPortNumber": ,
"virtualFabricId": "",
"switchType": ""
}
]
}
```

Parameter	Required	Type	Description
principalSwitchAddress	Yes	String	Fabric switch IP address.
principalSwitchUsername	Yes	String	Fabric switch user name.
principalSwitchPassword	Yes	String	Fabric switch password

Parameter	Required	Type	Description
principalSwitchPortNumber	Yes	String	Fabric switch port.
virtualFabricId	Yes	String	Virtual fabric identifier. For Cisco switches, this is the user-defined virtual storage area network identifier (VSAN ID). For Brocade switches, this is null.
switchType	Yes	String	Type of switch, such as CISCO or BROCADE.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
```

```
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
201	Created	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/san-fabrics
```

Example request

```
{
  "fabrics": [{
  "virtualFabricId": "2",
  "principalSwitchAddress": "172.17.91.26",
  "principalSwitchUsername": "name",
  "principalSwitchPassword": "XXXXX",
  "principalSwitchPortNumber": 22,
  "switchType": "CISCO"
 }]
}
```

Edit a fabric switch

You can edit the details of a specific fabric switch.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/san-fabrics/sanFabricId
```

Use the identifier for the switch that you want to update as the *sanFabricId*.

Request structure

```
{
            "virtualFabricId": "",
            "principalSwitchAddress": "",
            "principalSwitchUsername": "",
            "principalSwitchPassword": "",
            "principalSwitchPortNumber":
        }
```

Parameter	Required	Type	Description
virtualFabricId	Yes	String	Virtual fabric identifier. For Cisco switches, this is the user-defined virtual storage area network identifier (VSAN ID). For Brocade switches, this is null.
principalSwitchAddress	Yes	String	Fabric switch IP address.
principalSwitchUsername	Yes	String	Fabric switch user name.
principalSwitchPassword	Yes	String	Fabric switch password.
principalSwitchPortNumber	Yes	String	Fabric switch port.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
```

```
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
201	Created	The server has started the operation.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/san-fabrics/2__4
```

Example request

```
{
"virtualFabricId": "null",
"principalSwitchAddress": "172.17.91.39",
"principalSwitchUsername": "MD",
"principalSwitchPassword": "password",
"principalSwitchPortNumber": 22
}
```

Delete a fabric switch

You can remove a fabric switch.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/san-fabrics/sanFabricId
```

Use the fabric switch ID as the *sanFabricId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Chapter 7: Virtual storage machine management resources

This module describes the virtual storage machine management operations.

Request	Method	URI	Role
Listing virtual storage machines (on page 699)	GET	/v1/virtual-storage-machines	Storage administrator System administrator Security administrator
Listing volume IDs assigned to a physical storage system in a virtual storage machine (on page 707)	GET	/v1/virtual-storage-machines/*virtualStorageMachineID*/physical-storage-systems/physicalStorageSystemId/*assigned-volume-ids*	Storage administrator System administrator Security administrator
Getting virtual storage machine details (on page 702)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Getting a physical storage system summary in a virtual storage machine (on page 704)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*/physical-storage-systems/*physicalStorageSystemId*/summary	Storage administrator System administrator Security administrator
Creating a virtual storage machine (on page 718)	POST	/v1/virtual-storage-machines	Storage administrator
Adding resources to a virtual storage machine (on page 724)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/add-undefined-resources	Storage administrator
Listing volume IDs in a virtual storage machine (on page 709)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*/volume-ids	Storage administrator System administrator Security administrator
Getting a volume ID in a virtual storage machine (on page 712)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*/volume-ids?q=storageSystemId: *storageSystemId* AND volumeId:*volumeId*	Storage administrator System administrator Security administrator
Listing host group IDs in a virtual storage machine (on page 714)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*/host-group-ids	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Getting a host group ID in a virtual storage machine (on page 716)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*/host-group-ids?q=storageSystemId:*storageSystemId* AND hostGroupId:*hostGroupId*	Storage administrator System administrator Security administrator
Getting a virtual storage machine summary (on page 729)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*/summary	Storage administrator System administrator Security administrator
Moving volumes to a virtual storage machine (on page 731)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/physical-storage-systems/*physicalStorageSystemId*/add-existing-volumes	Storage administrator
Removing resources from a virtual storage machine (on page 734)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/remove-undefined-resources	Storage administrator
Removing defined volumes from a virtual storage machine (on page 739)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/physical-storage-systems/*physicalStorageSystemId*/remove-existing-volumes	Storage administrator
Deleting a physical storage system from a virtual storage machine (on page 742)	DELETE	/v1/virtual-storage-machines/*virtualStorageSystemId/*physical-storage-systems/*physicalStorageSystemId*	Storage administrator

Request	Method	URI	Role
Deleting a virtual storage machine (on page 745)	DELETE	/v1/virtual-storage-machines/*virtualStorageMachineId*	Storage administrator

Listing virtual storage machines

You can display a list of all virtual storage machines in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
       {
           "virtualStorageMachineId": "",
           "storageSystemId": "",
           "model": "",
           "physicalStorageSystemIds": [""],
           "resourceGroups": [
               {
                   "physicalStorageSystemId": "",
                   "resourceGroupId": ,
                   "resourceGroupName": ""
               },
               ...
           ]
       },
       ...
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
virtualStorageMachineId	String	Unique key to identify the VSM.
storageSystemId	String	ID of the virtual storage system.
model	String	Name of the VSM model.
physicalStorageSystemIds	List	List of physical storage system IDs.
resourceGroups	List	List of the resource groups.
resourceGroups.physicalStorageSystemId	String	ID of the storage system.
resourceGroups.resourceGroupId	Integer	ID of the resource group.
resourceGroups.resourceGroupName	String	Name of the resource group.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Request example

Request with JSON command:

```
https://172.17.64.118/v1/virtual-storage-machines
```

Response example

JSON response:


```
{
    "resources": [
        {
            "virtualStorageMachineId": "410501-VSPF400-F600andVSPG400-G600",
            "storageSystemId": "410501",
            "model": "VSP F400, F600 and VSP G400, G600",
            "physicalStorageSystemIds": ["410500","410209"],
            "resourceGroups": [
                {
                    "physicalStorageSystemId": "410500",
                    "resourceGroupId": 1,
                    "resourceGroupName": "rsg_name_1"
                },
                {
                    "physicalStorageSystemId": "410209",
                    "resourceGroupId": 2,
                    "resourceGroupName": "rsg_name_2"
                }
            ]
        },
        {
            "virtualStorageMachineId": "410209-VSPF800andVSPG800",
            "storageSystemId": "410209",
            "model": "VSP F800 and VSP G800",
            "physicalStorageSystemIds": ["410500","410209"],
            "resourceGroups": [
```

```
                {
                    "physicalStorageSystemId": "410500",
                    "resourceGroupId": 3,
                    "resourceGroupName": "rsg_name_3"
                },
                {
                    "physicalStorageSystemId": "410209",
                    "resourceGroupId": 0,
                    "resourceGroupName": "meta_resource"
                }
            ]
        }
    ],

    "total": 2,
    "nextToken": null
}
```

Getting virtual storage machine details

You can get information about a specific virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
       "virtualStorageMachineId": "",
       "storageSystemId": "",
       "model": "",
       "physicalStorageSystemIds": [""],
       "resourceGroups": [
           {
               "physicalStorageSystemId": "",
               "resourceGroupId": ,
               "resourceGroupName": ""
           },
           ...
       ]
}
```

Parameter	Type	Description
virtualStorageMachineId	String	Unique key to identify the VSM.
storageSystemId	String	ID of the virtual storage system.
model	String	Name of the VSM model.
physicalStorageSystemIds	List	List of physical storage system IDs.
resourceGroups	List	List of the resource groups.
resourceGroups.physicalStorageSystemId	String	ID of the storage system.
resourceGroups.resourceGroupId	Integer	ID of the resource group.
resourceGroups.resourceGroupName	String	Name of the resource group.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Request example

Request with JSON command:

```
https://172.17.64.118/v1/virtual-storage-machines/410501-VSPF400-F600andVSPG400-G600
```

Response example

JSON response:

```
{
        "virtualStorageMachineId": "410501-VSPF400-F600andVSPG400-G600",
```

```
        "storageSystemId": "410501",
        "model": "VSP F400, F600 and VSP G400, G600",
        "physicalStorageSystemIds": ["410500","410209"]
        "resourceGroups": [
             {
                 "physicalStorageSystemId": "410500",
                 "resourceGroupId": 1,
                 "resourceGroupName": "rsg_name_1"
             },
             {
                 "physicalStorageSystemId": "410209",
                 "resourceGroupId": 2,
                 "resourceGroupName": "rsg_name_2"
             }
         ]
}
```

Getting a physical storage system summary in a virtual storage machine

You can display a summary of physical storage systems in a virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/physical-
storage-systems/physicalStorageSystemId/summary
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
   "definedVolumeCount": ,
   "undefinedVolumeCount": ,
   "resourceGroups": [
       {
           "resourceGroupId": ,
           "resourceGroupName": "",
           "definedVolumeCount": ,
           "undefinedVolumeCount":
       },
       ...
   ],
   "hostGroups": [
```

```
        {
            "storagePortId": "",
            "definedCount": ,
            "undefinedCount": ,
            "resourceGroups": [
                {
                    "resourceGroupId": ,
                    "resourceGroupName": "",
                    "definedCount": ,
                    "undefinedCount":
                },
                ...
            ]
        },
        ...
    ]
}
```

Parameter	Type	Description
undefinedVolumeCount	Long	Undefined volume count.
definedVolumeCount	Long	Defined volume count.
resourceGroups	List	List of the resource groups.
resourceGroups.resourceGroupId	Integer	ID of the resource group.
resourceGroups.resourceGroupName	String	Name of the resource group.
resourceGroups.definedVolumeCount	Long	Defined volume count in the resource group.
resourceGroups.undefinedVolumeCount	Long	Undefined volume count in the resource group.
hostGroups	List	List of host groups.
storagePortId	String	Storage port ID of the host group.
undefinedCount(HG)	Long	Undefined host group count.
definedCount(HG)	Long	Defined host group count.
hostGroups.resourceGroups	List	List of host groups per resource group.
hostGroups.resourceGroupId	Integer	ID of the resource group.

Parameter	Type	Description
hostGroups.resourceGroupName	String	Name of the resource group.
hostGroups.definedVolumeCount	Long	Defined host group count on the storage port in the resource group.
hostGroups.undefinedVolumeCount	Long	Undefined host group count on the storage port in the resource group.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Response example

```
{
   "definedVolumeCount": 3,
   "undefinedVolumeCount": 7,
   "resourceGroups": [
       {
           "resourceGroupId": 1,
           "resourceGroupName": "rsg_name_1",
           "definedVolumeCount": 0,
           "undefinedVolumeCount": 3
       },
       {
           "resourceGroupId": 2,
           "resourceGroupName": "rsg_name_2",
           "definedVolumeCount": 3,
           "undefinedVolumeCount": 4
       }
   ],
   "hostGroups": [
       {
```

```
            "storagePortId": "CL1-A",
            "definedCount": 4,
            "undefinedCount": 2,
            "resourceGroups": [
                {
                    "resourceGroupId": 2,
                    "resourceGroupName": "rsg_name_2",
                    "definedCount": 3,
                    "undefinedCount": 2
                },
                {
                    "resourceGroupId": 3,
                    "resourceGroupName": "rsg_name_3",
                    "definedCount": 1,
                    "undefinedCount": 0
                }
            ]
        },
        {
            "storagePortId": "CL3-B",
            "definedCount": 1,
            "undefinedCount": 0,
            "resourceGroups": [
                {
                    "resourceGroupId": 3,
                    "resourceGroupName": "rsg_name_3",
                    "definedCount": 1,
                    "undefinedCount": 0
                }
            ]
        }
    ]
}
```


If the physical storage in the virtual storage machine has no resources:


```
{
   "definedVolumeCount": 0,
   "undefinedVolumeCount": 0,
   "resourceGroups": [],
   "hostGroups": []
}
```


Listing volume IDs assigned to a physical storage system in a virtual storage machine

Lists the volume IDs assigned to a physical storage system in a virtual storage machine

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/physical-storage-systems/physicalStorageSystemId/assigned-volume-ids
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "definedVolumeIds": [],
  "undefinedVolumeIds": []
}
```

Parameter	Type	Description
definedVolumeIds	List	List of defined volume IDs in Long.
undefinedVolumeIds	List	List of undefined volume IDs in Long.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource does not exist.

Example Response

```
{
  "definedVolumeIds": [1001, 1002, ...],
  "undefinedVolumeIds": [2001, 2002, ...]
}
```

Listing volume IDs in a virtual storage machine

You can list volume IDs from a specific virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/volume-ids
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources": [
        {
         "virtualStorageMachineId": "",
         "storageSystemId": "",
         "volumeId": ,
         "virtualVolumeId": ,
         "label": "",
         "size": ,
         "isDefined": ,
         "hasLunPaths": ,
         "isExternalVol": ,
         "isSystemVol": ,
         "resourceGroupName": "",
         "resourceGroupId":
        },
        ...
    ],
    "total": ,
    "nextToken": ""
}
```

Parameter	Type	Description
volumeId	Long	The ID number of the volume within the parent storage system.
virtualVolumeId	Long	The ID number of the virtual volume. If the ID is not assigned, null is returned.

Parameter	Type	Description
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	The ID of the storage system.
label	String	The name of the volume.
size	String	The size of the volume, in bytes.
hasLunPaths	Boolean	Specifies whether the volume has LUN paths or not.
isExternalVol	Boolean	Specifies whether the volume is external.
isDefined	Boolean	Specifies whether the volume is defined or not.
resourceGroupId	Long	The ID number of the resource group.
resourceGroupName	String	The name of the resource group.
isSystemVol	Boolean	Specifies whether the volume is managed or not.
total	Long	The total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append question mark (?) and "nextToken= ",and then the token. Example: https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or does not exist.

Response example

JSON response:


```
{
    "resources": [
        {
            "volumeId": 0,
            "virtualVolumeId": 0,
            "virtualStorageMachineId": "15283-VSP5100H-5500H",
            "storageSystemId": "15283",
            "label": "volume_0",
            "size": "38297532",
            "hasLunPaths": true,
            "isExternalVol": false,
            "isDefined": true,
            "resourceGroupId": 0,
            "resourceGroupName": "meta_resource",
            "isSystemVol": true
        },
        {
            "volumeId": 1,
            "virtualVolumeId": 1,
            "virtualStorageMachineId": "15283-VSP5100H-5500H",
            "storageSystemId": "15283",
            "hasLunPaths": false,
            "isExternalVol": false,
            "isDefined": false,
            "resourceGroupId": 0,
            "resourceGroupName": "meta_resource",
            "isSystemVol": false
        },
        ...
    ],
    "total": 1250,
```

```
    "nextToken": "cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw=="
}
```

Getting a volume ID in a virtual storage machine

You can get volume IDs from specific virtual storage machines in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/volume-ids?
q=storageSystemId:storageSystemId AND volumeId:volumeId
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
   "virtualStorageMachineId": "",
   "storageSystemId": "",
   "volumeId": ,
   "virtualVolumeId": ,
   "label": "",
   "size": ,
   "isDefined": ,
   "hasLunPaths": ,
   "isExternalVol": ,
   "isSystemVol": ,
   "resourceGroupName": "",
   "resourceGroupId":
}
```

Parameter	Type	Description
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	The ID of the storage system.
volumeId	Long	The ID number of the volume within the parent storage system.

Parameter	Type	Description
virtualVolumeId	Long	The ID number of the virtual volume. If the ID is not assigned, null is returned.
label	String	The name of the volume.
size	String	The size of the volume, in bytes.
isDefined	Boolean	Specifies whether the volume is defined.
hasLunPaths	Boolean	Specifies whether the volume has LUN paths.
isExternalVol	Boolean	Specifies whether the volume is external.
isSystemVol	Boolean	Specifies whether the volume is managed.
resourceGroupId	Long	The ID number of the resource group.
resourceGroupName	String	The name of the resource group.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or does not exist.

Response example

JSON response:

```
{
   "virtualStorageMachineId": "15283-VSP5100H-5500H",
   "storageSystemId": "15283",
   "volumeId": 0,
   "virtualVolumeId": 0,
```

```
    "label": "volume_0",
    "size": 38297532,
    "isDefined": true,
    "hasLunPaths": true,
    "isExternalVol": false,
    "isSystemVol": false,
    "resourceGroupName": "meta_resource",
    "resourceGroupId": 0
}
```

Listing host group IDs in a virtual storage machine

You can get a list of host group IDs from a specific virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/host-group-ids
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
    {
    "resources": [
        {
            "hostGroupId": "",
            "hostGroupNumber": ,
            "storagePortId": "",
            "virtualStorageMachineId": "",
            "storageSystemId": "",
            "hostGroupName": "",
            "hasLunPaths": ,
            "isDefined": ,
            "resourceGroupId": ,
            "resourceGroupName": ""
        },
        ...
    ],
    "total": ,
    "nextToken": ""
}
```

Parameter	Type	Description
hostGroupId	String	ID of the host group
hostGroupNumber	Integer	ID number of the host group
storagePortId	String	ID of the storage port
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	ID of the storage system.
hostGroupName	String	Name of the host group
hasLunPaths	Boolean	Whether the volume has LUN paths or not.
isDefined	Boolean	Whether the volume is defined or not.
resourceGroupId	Long	The ID number of the resource group.
resourceGroupName	String	Name of the resource group.
total	Long	Total number of resources.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append question mark (?) and "nextToken= ",and then the token. Example: https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or does not exist.

Response example

JSON response:


```
{
    "resources": [
        {
            "hostGroupId": "CL1-A-0",
            "hostGroupNumber": 0,
            "storagePortId": "CL1-A",
            "virtualStorageMachineId": "15283-VSP5100H-5500H",
            "storageSystemId": "15283",
            "hostGroupName": "1A-G00",
            "hasLunPaths": true,
            "isDefined": true,
            "resourceGroupId": 0,
            "resourceGroupName": "meta_resource"
        },
        {
            "hostGroupId": "CL1-A-1",
            "hostGroupNumber": 1,
            "storagePortId": "CL1-A",
            "virtualStorageMachineId": "15283-VSP5100H-5500H",
            "storageSystemId": "15283",
            "hasLunPaths": false,
            "isDefined": false,
            "resourceGroupId": 0,
            "resourceGroupName": "meta_resource"
        },
        ...
    ],
    "total": 1250,
    "nextToken": "cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw=="
}
```


Getting a host group ID in a virtual storage machine

You can get a host group ID from a specific virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/host-group-ids?q=storageSystemId:storageSystemId AND hostGroupId:hostGroupId
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "hostGroupId": "",
    "hostGroupNumber": ,
    "storagePortId": "",
    "virtualStorageMachineId": "",
    "storageSystemId": "",
    "hostGroupName": "",
    "hasLunPaths": ,
    "isDefined": ,
    "resourceGroupId": ,
    "resourceGroupName": ""
}
```

Parameter	Type	Description
hostGroupId	String	ID of the host group
hostGroupNumber	Integer	ID number of the host group
storagePortId	String	ID of the storage port
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	ID of the storage system.
hostGroupName	String	Name of the host group
hasLunPaths	Boolean	Whether the volume has LUN paths or not.
isDefined	Boolean	Whether the volume is defined or not.
resourceGroupId	Long	The ID number of the resource group.
resourceGroupName	String	Name of the resource group.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or does not exist.

Response example

JSON response:

```
{
"hostGroupId": "CL1-A-0",
    "hostGroupNumber": 0,
    "storagePortId": "CL1-A",
    "virtualStorageMachineId": "15283-VSP5100H-5500H",
    "storageSystemId": "15283",
    "hostGroupName": "1A-G00",
    "hasLunPaths": true,
    "isDefined": true,
    "resourceGroupId": 0,
    "resourceGroupName": "meta_resource"
}
```

Creating a virtual storage machine

You can create a new virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/virtual-storage-machines
```

Request structure

The request body structure is shown below:

```
{
    "storageSystemId": "",
    "model": "",
    "physicalStorageSystems": [
        {
```

```
            "storageSystemId": "",
            "resourceGroupName": "",
            "numberOfVolumes": ,
            "volumeIdRange": {
                "from": ,
                "to":
            },
            "hostGroups": [
                {
                    "portId": "",
                    "number": ,
                },
                ...
            ],
            "hostGroupIds": [""]
        },
        ...
    ]
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the virtual storage system.
model	Yes	String	Name of the VSM model. The valid values are: ▪ VSP_F350 ▪ VSP_F370 ▪ VSP_F700 ▪ VSP_F900 ▪ VSP_G200 ▪ VSP_G350 ▪ VSP_G370 ▪ VSP_G700 ▪ VSP_G900 ▪ VSP_F800_AND_VSP_G800 ▪ VSP_F400_F600_AND_VSP_G400_G600 ▪ HUS_VM ▪ VSP_F1500_AND_VSP_G1000_G1500

Parameter	Required	Type	Description
			▪ VSP ▪ USP_VM ▪ USP_V ▪ USP ▪ NSC ▪ VSP_5100_5500* ▪ VSP_5100H_5500H* ▪ VSP_5200_5600 ▪ VSP_5200H_5600H ▪ VSP_E590 ▪ VSP_E790 ▪ VSP_E990 ▪ VSP_E1090 ▪ VSP_E590H ▪ VSP_E790H ▪ VSP_E1090H
physicalStorageSystems	Yes	List	List of the physical storage systems.
storageSystemId	Yes	String	ID of the physical storage system.
resourceGroupName	No	String	Name of the resource group.
numberOfVolumes	No	Integer	Number of volumes.
hostGroups	No	List	List of the host groups or iSCSI targets.
portId	No	String	ID of the storage port.
number	No	Integer	Number of host groups or iSCSI targets.
volumeIdRange	No	Object	An ID range of undefined volumes to be added to a virtual storage machine. To add all undefined volumes within the range, specify null for numberOfVolumes.

Parameter	Required	Type	Description
from	No	Integer	Starting volume ID of the range (in decimal).
to	No	Integer	Ending volume ID for the range (in decimal).
hostGroupIds	No	List	List of the host group IDs.
* You can also specify the following values (for compatibility). ▪ VSP_5000_SERIES_AFA ▪ VSP_5000_SERIES_HYBRID If you obtain the virtual storage system model for a virtual storage machine that was created by specifying one of the above values, one of the following values will be returned. ▪ For VSP_5000_SERIES_AFA: VSP_5100_5500 ▪ For VSP_5000_SERIES_HYBRID: VSP_5100H_5500H			

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
```

```
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.

Parameter	Type	Description
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.

Example request

For specifying the number of host groups:

```
{
    "storageSystemId": "11111",
    "model": "VSP_F1500_AND_VSP_G1000_G1500",
    "physicalStorageSystems": [
        {
            "storageSystemId": "22222",
```

```
            "resourceGroupName": "rsg_name_1",
            "numberOfVolumes": 100,
            "volumeIdRange": {
                "from": 1000,
                "to": 2000
            },
            "hostGroups": [
                {
                    "portId": "CL1-A",
                    "number": 100
                }
            ]
        }
    ]
}
```

For specifying host group IDs:

```
{
    "storageSystemId": "11111",
    "model": "VSP_F1500_AND_VSP_G1000_G1500",
    "physicalStorageSystems": [
        {
            "storageSystemId": "22222",
            "resourceGroupName": "rsg_name_1",
            "numberOfVolumes": 100,
            "volumeIdRange": {
                "from": 1000,
                "to": 2000
            },
            "hostGroupIds": ["CL1-A-1","CL1-B-2","CL2-A-3,"CL2-B-10"]
        }
    ]
}
```

Adding resources to a virtual storage machine

You can add resources to a virtual storage machine in Ops Center Administrator..

HTTP request syntax (URI)

```
POST https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/add-
undefined-resources
```

Request structure

The request body structure is shown below:

```
{
    "physicalStorageSystems": [
        {
            "storageSystemId": "",
            "resourceGroupName": "",
            "numberOfVolumes": ,
            "volumeIdRange": {
                "from": ,
                "to":
            },
            "hostGroups": [
                {
                    "portId": "",
                    "number": ,
                },
                ...
            ],
            "hostGroupIds": [""]
        },
        ...
    ]
}
```

Parameter	Required	Type	Description
physicalStorageSystemId	Yes	String	ID of the physical storage system.
numberOfVolumes	No	Integer	Number of volumes. Either resource (volume or host group) must be specified.
resourceGroupName	No	String	Name of the resource group.
hostGroups	No	List	List of the host group or iSCSI target IDs. Either resource (volume or host group) must be specified.

Parameter	Required	Type	Description
portId	No	String	Port ID (becomes required if `hostGroups` is specified)
number	No	Integer	Number of host groups (becomes required if `hostGroups` is specified).
volumeIdRange	No	Object	An ID range of undefined volumes to be added to a virtual storage machine. To add all undefined volumes within the range, specify null for `numberOfVolumes`.
from	No	Integer	Starting volume ID of the range (in decimal).
to	No	Integer	Ending volume ID for the range (in decimal).
hostGroupIds	No	List	List of the host group IDs.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
```

```
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

For specifying the number of host groups:

```
{
    "physicalStorageSystems": [
        {
            "storageSystemId": "22222",
            "resourceGroupName": "rsg_name_1",
            "numberOfVolumes": 100,
            "volumeIdRange": {
                "from": 1000,
                "to": 2000
            },
            "hostGroups": [
                {
                    "portId": "CL1-A",
                    "number": 100
                }
            ]
        }
    ]
}
```

For specifying the IDs of host groups:

```
{
    "physicalStorageSystems": [
        {
            "storageSystemId": "22222",
            "resourceGroupName": "rsg_name_1",
            "numberOfVolumes": 100,
            "volumeIdRange": {
                "from": 1000,
                "to": 2000
            },
            "hostGroupIds": ["CL1-A-1","CL1-B-2","CL2-A-3,"CL2-B-10"]
        }
    ]
}
```

Getting a virtual storage machine summary

You can get a summary of information about a specific virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/summary
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    registeredVolumeTotalCount: ,
    registeredVolumeDefinedCount: ,
    registeredHostGroupTotalCount: ,
    registeredHostGroupDefinedCount: ,
    registeredVolumeTotalCapacity: ""
}
```

Parameter	Type	Description
registeredVolumeTotalCount	Long	The number of all volumes registered in the virtual storage machine.
registeredVolumeDefinedCount	Long	The number of defined volumes registered in the virtual storage machine.
registeredHostGroupTotalCount	Long	The number of all host groups registered in the virtual storage machine.
registeredHostGroupDefinedCount	Long	The number of defined host groups registered in a virtual storage machine.
registeredVolumeTotalCapacity	String	The total capacity of volumes registered in the virtual storage machine, in bytes.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.

Status code	HTTP name	Description
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or does not exist.

Response example

JSON response:

```
{
    registeredVolumeTotalCount: 1000,
    registeredVolumeDefinedCount: 500,
    registeredHostGroupTotalCount: 100,
    registeredHostGroupDefinedCount: 50,
    registeredVolumeTotalCapacity: "879052348832"
}
```

Moving volumes to a virtual storage machine

You can move volumes to a virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/physical-
storage-systems/physicalStorageSystemId/add-existing-volumes
```

Request structure

The request body structure is shown below:

```
{
    "resourceGroupName": "",
    "volumeIds": []
}
```

Parameter	Required	Type	Description
resourceGroupName	No	String	Name of the resource group.
volumeIds	Yes	List	List of volume IDs.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
{
    "resourceGroupName": "rsg_name_1",
    "volumeIds": [1, 2, 3]
}
```

Removing resources from a virtual storage machine

You can remove resources from a virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/remove-
undefined-resources
```

Request structure

The request body structure is shown below:

```
{
    "physicalStorageSystems": [
```

```
        {
            "storageSystemId": "",
            "resourceGroupName": "",
            "numberOfVolumes": ,
            "volumeIdRange": {
                "from": ,
                "to":
            },
            "hostGroups": [
                {
                    "portId": "",
                    "number": ,
                },
                ...
            ],
            "hostGroupIds": [""]
        },
        ...
    ]
}
```

Parameter	Required	Type	Description
physicalStorageSystemId	Yes	String	ID of the physical storage system.
resourceGroupName	No	String	Name of the resource group.
numberOfVolumes	No	Integer	Number of volumes. Either resource (volume or host group) must be specified.
hostGroups	No	List	List of the host group or iSCSI target IDs. Either resource (volume or host group) must be specified.
portId	No	String	Port ID (becomes required if `hostGroups` is specified).

Parameter	Required	Type	Description
number	No	Integer	Number of host groups (becomes required if `hostGroups` is specified.
volumeIdRange	No	Object	An ID range of undefined volumes to be removed from a virtual storage machine. To remove all undefined volumes within the range, specify null for `numberOfVolumes`.
from	No	Integer	Starting volume ID of the range (in decimal).
to	No	Integer	Ending volume ID for the range (in decimal).
hostGroupIds	No	List	List of the host group IDs.

Response structure

The response body structure is shown below:

```
{
    "jobId": "",
    "title":
    {
        "text": "",
        "messageCode": "",
        "parameters":
        {
        }
    },
    "user": "",
    "status": "",
    "startDate": ,
    "endDate": ,
    "parentJobId": ,
    "reports":
```

```
        [
        ],
        "links":
        [
            {
                "rel": "",
                "href": ""
            }
        ],
        "tags":
        [
        ],
        "isSystem":
    }
```

Parameter	Type	Description
jobId	String	The ID of the job that is created to carry out the request.
title	Object	The title of the job in progress.
text	String	Text of the message.
messageCode	String	ID of the message. This maps to the message description.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	Name of the user who started the job.
status	String	Job status. Valid values: • In Progress • Failed • Success • Success With Errors
startDate	Integer	The date and time this job started. Format is the Unix epoch.
endDate	Integer	Date and time when this job ended. If the job is still in progress, this parameter does not return a value. Format is the Unix epoch.
parentJobId	Integer	The ID of the job that spawned this job. If not applicable, the value null is returned.
reports	List	Messages associated with this job.

Parameter	Type	Description
links	List	Displays related resources.
self	String	URI that includes the resource ID.
tags	List	List of user-defined identifiers. Each identifier (tag) must be a minimum of three characters in length.
isSystem	Boolean	Whether a job was created by a system or a user. If the job is generated by a system, the system automatically sets it to true. If a user generates a job, the system sets to false.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

For specifying the number of host groups:

```
{
    "physicalStorageSystems": [
        {
            "storageSystemId": "22222",
```

```
            "resourceGroupName": "rsg_name_1",
            "numberOfVolumes": 100,
            "volumeIdRange": {
                "from": 1000,
                "to": 2000
            },
            "hostGroups": [
                {
                    "portId": "CL1-A",
                    "number": 100
                }
            ]
        }
    ]
}
```

For specifying the host group IDs:

```
{
    "physicalStorageSystems": [
        {
           "storageSystemId": "22222",
           "resourceGroupName": "rsg_name_1",
           "numberOfVolumes": 100,
           "volumeIdRange": {
                "from": 1000,
                "to": 2000
            },
            "hostGroupIds": ["CL1-A-1","CL1-B-2","CL2-A-3,"CL2-B-10"]
        }
    ]
}
```

Removing defined volumes from a virtual storage machine

You can remove defined volumes from a virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId/physical-
storage-systems/physicalStorageSystemId/remove-existing-volumes
```

Request structure

The request body structure is shown below:

```
```

```
{
  "volumeIds": [ , ...]
}
```

Parameter	Required	Type	Description
volumeIds	Yes	List	List of volume IDs. Volume ID type is long.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

Deleting a physical storage system from a virtual storage machine

You can delete a physical storage system from a virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/virtual-storage-machines/virtualStorageSystemId/physical-storage-systems/physicalStorageSystemId
```

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

Deleting a virtual storage machine

You can delete a virtual storage machine in Ops Center Administrator.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/virtual-storage-machines/virtualStorageMachineId
```

Request structure

Not applicable

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
```

```
      "text": "",
      "messageCode": "",
      "parameters":
       {
       }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).

Parameter	Type	Description
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Chapter 8: Data protection management resources

This module describes the data resource management operations.

All GET APIs can be accessed by all Ops Center Administrator roles.

APIs using POST, PATCH, or DELETE methods require the Storage Administrator role.

Request	Method	URI	Role
Getting a data protection summary for all storage systems (on page 753)	GET	/v1/data-protection/summary	Storage administrator System administrator Security administrator
Getting a data protection summary for a storage system (on page 755)	GET	/v1/data-protection/storage-systems/*storageSystemId*/summary	Storage administrator System administrator Security administrator
Listing replication groups (on page 756)	GET	/v1/storage-systems/*storageSystemId*/replication-groups	Storage administrator System administrator Security administrator
Getting a replication group by ID (on page 762)	GET	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Getting a replication group summary (on page 766)	GET	/v1/storage-systems/*storageSystemId*/replication-groups/summary	Storage administrator System administrator Security administrator
Creating a replication group (on page 768)	POST	/v1/storage-systems/*storageSystemId*/replication-groups	Storage administrator
Adding volumes to a replication group on a storage system (on page 772)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/add-volumes	Storage administrator
Removing volumes from a replication group on a storage system (on page 775)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/remove-volumes	Storage administrator
Restoring volumes on a storage system (on page 779)	POST	/v1/storage-systems/*storageSystemId*/volumes/*volumeId*/restore	Storage administrator
Updating clone replication groups on a storage system (on page 782)	PATCH	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Updating a snapshot replication group on a storage system (on page 785)	PATCH	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Updating high availability replication groups on a storage system (on page 789)	PATCH	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Suspending data replication (on page 792)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/suspend	Storage administrator

Request	Method	URI	Role
Resuming replication (on page 795)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/resume	Storage administrator
Deleting a replication group (on page 798)	DELETE	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Listing volume pairs (on page 801)	GET	/v1/storage-systems/*storageSystemId*/volume-pairs	Storage administrator System administrator Security administrator
Viewing volume pairs affected by actions performed on a replication group (on page 805)	GET	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/affected-volume-pairs	Storage administrator System administrator Security administrator
Getting primary volume pairs (on page 809)	GET	/v1/storage-systems/*storageSystemId*/volume-pairs?q=primaryVolume.id:*primaryVolumeId*	Storage administrator System administrator Security administrator
Getting secondary volume pairs (on page 814)	GET	/v1/storage-systems/*storageSystemId*/volume-pairs?q=secondaryVolume.id:*secondaryVolumeId*	Storage administrator System administrator Security administrator
Getting secondary volumes (on page 818)	GET	/v1/storage-systems/*storageSystemId*/volumes/*volumeId*/secondaryVolumes	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Listing failed volume pairs (on page 828)	GET	/v1/storage-systems/*storageSystemId*/volume-pairs?q=state:ERROR	Storage administrator System administrator Security administrator
Getting Ops Center Protector information (on page 832)	GET	/v1/dp-manager	Storage administrator System administrator Security administrator
Registering/Deleting the Hitachi Ops Center Protector (on page 834)	PATCH	/v1/dp-manager	System administrator
Testing the connection to Ops Center Protector (on page 838)	POST	/v1/dp-manager/test-connection	Storage administrator System administrator Security administrator
Importing high availability pairs from Ops Center Protector (on page 841)	POST	/v1/dp-manager/import	Storage administrator System administrator
Listing quorum disks (on page 845)	GET	/v1/storage-systems/*storageSystemId*/quorum-disks	Storage administrator System administrator Security administrator
Getting remote paths (on page 848)	GET	/v1/storage-systems/*storageSystemId*/remote-paths	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Getting high availability setup steps (on page 849)	GET	/v1/ha-setup-status?primaryStorageSystemId={ssid}&secondaryStorageSystemId={ssid}	Storage administrator System administrator Security administrator
GET HA-Status External Volumes (on page 854)	GET	/v1/ha-setup-status/external-volumes?primaryStorageSystemId={ssid}&secondaryStorageSystemId={ssid}	Storage administrator System administrator Security administrator

Getting a data protection summary for all storage systems

You can display a list of protected and unprotected volumes and capacity in all storage systems.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/data-protection/summary
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
        "protectedCapacity": ,
        "protectedVolumes": ,
        "unprotectedCapacity": ,
        "unprotectedVolumes": ,
        "secondaryCapacity": ,
        "secondaryVolumes":
}
```

Parameter	Type	Description
protectedCapacity	Long	Total capacity of all protected volumes, in bytes.
protectedVolumes	Integer	The number of protected volumes.
unprotectedCapacity	Long	Total capacity of all unprotected volumes, in bytes.
unprotectedVolumes	Integer	The number of unprotected volumes.
secondaryCapacity	Long	Total capacity of all secondary volumes, in bytes.
secondaryVolumes	Integer	The number of secondary volumes.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified storage system ID is not valid or the storage system does not exist.

Example Request

```
GET https://172.17.64.112/v1/data-protection/summary
```

Example response

```
{
        "protectedCapacity": 5064195939328,
        "protectedVolumes": 7,
        "unprotectedCapacity": 523975209956352,
        "unprotectedVolumes": 1126,
        "secondaryCapacity": 70849351026688,
```

```
        "secondaryVolumes": 52
}
```

Getting a data protection summary for a storage system

You can display a list of protected and unprotected capacity and volumes in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/data-protection/storage-systems/storageSystemId/summary
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
        {
        "protectedCapacity": ,
        "protectedVolumes": ,
        "unprotectedCapacity": ,
        "unprotectedVolumes": ,
        "secondaryCapacity": ,
        "secondaryVolumes":
        }
```

Parameter	Type	Description
protectedCapacity	Long	Total capacity of all protected volumes, in bytes.
protectedVolumes	Integer	The number of protected volumes.
unprotectedCapacity	Long	Total capacity of all unprotected volumes, in bytes.
unprotectedVolumes	Integer	The number of unprotected volumes.
secondaryCapacity	Long	Total capacity of all secondary volumes, in bytes.

Parameter	Type	Description
secondaryVolumes	Integer	The number of secondary volumes.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example Request

```
GET https://172.17.64.112/v1/data-protection/storage-systems/410031/summary
```

Example response

```
{
"protectedCapacity": 5059900972032,
"protectedVolumes": 3,
"unprotectedCapacity": 39678455755776,
"unprotectedVolumes": 914,
"secondaryCapacity": 70832171157504,
"secondaryVolumes": 36
}
```

Listing replication groups

You can display a list of all replication groups in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/replication-groups
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources": [{
        "id": ,
        "storageSystemId": "",
        "name": "",
        "comments": "",
        "type": "",
        "consistent": ,
        "numberOfCopies": ,
        "schedule": {
            "recurringUnit": "",
            "minute": ,
            "hour": ,
            "recurringUnitInterval": ,
            "dayOfWeek": ,
            "dayOfMonth":
        },
        "scheduleEnabled": ,
        "primaryVolumeIds": [
        ],
        "failures": ,
        "targetPoolId": ,
        "secondaryStorageSystemId": "",
        "quorumId": ,
        "secondaryPoolId": ,
        "dataFlowName": ,
        "importedFromDpManager":
    }],
    "replicationStatuses":,
    "total": ,
    "nextToken": ,
}
```

Parameter	Type	Description
id	String	ID of the replication group.
storageSystemId	String	ID of the storage system to which the replication group belongs.
name	String	Name of the replication group.
comments	String	Comment for the replication group. Min = 1, max = 255 characters.

Parameter	Type	Description
type	String	Replication type. Valid values: ▪ CLONE ▪ SNAP: Snapshot ▪ SNAP_ON_SNAP ▪ HA: High Availability (global-active device)
consistent	Boolean	Whether copying takes place on all volume pairs in the group simultaneously.
numberOfCopies	Integer	Number of replication group copies. Min =1, max = 1024. This parameter is only available when the `type` is SNAP.
schedule	Object	Interval at which the snapshots are taken, such as: ▪ hour; Integer, valid values: 0-23 ▪ minute; Integer, valid values: 0-59 ▪ recurringUnit; String, ('HOURLY', 'DAILY','WEEKLY', 'MONTHLY') ▪ recurringUnitInterval; Integer, (null, or any positive integer) ▪ dayOfWeek; List of Strings, (null, or 'SUN', 'MON','TUE', 'WED', 'THU', 'FRI', 'SAT') ▪ dayOfMonth; Integer, (null, or 1-31) Notes: ▪ This parameter is only available when the `type` is SNAP. ▪ Only hour and minute are required if Daily is chosen ▪ recurringUnitInterval is only applicable if Hourly is chosen ▪ dayOfWeek is only applicable if Weekly is chosen ▪ dayOfMonth is only applicable if Monthly is chosen

Parameter	Type	Description
scheduleEnabled	Boolean	Whether the schedule is enabled. This parameter is only available when the `type` is SNAP.
primaryVolumeIds	List	List of the primary volume IDs.
failures	Integer	Count of data protection failed volumes.
targetPoolId	Integer	If the user sets a target pool for the snapshot, an integer value is returned as the target pool ID. If the user does not set a target pool, returns NULL. In this case, Ops Center Administrator automatically selects the pool when taking a snapshot.
secondaryStorageSystemId	String	The ID of the secondary storage system.
secondaryPoolId	String	The ID of the pool of the secondary volume.
quorumId	Integer	The ID of the quorum disk.
dataFlowName	String	Name of the data flow related to the replication group.
importedFromDpManager	Boolean	Whether the replication group is imported from Ops Center Protector.
replicationStatuses	String[]	This parameter is only used by the Ops Center Administrator GUI.
total	Long	Total replication groups in a given storage system.
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://172.17.64.116/v1/storage-systems/410209/replication-groups
```

Example response


```
{
    "resources": [{
        "id": 1,
        "storageSystemId": "101390",
        "name": "testRg",
        "comments": "test comments",
        "type": "SNAP",
        "consistent": false,
        "numberOfCopies": 1,
        "schedule": {
            "recurringUnit": "HOURLY",
            "minute": 43,
            "hour": null,
            "recurringUnitInterval": 1,
            "dayOfWeek": null,
            "dayOfMonth": null
        },
        "scheduleEnabled": true,
        "primaryVolumeIds": [
            309
        ],
        "failures": 0,
        "targetPoolId":1,
        "secondaryStorageSystemId": "",
        "quorumId":,
        "secondaryPoolId":,
        "dataFlowName":
    },
```

```
    {
        "id": 2,
        "storageSystemId": "101390",
        "name": "testRg2",
        "comments": "test comments2",
        "type": "CLONE",
        "consistent": false,
        "numberOfCopies": null,
        "schedule": null,
        "scheduleEnabled": null,
        "primaryVolumeIds": [
            369
        ],
        "failures": 0,
        "targetPoolId":,
        "secondaryStorageSystemId": "",
        "quorumId":,
        "secondaryPoolId":,
        "dataFlowName":
        "importedFromDpManager": false
    }],
    "replicationStatuses": [ "SSUS", "PSUS" ],
    "total": 2,
    "nextToken": null,
}
```

Example request

```
https://10.196.165.88/v1/storage-systems/410438/replication-groups?q=type:HA
```

Example response

```
{
    "resources":[
        {
            "storageSystemId":"410438",
            "name":"hsa-test-en-cap-newcon1",
            "comments":null,
            "type":"HA",
            "consistent":true,
            "numberOfCopies":null,
            "schedule":null,
            "scheduleEnabled":null,
            "primaryVolumeIds":[
            ],
            "failures":0,
            "targetPoolId":null,
            "secondaryStorageSystemId":"410111",
            "secondaryPoolId":41,
            "quorumId":13,
```

```
            "dataFlowName":"hsa-test-en-cap-newcon1",
            "id":1
        },
        {
        "storageSystemId":"410438",
            "name":"test-to-ha-rg-multi",
            "comments":null,
            "type":"HA",
            "consistent":true,
            "numberOfCopies":null,
            "schedule":null,
            "scheduleEnabled":null,
            "primaryVolumeIds":[
            ],
            "failures":0,
            "targetPoolId":null,
            "secondaryStorageSystemId":"410111",
            "secondaryPoolId":4,
            "quorumId":13,
            "dataFlowName":"test-to-ha-rg-multi",
            "id":2
        }
    ],
    "replicationStatuses": [ "SSUS", "PSUS" ],
    "total":2,
    "nextToken":null
}
```


Getting a replication group by ID

You can display details of a replication group in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *replicationGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "id": ,
    "storageSystemId": "",
    "name": "",
    "comments": "",
    "type": "",
    "consistent": ,
    "numberOfCopies": ,
    "schedule": {
        "recurringUnit": "",
        "minute": ,
        "hour": ,
        "recurringUnitInterval": ,
        "dayOfWeek": ,
        "dayOfMonth":
    },
    "scheduleEnabled": ,
    "primaryVolumeIds": [
    ],
    "failures": ,
    "targetPoolId":,
    "secondaryStorageSystemId": "",
    "quorumId":,
    "secondaryPoolId":,
    "dataFlowName": ,
    "importedFromDpManager": ,
    "replicationStatuses":
},
```

Parameter	Type	Description
id	String	ID of the replication group.
storageSystemId	String	ID of the storage system.
name	String	Name of the resource.
comments	String	Comment for the replication group. Min = 1, max = 255 characters.
type	String	Replication type. Valid values: ▪ CLONE ▪ SNAP: Snapshot

Parameter	Type	Description
		▪ SNAP_ON_SNAP ▪ GAD: Global Active Device
consistent	Boolean	Whether copying takes place on all volume pairs in the group simultaneously.
numberOfCopies	Integer	Number of replication group copies. Min =1, max = 1024. This parameter is only available when the `type` is SNAP.
schedule	Object	Interval at which the snapshots are taken, such as: ▪ hour; Integer, valid values: 0-23 ▪ minute; Integer, valid values: 0-59 ▪ recurringUnit; String, ('HOURLY', 'DAILY','WEEKLY', 'MONTHLY') ▪ recurringUnitInterval; Integer, (null, or any positive integer) ▪ dayOfWeek; List of Strings, (null, or 'SUN', 'MON','TUE', 'WED', 'THU', 'FRI', 'SAT') ▪ dayOfMonth; Integer, (null, or 1-31) Notes: ▪ This parameter is only available when the `type` is SNAP. ▪ Only hour and minute are required if Daily is chosen ▪ recurringUnitInterval is only applicable if Hourly is chosen ▪ dayOfWeek is only applicable if Weekly is chosen ▪ dayOfMonth is only applicable if Monthly is chosen
scheduleEnabled	Boolean	Whether the schedule is enabled. This parameter is only available when the `type` is SNAP.
primaryVolumeIds	List	List of the primary volume IDs.
failures	Integer	Count of data protection failed volumes.

Parameter	Type	Description
targetPoolId	Integer	If the user sets a target pool for the snapshot, an integer value is returned as the target pool ID. If the user does not set a target pool, returns NULL. In this case, Ops Center Administrator automatically selects the pool when taking a snapshot.
secondaryStorageSystemId	String	The ID of the secondary storage system.
secondaryPoolId	String	The ID of the pool of the secondary volume.
quorumId	Integer	The ID of the quorum disk.
dataFlowName	String	Name of the data flow related to the replication group.
importedFromDpManager	Boolean	Whether the replication group is imported from Ops Center Protector.
replicationStatuses	String[]	This parameter is only used by the Ops Center Administrator GUI.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://172.17.64.112/v1/storage-systems/410031/replication-groups/1
```

Example response

```
{
    "id": 1,
    "storageSystemId": "410031",
    "name": "testRg",
```

```
    "comments": "test comments",
    "type": "SNAP",
    "consistent": false,
    "numberOfCopies": 1,
    "schedule": {
        "recurringUnit": "HOURLY",
        "minute": 43,
        "hour": null,
        "recurringUnitInterval": 1,
        "dayOfWeek": null,
        "dayOfMonth": null
    },
    "scheduleEnabled": true,
    "primaryVolumeIds": [
        309
    ],
    "failures": 0,
    "targetPoolId": 1,
    "secondaryStorageSystemId": null,
    "quorumId": null,
    "secondaryPoolId": null,
    "dataFlowName": null,
    "importedFromDpManager": false,
    "replicationStatuses": [ "SSUS" ]
},
```

Getting a replication group summary

You can display the replication group summary by replication types.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/summary
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "replicationGroupCountByType":
  [
   {
   "replicationType": "",
```

```
    "count":
    },
    {
    "replicationType": "",
    "count":
    }
  ]
}
```

Parameter	Type	Description
replicationGroupCountByType	Set	The total number of replication group by type.
replicationType	String	Volume replication type. Valid values: ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
count	Integer	Number of replication groups of the given type.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://172.17.64.112/v1/storage-systems/410031/replication-groups/summary
```

Example response

```
{
  "replicationGroupCountByType":
```

```
  [
   {
   "replicationType": "CLONE",
   "count": 1
   },
   {
   "replicationType": "HA",
   "count": 0
   }
  ]
}
```

Creating a replication group

You can create a replication group in a storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/replication-groups
```

Use the storage system ID as the *storageSystemId*.

Request structure

The request body structure is shown here.

```
{
    "name": "",
    "comments": "",
    "type": "",
    "consistent": ,
    "numberOfCopies": ,
    "schedule": {
        "recurringUnit":"",
        "minute":,
        "hour": ,
        "recurringUnitInterval":,
        "dayOfWeek": ,
        "dayOfMonth":
    },
    "primaryVolumeIds": ,
    "targetPoolId":
}
```

Parameter	Required	Type	Description
name	Yes	String	The name of the replication group.
comments	No	String	Comments about the resource. Min = 1, max = 255.
type	Yes	String	The type of replication group. SNAP, SNAP_ON_SNAP, or CLONE.
consistent	No	Boolean	Whether copying takes place on all pairs in the group simultaneously.
numberOfCopies	Yes	Integer	Number of replication group copies. Min=1, max=1024. This parameter is only available when `type` is SNAP.
schedule	Yes	Object	Required if type is SNAP or SNAP_ON_SNAP. Interval at which the snapshots are taken, such as: ▪ hour; Integer, valid values: 0-23 ▪ minute; Integer, valid values: 0-59 ▪ recurringUnit; String, ('HOURLY', 'DAILY','WEEKLY', 'MONTHLY') ▪ recurringUnitInterval; Integer, (null, or any positive integer) ▪ dayOfWeek; String[ ], (null, or 'SUN', 'MON','TUE', 'WED', 'THU', 'FRI', 'SAT') ▪ dayOfMonth; Integer, (null, or 1-31) Note: ▪ Minute is required if HOURLY is chosen. ▪ Hour and minute are required if DAILY is chosen ▪ recurringUnitInterval is only applicable if HOURLY is chosen ▪ dayOfWeek is only applicable if WEEKLY is chosen ▪ dayOfMonth is only applicable if MONTHLY is chosen
primaryVolumeIds	Yes	List	List of the primary volume IDs.

Parameter	Required	Type	Description
targetPoolId	No	Integer	If the user specifies `poolId`, the snapshot is taken from the specified pool.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.

Parameter	Type	Description
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
POST https://172.17.64.112/v1/storage-systems/410031/replication-groups
```

```
{
    "name":"testRg",
    "comments":"test comments",
    "consistent":false,
    "type":"SNAP",
    "primaryVolumeIds":[6],
    "numberOfCopies":1,
    "schedule":{
        "recurringUnit":"Hourly",
        "minute":10,
        "hour": null,
        "recurringUnitInterval":null,
        "dayOfWeek":null,
        "dayOfMonth":null
    },
    "targetPoolId":1
}
```

Adding volumes to a replication group on a storage system

You can add primary or secondary volumes to a replication group on a storage system. Note that this API cannot be used for a replication group with GAD attribute.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId/add-volumes
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *replicationGroupId*.

Request structure

```
{
"primaryVolumeIds": []
}
```

Parameter	Required	Type	Description
primaryVolumeIds	Yes	List	List of the primary volume IDs.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
```

```
        }
    ],
    "tags":
    [
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.

Parameter	Type	Description
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
POST https://172.17.64.113/v1/storage-systems/410031/replication-groups/1/add-volumes
```

```
{
"primaryVolumeIds": [1]
}
```

Removing volumes from a replication group on a storage system

You can remove primary or secondary volumes from a replication group on a storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId/remove-volumes
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *replicationGroupId*.

Request structure

```
{
"primaryVolumeIds": [],
"deleteSecondaryVolume":
"removeConnection":
}
```

Parameter	Required	Type	Description
primaryVolumeIds	Yes	List	List of the primary volume IDs.
deleteSecondaryVolume	Yes	Boolean	Whether to delete the secondary volume.
removeConnection	No	Boolean	Specify whether to remove zone settings for the Fibre Channel between removed secondary volumes and servers, if applicable. False if you specified null. The value must be null if the replication type is not HA.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
```

```
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.

Parameter	Type	Description
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
POST https://172.17.64.113/v1/storage-systems/410031/replication-groups/1/remove-volumes
```

Example Request

```
{
"primaryVolumeIds": [14,3,101],
"deleteSecondaryVolume": true
}
```

Restoring volumes on a storage system

You can restore volumes on a storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/volumes/volumeId/restore
```

Use the storage system ID as the *storageSystemId*.

Use the primary or secondary volume ID as the *volumeId*.

Request structure

```
{
"secondaryVolumeId":
}
```

Parameter	Required	Type	Description
secondaryVolumeId	Yes	Integer	ID of the secondary volume.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
```

```
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
POST https://172.17.64.113/v1/storage-systems/410031/volumes/3/restore
```

Example Request

```
{
"secondaryVolumeId": 46
}
```

Updating clone replication groups on a storage system

You can update a clone replication group on a storage system. You can change the name or update comments.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *replicationGroupId*.

Request structure

```
{
"name": "",
"comments":""
}
```

Parameter	Required	Type	Description
name	No	String	The name of the resource. Min = 1, max = 26.
comments	No	String	Comments about the resource. Min = 1, max = 255.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
```

```
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.

Parameter	Type	Description
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example Request

```
PATCH https://172.17.64.113/v1/storage-systems/410031/replication-groups/1
```

Example Request

```
{
 "name": "Clone group name",
 "comments":"This is a clone group for server-1"
}
```

Updating a snapshot replication group on a storage system

Use this API to manage replication policy on a storage system. You can change, suspend, or resume the schedule, change the name, the numberOfCopies, or update comments. The policy type and consistency attributes cannot be changed after a policy is created. Using this API, you cannot change the volume set to which the policy is applied. Use the protect/unprotect APIs to update the volume set.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *replicationGroupId*.

Request structure

The request body structure is shown below:

```
{
"comments": "",
"name": "",
"numberOfCopies": ,
"schedule":
{
  "hour": ,
  "minute": ,
  "recurringUnit": "",
  "recurringUnitInterval": ,
  "dayOfWeek": [""],
  "dayOfMonth":
 },
"scheduleEnabled":"",
"targetPoolId":
}
```

Parameter	Required	Type	Description
comments	No	String	Comments about the resource. Min = 1, max = 255.
name	No	String	The name of the resource. Min = 1, max = 26.
numberOfCopies	No	Integer	Number of replication group copies. Min = 1, max = 1024.
schedule	Yes	Object	Required if type is SNAP or SNAP_ON_SNAP. Interval at which the snapshots are taken, such as: ▪ hour; Integer, valid values: 0-23 ▪ minute; Integer, valid values: 0-59 ▪ recurringUnit; String, ('HOURLY', 'DAILY','WEEKLY', 'MONTHLY') ▪ recurringUnitInterval; Integer, (null, or any positive integer) ▪ dayOfWeek; String[ ], (null, or 'SUN', 'MON','TUE', 'WED', 'THU', 'FRI', 'SAT') ▪ dayOfMonth; Integer, (null, or 1-31) Note: ▪ Minute is required if HOURLY is chosen. ▪ Hour and minute are required if DAILY is chosen ▪ recurringUnitInterval is only applicable if HOURLY is chosen ▪ dayOfWeek is only applicable if WEEKLY is chosen ▪ dayOfMonth is only applicable if MONTHLY is chosen
scheduleEnabled	No	Boolean	Whether the schedule is enabled.
targetPoolId	No	Integer	If the user specifies `poolId`, the snapshot is taken from the specified pool. If the user does not specify `poolId`, Ops Center Administrator automatically selects the target pool when taking a snapshot. To keep the target pool, specify the current `poolId`.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example Request

```
PATCH https://172.17.64.113/v1/storage-systems/410031/replication-groups/1
```

Example Request

```
{
"comments": "This is a snapshot group for server 2",
"name": "unique new name"
"number of copies": 2
"schedule":
{
  "hour": ,
  "minute": 0 ,
  "recurringUnit": "HOURLY",
  "recurringUnitInterval": 2,
  "dayOfWeek": ,
  "dayOfMonth":
 },
"scheduleEnabled":"true",
"targetPoolId":1
}
```

Updating high availability replication groups on a storage system

You can update high availability replication groups on a storage system in Ops Center Administrator.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId
```

Request structure

```
{
"name": "",
"comments":""
}
```

Parameter	Required	Type	Description
name	No	String	The name of the resource. Min = 1, max = 26.
comments	No	String	Comments about the resource. Min = 1, max = 255.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
```

```
    ],
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example Request

```
PATCH https://172.17.64.113/v1/storage-systems/410031/replication-groups/1
```

Example Request

```
{
 "name": "HA group name",
 "comments":"This is an HA group for server-1"
}
```

Suspending data replication

This API suspends data replication for all volumes in the given replication group in a storage system. This functionality only supported for a CLONE replication group. An attempt to suspend a SNAPSHOT replication group will result in an exception.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId/suspend
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *replicationGroupId*.

Request structure

Not applicable

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
POST https://172.17.64.112/v1/storage-systems/410031/replication-groups/1/suspend
```

Resuming replication

This API resumes data replication for all volumes in the given replication group in a storage system. This functionality only supported for a clone replication group. An attempt to suspend a snapshot replication group will result in an exception.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId/resume
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *replicationGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
```

```
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).

Parameter	Type	Description
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
POST https://172.17.64.112/v1/storage-systems/410031/replication-groups/1/resume
```

Deleting a replication group

You can delete a replication group in a storage system.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId
```

Use the storage system ID as the *storageSystemId*.

Use the replication group ID as the *replicationGroupId*.

Request structure

The request body structure is shown below:

```
{
 "removeConnection":
}
```

Parameter	Required	Type	Description
removeConnection	No	Boolean	Specify whether to remove zone settings for the Fibre Channel between removed secondary volumes and servers, if applicable. False if you specified null. The value must be null if the replication type is not HA.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
```

```
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example Request

```
DELETE https://172.17.64.112/v1/storage-systems/410031/replication-groups/1
```

Listing volume pairs

You can display a list of all volume pairs in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volume-pairs
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources":
    [
        {
            "replicationGroup": ,
            "volumePairGroup": "",
            "primaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "secondaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "mirrorId": ,
            "splitTime": ,
            "consistent": ,
            "consistencyId": ,
            "type": "",
            "state": "",
            "quorumId":
        }
   ],
   "total":,
   "nextToken": ""
}
```

Parameter	Type	Description
resources	Object	Resource information.
total	Long	Total number of resources
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://sa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`
replicationGroup	String	The name of the replication group.
volumePairGroup	String	The name of the copy group, for clones, or a snapshot group for snapshots.
primaryVolume	Object	Primary volume information.
secondaryVolume	Object	Secondary volume information.
id	Integer	ID of the volume.
storageSystemId	String	ID of the storage system.
status	String	Status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume.

Parameter	Type	Description
		▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ SMPP: a volume pair with the clone attribute is being deleted. ▪ PSUP: a volume pair with the clone attribute is in suspended status. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ CPYP: A secondary volume is in the process of being assigned, released, or changed for the snapshot data.
mirrorId	Integer	When multiple S-VOLs are created for one P-VOL, a mirror ID is assigned to each volume pair.
splitTime	Long	The time pair split is performed in Epoch time format.
consistent	Boolean	Whether copying takes place on all volume pairs in the group simultaneously.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If not consistent, the value null is returned.

Parameter	Type	Description
type	String	The replication type for the volume pair. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: high availability (global-active device)
state	String	The volume pair state. Valid values: HEALTHY or ERROR.
quorumId	Integer	Quorum ID of the pair.

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://10.76.48.147/v1/storage-systems/410500/volume-pairs?
q=primaryVolume.id:385+AND+type:HA
```

Example response

```
{
    "resources":[
```

```
        {
            "replicationGroup":"test2",
            "volumePairGroup":null,
            "primaryVolume":
            {
                "id":385,
                "storageSystemId":"410500",
                "status":"PAIR"
            },
            "secondaryVolume":
            {
                "id":694,
                "storageSystemId":"410209",
                "status":"PAIR"
            },
            "mirrorId":0,
            "splitTime":null,
            "consistent":true,
            "consistencyId":2,
            "type":"HA",
            "state":"HEALTHY",
            "quorumId":4
        }
    ],
    "total":1,
    "nextToken":null
}
```


Viewing volume pairs affected by actions performed on a replication group

You can display a list of volume pairs affected by actions performed on a replication group in a storage system. Volumes in a replication group include all volumes explicitly added to a replication group using APIs or the web-based user interface. The affected volume pairs include volumes added outside of Ops Center Administrator to Ops Center Administrator-managed copy groups, snapshot groups, and consistency groups.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/replication-groups/
replicationGroupId/affected-volume-pairs
```

Use the storage system ID as the *storageSystemId*.

Use the replication group ID as the *replicationGroupId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
        "volumePairs":
        [
            {
                "replicationGroup": "",
                "volumePairGroup": "",
                "primaryVolume":
                {
                    "id": ,
                    "storageSystemId": "",
                    "status": ""
                },
                "secondaryVolume":
                {
                    "id": ,
                    "storageSystemId": "",
                    "status": ""
                },
                "mirrorId": ,
                "splitTime": ,
                "consistent": ,
                "consistencyId": ,
                "type": "",
                "state": "",
                "quorumId":
            }
        ]
}
```

Parameter	Type	Description
replicationGroup	String	The name of the replication group.
volumePairGroup	String	The name of the copy group, for clones, or a snapshot group for snapshots.
id	Integer	ID of the volume.
storageSystemId	String	ID of the storage system.

Parameter	Type	Description
status	String	Status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ SMPP: a volume pair with the clone attribute is being deleted. ▪ PSUP: a volume pair with the clone attribute is in suspended status. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ CPYP: A secondary volume is in the process of being assigned, released, or changed for the snapshot data.
mirrorId	Integer	When multiple S-VOLs are created for one P-VOL, a mirror ID is assigned to each volume pair.
splitTime	Long	The time pair split is performed in Epoch time format.

Parameter	Type	Description
consistent	Boolean	Whether copying takes place on all volume pairs in the group simultaneously.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If not consistent, the value null is returned.
type	String	The replication type for the volume pair. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: high availability (global-active device)
state	String	The volume pair state. Valid values: HEALTHY or ERROR.
quorumId	Integer	Quorum ID of the pair.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://172.17.64.112/v1/storage-systems/410500/replication-groups/1/affected-volume-pairs
```

Example response


```
{
    "volumePairs":[
        {
            "replicationGroup":"test2",
            "volumePairGroup":null,
            "primaryVolume":
            {
                "id":385,
                "storageSystemId":"410500",
                "status":"PAIR"
            },
            "secondaryVolume":
            {
                "id":694,
                "storageSystemId":"410209",
                "status":"PAIR"
            },
            "mirrorId":0,
            "splitTime":null,
            "consistent":true,
            "consistencyId":2,
            "type":"HA",
            "state":"HEALTHY",
            "quorumId":null
        }
    ]
}
```


Getting primary volume pairs

You can display a list of volume pairs listed by the primary volume in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volume-pairs?
q=primaryVolume.id:primaryVolumeId
```

Use the storage system ID as the *storageSystemId*.

Use the ID as the *volumeId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources":
    [
        {
            "replicationGroup": ,
            "volumePairGroup": "",
            "primaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "secondaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "mirrorId": ,
            "splitTime": ,
            "consistent": ,
            "consistencyId": ,
            "type": "",
            "state": "",
            "quorumId":
        }
   ]
}
```

Parameter	Type	Description
replicationGroup	String	The name of the replication group.

Parameter	Type	Description
volumePairGroup	String	The name of the copy group, for clones, or a snapshot group for snapshots.
id	Integer	ID of the volume.
storageSystemId	String	ID of the storage system.
status	String	Status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ SMPP: a volume pair with the clone attribute is being deleted. ▪ PSUP: a volume pair with the clone attribute is in suspended status. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ CPYP: A secondary volume is in the process of being assigned, released, or changed for the snapshot data.

Parameter	Type	Description
mirrorId	Integer	When multiple S-VOLs are created for one P-VOL, a mirror ID is assigned to each volume pair.
splitTime	Long	The time pair split is performed in Epoch time format.
consistent	Boolean	Whether copying takes place on all volume pairs in the group simultaneously.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If not consistent, the value null is returned.
type	String	The replication type for the volume pair. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
state	String	The volume pair state. Valid values: HEALTHY or ERROR.
quorumId	Integer	Quorum ID of the pair.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://10.76.48.147/v1/storage-systems/410500/volume-pairs?
q=primaryVolume.id:385+AND+primaryVolume.storageSystemId:410500
```

Example response


```
{
    "resources":[
        {
            "replicationGroup":"test2",
            "volumePairGroup":null,
            "primaryVolume":
            {
                "id":385,
                "storageSystemId":"410500",
                "status":"PAIR"
            },
            "secondaryVolume":
            {
                "id":694,
                "storageSystemId":"410209",
                "status":"PAIR"
            },
            "mirrorId":0,
            "splitTime":null,
            "consistent":true,
            "consistencyId":2,
            "type":"HA",
            "state":"HEALTHY",
            "quorumId":4
        }
    ],
    "total":1,
    "nextToken":null
}
```

Getting secondary volume pairs

You can display a list of volume pairs listed by the secondary volume in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volume-pairs?
q=secondaryVolume.id:secondaryVolumeId
```

Use the storage system ID as the *storageSystemId*.

Use the secondary volume ID as the *secondaryVolumeId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources":
    [
        {
            "replicationGroup": ,
            "volumePairGroup": "",
            "primaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "secondaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "mirrorId": ,
            "splitTime": ,
            "consistent": ,
            "consistencyId": ,
            "type": "",
            "state": "",
            "quorumId":
        },
    ]
}
```

Parameter	Type	Description
replicationGroup	String	The name of the replication group.
volumePairGroup	String	The name of the copy group, for clones, or a snapshot group for snapshots.
id	Integer	ID of the volume.
storageSystemId	String	ID of the storage system.
status	String	Status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ SMPP: a volume pair with the clone attribute is being deleted. ▪ PSUP: a volume pair with the clone attribute is in suspended status. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ CPYP: A secondary volume is in the process of being assigned, released, or changed for the snapshot data.

Parameter	Type	Description
mirrorId	Integer	When multiple S-VOLs are created for one P-VOL, a mirror ID is assigned to each volume pair.
splitTime	Long	The time pair split is performed in Epoch time format.
consistent	Boolean	Whether copying takes place on all volume pairs in the group simultaneously.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If not consistent, the value null is returned.
type	String	The replication type for the volume pair. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
state	String	The volume pair state. Valid values: HEALTHY or ERROR.
quorumId	Integer	Quorum ID of the pair.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://10.76.48.147/v1/storage-systems/410209/volume-pairs?
q=secondaryVolume.id:694+AND+secondaryVolume.storageSystemId:410209
```

Example response


```
{
    "resources":[
        {
            "replicationGroup":null,
            "volumePairGroup":null,
            "primaryVolume":
            {
                "id":385,
                "storageSystemId":"410500",
                "status":"PAIR"
            },
            "secondaryVolume":
            {
                "id":694,
                "storageSystemId":"410209",
                "status":"PAIR"
            },
            "mirrorId":0,
            "splitTime":null,
            "consistent":true,
            "consistencyId":2,
            "type":"HA",
            "state":"HEALTHY",
            "quorumId":4
        }
    ],
    "total":1,
    "nextToken":null
}
```

Getting secondary volumes

You can display a list of secondary volumes for a specific primary volume in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volumes/volumeId/
secondaryVolumes
```

Use the storage system ID as the *storageSystemId*.

Use the volume ID as the *volumeId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "volumeResourceCollection":
    {
  "volumes": [
      {
          "volumeId": ,
          "storageSystemId": "",
          "storageSystemName": "",
          "poolId": "",
          "poolName": "",
          "label": "",
          "size": ,
          "usedCapacity": ,
          "availableCapacity": ,
          "utilization": ,
          "attributes": [""],
          "status": "",
          "type": "",
          "provisioningStatus": "",
          "portIds": [""],
          "hostGroupNames": [""],
          "luns": [],
          "numberOfLunPaths": ,
          "attachedVolumeServerSummary": [
              {
                  "serverId": ,
                  "paths": [
                      {
                          "storagePortId": "",
```

```
                        "storageSystemId": "",
                        "lun": ,
                        "hostGroupId": "",
                        "name": "",
                        "hostMode": "",
                        "wwns": [""],
                        "hostModeOptions": [""],
                        "iscsiTargetInformation": {},
                        "preferredPath":
                    },
                    ...
                ]
            },
            ...
        ],
        "dataProtectionSummary": {
            "replicationType": [""],
            "volumeType": [""],
            "replicationGroupIdMap": {},
            "hasFailures": ,
            "secondaryVolumeCount": ,
            "secondaryVolumeFailures":
        },
        "gadSummary": {
            "vsmId": "",
            "virtualLdevId": ,
            "volumeType": "",
            "pairStatus": "",
            "consistencyId":,
            "mirrors" : [
               {
                "mirrorId": ,
                "volumeType": "",
                "pairStatus": "",
                "consistencyId":
               },
               ...
            ]
        },
        "compressionAcceleration": ,
        "commandDevice":
      },
      ...
    ]
  }
}
```

Parameter	Type	Description
volumeResourceCollection	Set	List of primary or secondary volumes.
volumeId	Long	ID number of the volume within the parent storage system.
storageSystemId	String	ID of the storage system.
storageSystemName	String	The name of the storage system.
poolId	String	ID of the pool from which the resource is allocated.
poolName	String	Name of the pool from which the resource is allocated.
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
usedCapacity	Long	Sum of used capacity per volume resource, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage= (usedCapacity/size) *100.
attributes	List	List of the attributes of the volume. Valid values: ▪ THIN: a volume for thin provisioning. ▪ VVOL: a secondary volume for creating snapshots. ▪ GUARD: a volume for Data Retention Utility. ▪ MIGRATION_RESERVED: a volume for the data migration. ▪ HA: a primary or secondary volume for High Availability. ▪ HA_RESERVED: a reserved volume for High Availability. ▪ NAS_TYPE_USER: a volume used as a user LU of the storage system includes NAS modules. ▪ ALUA: a volume of which ALUA mode is enabled.

Parameter	Type	Description
		▪ T10PI: a volume of which T10PI mode is enabled. ▪ COMPRESSION: a volume of which compression is enabled. ▪ DEDUPLICATION: a volume of which deduplication is enabled. ▪ DRS: a volume of which DRS is enabled.
status	String	Volume status. Valid values: NORMAL, BLOCKED, BUSY, SHREDDING, UNKNOWN, or NONE.
type	String	Type of pool from which the volume is allocated. Valid values: THIN, TIERED, or SNAP.
provisioningStatus	String	Provisioning status of a volume. Valid values: ATTACHED, UNATTACHED, or UNMANAGED.
portIds	List	List of the storage port IDs.
hostGroupNames	List	List of the host group names.
luns	List	List of the LUN IDs.
numberOfLunPaths	Integer	The number of paths from WWNs or iSCSI names to volumes (excluding paths where LUN security is disabled).
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSIO N, and NONE
aluaEnabled	Boolean	Whether or not ALUA mode of the volume is enabled.
migrationSummary	Object	List of migration attributes for the volume.
ownerTaskId	String	The ID of the owner migration task.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE

Parameter	Type	Description
virtualStorageMachineInformation	Object	Displays the virtual storage machine information for the volume. A value of NULL is returned if there are no VSMs.
virtualStorageMachineId	String	The virtual storage machine ID that belongs to this volume.
storageSystemId	String	The serial number of the VSM to which the volume belongs.
model	String	The model of the VSM to which the volume belongs.
virtualVolumeId	Long	The virtual volume ID. If the virtual volume is not defined, a value of NULL is returned.
attachedVolumeServerSummary	List	Volume provisioning summary details.
serverId	Integer	ID of the server.
paths	List	Paths that exist on the volume.
storagePortId	Long	ID of the storage port.
storageSystemId	String	ID of the storage system.
lun	Integer	ID of the LUN.
hostModeOptions	List of Integers	Host mode options for the volume.
name	String	Name of the resource.
hostMode	String	Host mode set for the volume.
wwns	List	List of WWNs of connected hosts. NULL for iSCSI path.
hostGroupId	Long	ID of the host group.
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
preferredPath	Boolean	Whether the LU path (host group) is preferred or not.
dataProtectionSummary	Object	List of the data protection attributes of the volume.

Parameter	Type	Description
replicationType	String	Volume replication type. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
volumeType	Set	Type of volume in the replication. Valid values: P-VOL, S-VOL, or UNPROTECTED.
replicationGroupIdMap	Object	Replication group ID map. Consisting of the replication group ID and the replication group name for each of the replication group the volume belongs to.
hasFailures	Boolean	Whether the volume has replication failures.
secondaryVolumeCount	Integer	Count of secondary volume pairs protecting the primary volume.
secondaryVolumeFailures	Integer	Count of failed volume pairs where this volume is an S-VOL.
gadSummary	Object	List of the GAD attributes of the volume. If there is no GAD pair, a NULL value is returned.
vsmId	String	ID number of the virtual storage machine (VSM).
virtualLdevID	String	ID number of the virtual volume.
volumeType	String	Volume type. Valid values: Active-Primary, Active-Secondary **Note:** This parameter is deprecated and will be removed in a future version. Use the `volumeType` parameter of the `mirrors` object instead.

Parameter	Type	Description
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume. ▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ UNKNOWN: a volume pair is in unknown status. ▪ NONE: a volume is not paired. **Note:** This parameter is deprecated and will be removed in a future version. Use the `pairStatus` parameter of the `mirrors` object instead.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. **Note:** This parameter is deprecated and will be removed in a future version. Use the `consistencyId` parameter of the `mirrors` object instead.
mirrors	Object	List of the GAD attributes per mirror of the volume.
volumeType	String	Volume type. Valid values: ACTIVE_PRIMARY, ACTIVE_SECONDARY, NOT_AVAILABLE

Parameter	Type	Description
pairStatus	String	The status of the given volume in the volume pair. Valid values: ▪ PAIR: the volume is in paired status. ▪ PSUS: the volume pair is in suspended status for the primary volume. ▪ SSUS: the volume pair is in suspended status for the secondary volume. ▪ COPY: the volume pair is in data synchronizing status. ▪ PSUE: the volume pair is in suspended status with error. ▪ SSWS: the volume pair is in suspended status for swapping the secondary volume.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If the volume pair is not a part of consistency group, a NULL value is returned. For storage systems without an SVP, a NULL value is returned.
compressionAcceleration	String	Whether the compression accelerator is enabled or not for the volume Valid values: ENABLED, DISABLED, -
commandDevice	Object	Command device settings for the volume. The value of this parameter is null in case of storage systems without SVP or not command device.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://172.17.92.44v1/storage-systems/41020/volumes/694/secondaryVolumes
```

Example response


```
{
    "volumeResourceCollection":
    {
        "volumes":
        [
      {
          "volumeId": 0,
          "storageSystemId": "41020",
          "storageSystemName": "RN-SC-41020-HID_SVOS7.3-Gsd",
          "resourceGroupId": 0,
          "resourceGroupName": "meta_resource",
          "poolId": "3",
          "poolName": "test-pool",
          "label": "test-aua",
          "size": 2147483648,
          "usedCapacity": 0,
          "availableCapacity": 2147483648,
          "utilization": 0,
          "attributes": [
              "THIN"
          ],
          "status": "NORMAL",
          "type": "THIN",
          "provisioningStatus": "ATTACHED",
          "portIds": [
              "CL1-E",
              "CL3-F"
```

```
        ],
        "hostGroupNames": [
            "DocServer",
            "windows16"
        ],
        "luns": [
            1,
            2
        ],
        "numberOfLunPaths": 2,
        "attachedVolumeServerSummary": [
            {
                "serverId": null,
                "paths": [
                    {
                        "storagePortId": "CL3-F",
                        "storageSystemId": "41020",
                        "lun": 1,
                        "hostGroupId": "CL3-F-6",
                        "name": "windows16",
                        "hostMode": "WIN",
                        "wwns": [
                            "1000000533267214"
                        ],
                        "hostModeOptions": [],
                        "iscsiTargetInformation": null,
                        "preferredPath": true
                    },
                    ...
                ]
            },
            {
                "serverId": 2,
                "paths": [
                    {
                        "storagePortId": "CL1-E",
                        "storageSystemId": "41020",
                        "lun": 2,
                        "hostGroupId": "CL1-E-12",
                        "name": "DocServer",
                        "hostMode": "SOLARIS",
                        "wwns": [
                            "5000000000000000"
                        ],
                        "hostModeOptions": [],
                        "iscsiTargetInformation": null,
                        "preferredPath": true
                    },
                    ...
                ]
            }
```

```
          ],
          ...
          "gadSummary": {
              "vsmId": "7",
              "virtualLdevId": "2657",
              "volumeType": "ACTIVE_PRIMARY",
              "pairStatus": "PAIR",
              "consistencyId": 15,
              "mirrors" : [
                 {
                   "mirrorId": 0,
                   "volumeType": "ACTIVE_SECONDARY",
                   "pairStatus": "PAIR",
                   "consistencyId": 15
                 },
                 {
                   "mirrorId": 1,
                   "volumeType": "ACTIVE_PRIMARY",
                   "pairStatus": "COPY",
                   "consistencyId": 17
                 }
              ]
          },
          "compressionAcceleration": "ENABLED",
          "commandDevice": null
  }
}
```

Listing failed volume pairs

You can display a list of failed volume pairs in a storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/volume-pairs?q=state:ERROR
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources":
    [
```

```
        {
            "replicationGroup": ,
            "volumePairGroup": "",
            "primaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "secondaryVolume":
            {
                "id": ,
                "storageSystemId": "",
                "status": ""
            },
            "mirrorId": ,
            "splitTime": ,
            "consistent": ,
            "consistencyId": ,
            "type": "",
            "state": "",
            "quorumId":
        }
    ]
}
```

Parameter	Type	Description
replicationGroup	String	The name of the replication group.
volumePairGroup	String	The name of the copy group, for clones, or a snapshot group for snapshots.
id	Integer	ID of the volume.
storageSystemId	String	ID of the storage system.
status	String	Status of the given volume in the volume pair. Valid values: ▪ PAIR: a volume is in paired status. ▪ PSUS: a volume pair is in suspended status for the primary volume.

Parameter	Type	Description
		▪ SSUS: a volume pair is in suspended status for the secondary volume. ▪ SMPP: a volume pair with the clone attribute is being deleted. ▪ PSUP: a volume pair with the clone attribute is in suspended status. ▪ COPY: a volume pair is in data synchronizing status. ▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume. ▪ CPYP: A secondary volume is in the process of being assigned, released, or changed for the snapshot data.
mirrorId	Integer	When multiple S-VOLs are created for one P-VOL, a mirror ID is assigned to each volume pair.
splitTime	Long	The time pair split is performed in Epoch time format.
consistent	Boolean	Whether copying takes place on all volume pairs in the group simultaneously.
consistencyId	Integer	The ID of the consistency group in which the volume pair resides. If not consistent, the value null is returned.

Parameter	Type	Description
type	String	The replication type for the volume pair. Valid values: ▪ SNAP_ON_SNAP: Snapshot pair that can be cascaded. ▪ SNAP_CLONE: A pair relationship in which the secondary volume of the pair will be a real volume of the primary volume. ▪ CLONE ▪ SNAP: Snapshot ▪ HA: High Availability (global-active device)
state	String	The volume pair state. Valid values: HEALTHY or ERROR.
quorumId	Integer	Quorum ID of the pair.

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example Request

```
GET https://172.17.64.112/v1/storage-systems/410031/volume-pairs?state=ERROR
```

Example response

```
{
    "resources":
    [
```

```
        {
            "replicationGroup": null,
            "volumePairGroup": "RL-Multiple-snaps_1462426223934",
            "primaryVolume":
            {
                "id": 14,
                "storageSystemId": "410031",
                "status": "PSUS"
            },
            "secondaryVolume":
            {
                "id": 46,
                "storageSystemId": "410031",
                "status": "SSUS"
            },
            "mirrorId": 10,
            "splitTime": 1462441131000,
            "consistent": true,
            "consistencyId": null,
            "type": "SNAP",
            "state": "ERROR",
            "quorumId": null
        }
  ]
}
```

Getting Ops Center Protector information

You can retrieve information about Ops Center Protector, such as its IP address or login user name, in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/dp-manager
```

Request structure

Not applicable.

Response structure

```
{
   "ipAddress":"",
   "tcpPort":,
   "namespace":"",
   "username":"",
   "version":"",
```

```
   "lastUpdated":
}
```

Parameter	Required	Type	Description
ipAddress	Yes	String	IP address of the Ops Center Protector API.
tcpPort	Yes	Integer	TCP port number of the Ops Center Protector API.
namespace	Yes	String	Space name to which the user belongs
username	Yes	String	Login user name.
version	Yes	String	The version of the Ops Center Protector.
lastUpdated	Yes	Long	The time of last update in Epoch time format.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example response

```
{
    "ipAddress":"10.76.49.230",
    "tcpPort":443,
    "namespace":"master",
    "username":"Administrator",
```

```
    "version":"7.2.5",
    "lastUpdated":1638136882062
}
```

Registering/Deleting the Hitachi Ops Center Protector

You can use this operation to register or delete information about Hitachi Ops Center Protector in Ops Center Administrator.

HTTP request syntax (URI)

```
PATCH https://ipAddress/v1/dp-manager
```

Request structure

```
{
 "keepConnection":,
 "connectionProfile": {
   "ipAddress":"",
   "tcpPort":,
   "namespace":"",
   "username":"",
   "password":""
 }
}
```

Parameter	Required	Type	Description
keepConnection	Yes	Boolean	Keeps a connection with Ops Center Protector alive. Specify this as false if you want to delete the Hitachi Ops Center Protector.

Parameter	Required	Type	Description
connectionProfile	No	Object	Necessary information for connecting the Hitachi Ops Center Protector. It is required if you want to register the Hitachi Ops Center Protector. It is optional if you want to delete the Hitachi Ops Center Protector.
ipAddress	Yes*	String	The IP address of the Hitachi Ops Center Protector.
tcpPort	Yes*	Integer	The TCP port number of the Hitachi Ops Center Protector (API).
namespace	Yes*	String	Space name to which the user belongs
username	Yes*	String	Login user name.
password	Yes*	String	Password of the user.
*: All the parameters inside connectionProfile are mandatory, if connectionProfile is being passed in the request.			

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
```

```
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).

Parameter	Type	Description
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP Name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
PATCH
{"keepConnection":true,"connectionProfile":{"ipAddress":"172.17.64.117","tcpPort":443,
"username":"Administrator","namespace":"master","password":"Welcome@123"}}
```

Example response

```
{
                "jobId": "2cb2b2f6-56ff-4146-904c-6640ebef22da",
                "title": {
                                "text": "Create Hitachi Ops Center Protector",
                                "messageCode": "CreateHdidJobTitleMessage",
                                "parameters": {}
                },
                "user": "sysadmin",
                "status": "IN_PROGRESS",
                "startDate": 1548893079254,
                "endDate": null,
                "parentJobId": null,
                "reports": [],
                "links": [{
                                "rel": "_self",
                                "href": "/v1/jobs/2cb2b2f6-56ff-4146-904c-
6640ebef22da"
                }],
                "tags": [{
                                "tag": "rainier"
                }],
                "isSystem": false
}
```

Testing the connection to Ops Center Protector

You can test the connection to the Ops Center Protector in Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/dp-manager/test-connection
```

Request structure

```
{
   "ipAddress":"",
   "tcpPort":,
   "namespace":"",
   "username":"",
   "password":""
}
```

Parameter	Required	Type	Description
ipAddress	Yes	String	The IP address of the Hitachi Ops Center Protector.
tcpPort	Yes	Integer	The TCP port number of the Hitachi Ops Center Protector (API).
namespace	Yes	String	Space name to which the user belongs
username	Yes	String	Login user name.
password	No	String	Password of the user. Password is not mandatory.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
```

```
    "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status Code	HTTP Name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
POST

{"ipAddress":"172.17.64.117","tcpPort":443,"username":"Administrator",
"namespace":"master","password":"Hitachi@123" }
```

Importing high availability pairs from Ops Center Protector

You can collect HA pairs from Ops Center Protector and import them to Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/dp-manager/import
```

Request structure

```
{
   "storageSystemIds":[]
}
```

Parameter	Required	Type	Description
storageSystemIds	Yes	List	The IDs of the primary storage systems of the HA pairs in String format.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.

Parameter	Type	Description
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Example response

```
{
 "jobId": "cb01b71a-36f0-41ae-9060-2d82517eb858",
  {
```

```
"text": "import HA pairs",
"messageCode": "ImportHaPairsJobTitleMessage",
"parameters":
{
}
},
"user": "sysadmin",
"status": "IN_PROGRESS",
"startDate": 1455837568839,
"endDate": null,
"parentJobId": null,
"reports":
[
],
"links":
[
{
"rel": "_self",
"href": "/v1/jobs/cb01b71a-36f0-41ae-9060-2d82517eb858"
}
],
"tags":
[
],
"isSystem": false
}
```


Return codes

Status Code	HTTP Name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
400	Bad Request	Ops Center Protector is not registered yet.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The request could not be completed due to a conflict with the current state of the target resource.

Example request

```
{
 "storageSystemIds": [
    "100542",
    "200555"
 ]
}
```

Listing quorum disks

You can retrieve a list of quorum disks in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/quorum-disks
```

Request structure

Not applicable.

Response structure

```
{
  "resources":
  [
    {
      "quorumId":"",
      "volumeId":"",
      "volumeName":"",
      "remoteStorageSystemId":"",
      "status":""
    }
  ],
  "total": ,
  "nextToken":
}
```

Parameter	Type	Description
resources	Array of objects	Resource information.
total	Long	Total number of resources.

Parameter	Type	Description
nextToken	String	The API will return up to 100 resources with one call. nextToken is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken=", and then the token.
quorumId	Integer	ID of the quorum disk.
volumeId	Long	ID number of the volume within the storage system.
volumeName	String	Name of the volume within the remote storage system.
remoteStorageSystemId	String	ID of the remote storage system.
status	String	Displays the status of a quorum disk of GAD. Possible values are: ▪ NORMAL: The quorum disk is in normal status. ▪ TRANSITIONING: The status of the quorum is being changed. ▪ BLOCKED: The quorum disk is blocked. ▪ REPLACING: The quorum disk is being replaced. ▪ FAILED: The quorum disk is in abnormal state. ▪ NULL: This information is not available for this quorum disk.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	The request contains an invalid request payload or the required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Example


```
{
    "resources": [
        {
            "quorumId": 0,
            "volumeId": 16383,
            "volumeName": "Quorum_Partition_42007_PG1-3",
            "remoteStorageSystemId": "410209",
            "status": "BLOCKED"
        },
        {
            "quorumId": 3,
            "volumeId": 16379,
            "volumeName": "Quorum_Gefn_PG1-1",
            "remoteStorageSystemId": "410209",
            "status": "NORMAL"
        },
        {
            "quorumId": 4,
            "volumeId": 272,
            "volumeName": "quorum-4",
            "remoteStorageSystemId": "410209",
            "status": "NORMAL"
        },
        {
            "quorumId": 5,
            "volumeId": 273,
            "volumeName": "quorum-5",
            "remoteStorageSystemId": "410209",
            "status": "NORMAL"
        }
    ],
```

```
    "total": 4,
    "nextToken": null
}
```

Getting remote paths

Retrieves `RemotePathResource` object for requested storage system Id

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/remote-paths
```

Request structure

Not applicable.

Response structure

List of RemotePathResource:

```
{
    "resources": [{
        "storageSystemId": "",
        "initiatorPortId": "",
        "targetPortId": "",
        "remoteStorageSystemId": "",
        "status": ""
    }],
    "total": 3,
    "nextToken": null
}
```

Parameters	Type	Description
storageSystemId	String	Storage System Id
initiatorPortId	String	Initiator Port
targetPortId	String	Target Port
remoteStorageSystemId	String	Remotely Connected Storage System Id
status	String	Displays the path status. Possible values are: ▪ NML_01 Normal ▪ ERR_02 Initialization Failed ▪ ERR_03 Communication Timeout

Parameters	Type	Description
		▪ ERR_04 Logical Blockade ▪ ERR_05 Resource Shortage ▪ ERR_06 Serial Number Mismatch ▪ ERR_10 Invalid Port ▪ ERR_80 RCU Port Number Mismatch ▪ ERR_81 RCU Port Type Mismatch ▪ - Path Deletion in Progress

Return codes

Example Response

```
{
    "resources": [{
        "storageSystemId": "415039",
        "initiatorPortId": "CL1-E",
        "targetPortId": "CL2-R",
        "remoteStorageSystemId": "451390",
        "status": "Initialization Failed"
    }, {
        "storageSystemId": "415039",
        "initiatorPortId": "CL3-F",
        "targetPortId": "CL3-B",
        "remoteStorageSystemId": "451390",
        "status": "Normal"
    }, {
        "storageSystemId": "415039",
        "initiatorPortId": "CL2-E",
        "targetPortId": "CL2-F",
        "remoteStorageSystemId": "410209",
        "status": "Normal"
    }],
    "total": 3,
    "nextToken": null
}
```

Getting high availability setup steps

Get status summary of high availability setup.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/ha-setup-status?
primaryStorageSystemId={ssid}&secondaryStorageSystemId={ssid}
```

Request structure

Not applicable.

Response structure

```
{
    "haSetupRemoteConnections": {
        "haPrimaryStorageSystemResource": {
            "resourcesFound" :,
            "resources": [{
                "storageSystemId": "",
                "initiatorPortId": "",
                "targetPortId": "",
                "remoteStorageSystemId": "",
                "status": ""
            }]
        },
        "haSecondaryStorageSystemResource": {
            "resources": [{
                "storageSystemId": "",
                "initiatorPortId": "",
                "targetPortId": "",
                "remoteStorageSystemId": "",
                "status": ""
            }]
        }
    },
    "haSetupQuorumDisks": {
        "resourcesFound" : ,
        "resources": [{
                "quorumId": ,
                "volumeId": ,
                "volumeName": ,
                "remoteStorageSystemId": "",
                "status": ""
            }
        ]
    },
    "haSetupVsms": {
        "resourcesFound" : ,
        "resources": [{
                "virtualStorageMachineId": "",
                "storageSystemId": "",
                "model": "",
                "physicalStorageSystemIds": [
```

```
                    "",
                    ""
                ]
            }
        ]
    }
}
```

Parameters	Type	Description
storageSystemId	String	Storage System Id
remoteStorageSystemId	String	Remote Storage System Id
virtualStorageMachineId	String	ID number of the virtual storage machine (VSM).
haSetupRemoteConnections	Object	Lists remote connections for primary and secondary storage arrays.
haPrimaryStorageSystemResource	Object	Lists remote connections for primary storage array.
haSecondaryStorageSystemResource	Object	Lists remote connections for secondary storage array.
haSetupQuorumDisks	Object	Lists quorum disks between primary and secondary arrays.
haSetupVsms	Object	Lists VSMs between primary and secondary arrays.
resourcesFound	Boolean	Whether or not any resources were found for the given storage system.
quorumId	String	The ID of the Quorum Device.
volumeId	Long	ID number of the volume within the parent storage system.
initiatorPortId	String	Initiator Port
targetPortId	String	Target Port
remoteStorageSystemId	String	Remotely Connected Storage System Id
status	String	Remote connection status. Valid values: ▪ NORMAL ▪ ERROR ▪ UNKNOWN

Return codes

Status code	HTTP name	Description
200	OK	Success.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Response Example


```
{
    "haSetupRemoteConnections": {
        "haPrimaryStorageSystemResource": {
            "resourcesFound" : true,
            "resources": [{
                "storageSystemId": "415039",
                "initiatorPortId": "CL1-E",
                "targetPortId": "CL2-R",
                "remoteStorageSystemId": "451390",
                "status": "ERROR"
            }, {
                "storageSystemId": "415039",
                "initiatorPortId": "CL3-F",
                "targetPortId": "CL3-B",
                "remoteStorageSystemId": "451390",
                "status": "NORMAL"
            }]
        },
        "haSecondaryStorageSystemResource": {
            "resourcesFound" : true,
            "resources": [{
                "storageSystemId": "451390",
                "initiatorPortId": "CL1-B",
                "targetPortId": "CL1-F",
                "remoteStorageSystemId": "415039",
                "status": "NORMAL"
            }]
        }
    },

    "haSetupQuorumDisks": {
        "resourcesFound" : true,
        "resources": [{
                "quorumId": 1,
                "volumeId": null,
```

```
                "volumeName": null,
                "remoteStorageSystemId": "451390",
                "status": "UNKNOWN"
            },
            {
                "quorumId": 3,
                "volumeId": 20,
                "volumeName": "forQuorum_0011",
                "remoteStorageSystemId": "451390",
                "status": "NORMAL"
            }
        ]
    },
    "haSetupVsms": {
        "resourcesFound" : true,
        "resources": [{
                "virtualStorageMachineId": "421671-VSPF800andVSPG800",
                "storageSystemId": "421671",
                "model": "VSP F800 and VSP G800",
                "physicalStorageSystemIds": [
                    "415039",
                    "451390"
                ]
            },
            {
                "virtualStorageMachineId": "415039-VSPF700",
                "storageSystemId": "415039",
                "model": "VSP F700",
                "physicalStorageSystemIds": [
                    "415039",
                    "451390"
                ]
            },
            {
                "virtualStorageMachineId": "467543-VSPF370",
                "storageSystemId": "467543",
                "model": "VSP F370",
                "physicalStorageSystemIds": [
                    "415039",
                    "451390"
                ]
            }
        ]
    }
}
```

GET HA-Status External Volumes

HTTP request syntax (URI)

```
GET https://ipAddress/v1/ha-setup-status/external-volumes?
primaryStorageSystemId={ssid}&secondaryStorageSystemId={ssid}
```

Request structure

Not applicable.

Response structure

```
{
    "resources": [
        {
            "volumeId": ,
            "mappedVolumeId": ,
            "externalDeviceId": "",
            "externalParityGroupId": "",
            "storageSystemId": "",
            "poolId": ,
            "label": "",
            "size": ,
            "usedCapacity": ,
            "availableCapacity": ,
            "utilization": ,
            "status": "",
            "type": "",
            "provisioningStatus": "",
            "attachedVolumeServerSummary": [],
            "migrationSummary": {
                "ownerTaskId": ,
                "migrationType": ""
            }
        }
    ]

}
```

Parameters	Type	Description
storageSystemId	String	ID of the storage system.
mappedVolumeId	String	Remote Storage System Id
externalDeviceId	String	ID number of the virtual storage machine (VSM).

Parameters	Type	Description
label	String	Name of the volume.
size	Long	Size of the volume, in bytes.
utilization	Integer	The percentage usage of the volume capacity. The utilization percentage=(usedCapacity/size)*100.
type	String	Type of pool from which the volume is allocated. Valid value: EXTERNAL
provisioningStatus	String	Provisioning status of a volume. Valid values: ▪ ATTACHED ▪ UNATTACHED ▪ UNMANAGED
attachedVolumeServerSummary	String	Volume provisioning summary details.
migrationSummary	Object	List of migration attributes for the volume.
usedCapacity	String	Sum of used capacity across all pools of the specified type in the storage system, in bytes.
availableCapacity	Long	Unused capacity of the resource, in bytes.
poolId	String	ID of the pool from which the resource is allocated.
externalParityGroupId	String	ID of the parity group on external volumes.
ownerTaskId	String	The ID of the owner migration task.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE
volumeId	Long	ID number of the volume within the parent storage system.
initiatorPortId	String	Initiator Port
targetPortId	String	Target Port
remoteStorageSystemId	String	Remotely Connected Storage System Id
status	String	Volume status. Valid values: ▪ NORMAL ▪ BLOCKED

Parameters	Type	Description
		▪ BUSY ▪ UNKNOWN ▪ NONE

Return codes

Status code	HTTP name	Description
200	OK	Success.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Response Example


```
{
    "resources": [
        {
            "volumeId": 10,
            "mappedVolumeId": null,
            "externalDeviceId": "EXAMPLE 504027E10010",
            "externalParityGroupId": "1-3",
            "storageSystemId": "415039",
            "poolId": null,
            "label": "forQuorum410209",
            "size": 16106127360,
            "usedCapacity": 16106127360,
            "availableCapacity": 0,
            "utilization": 100,
            "status": "BLOCKED",
            "type": "EXTERNAL",
            "provisioningStatus": "UNATTACHED",
            "attachedVolumeServerSummary": [],
            "migrationSummary": {
                "ownerTaskId": null,
                "migrationType": "NONE"
            }
        }
    ]

}
```

Chapter 9: Monitoring resources

You can use Ops Center Administrator APIs for capacity, hardware, and SNMP monitoring operations.

Capacity monitoring resources

Request	Method	URI	Role
Getting the total number of capacity alerts for all storage systems (on page 858)	GET	/v1/monitoring/status/capacity	Storage administrator System administrator Security administrator
Displaying capacity alert details for all storage systems (on page 859)	GET	/v1/monitoring/status/capacity/*resourceType*	Storage administrator System administrator Security administrator
Getting the total number of capacity alerts for a specific storage systems (on page 860)	GET	/v1/monitoring/status/*storageSystemId*/capacity	Storage administrator System administrator Security administrator
Displaying capacity alert details for a storage system (on page 862)	GET	/v1/monitoring/status/*storageSystemId*/capacity/*resourceType*	Storage administrator System administrator Security administrator
Getting a summary of data reduction savings and	GET	/v1/capacity-savings/summary	Storage administrator

Request	Method	URI	Role
capacity efficiency (on page 863)			System administrator Security administrator
Getting a data reduction savings and capacity efficiency summary for a specific storage system (on page 864)	GET	/v1/capacity-savings/storage-systems/*storageSystemId*/summary	Storage administrator System administrator Security administrator

Listing total number of capacity alerts for all storage systems

You can display the total number of issued alerts for all storage systems.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/capacity
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "totalComponentWiseCapacityAlerts": ,
    "capacityComponents":
    {
        "poolAlerts":
    }
}
```

Parameter	Type	Description
totalComponentWiseCapacityAlerts	Integer	Total number of capacity components with alerts.
capacityComponents	List	List of capacity components with alerts.

Parameter	Type	Description
poolAlerts	Boolean	Whether or not a pool in the storage system issued an alert.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Displaying capacity alert details for all storage systems

You can display the details of the capacity alerts that were issued for the storage systems.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/capacity/resourceType
```

Use pool as the *resourceType*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "capacityAlertInformationList": [
    {
      "storageSerialNumber": "",
      "storageNickname": "",
      "refCode": "",
      "resourceType": "",
      "timestamp": "",
      "description": "",
```

```
      "alertLevel": "",
      "resourceId": ""
    }
  ]
}
```

Parameter	Type	Description
storageSerialNumber	Integer	Storage system serial number.
storageNickname	String	Storage system name.
refCode	Integer	Alert reference code.
resourceType	String	Type of resource: pool.
timestamp	String	Timestamp of the alert.
description	String	Description of the alert.
alertLevel	String	Alert level: Warning or Critical.
resourceId	String	ID of the resource.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.115/v1/monitoring/status/capacity/pool
```

Listing total number of capacity alerts for a storage system

You can display the total number of capacity alerts that were issued for a specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/storageSystemId/capacity
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "totalComponentWiseCapacityAlerts": ,
  "capacityComponents": {
    "poolAlerts":
  }
}
```

Parameter	Type	Description
totalComponentWiseCapacityAlerts	Integer	Total number of components with capacity alerts.
capacityComponents	List	List of capacity components with alerts, such as poolAlerts.
poolAlerts	Boolean	Whether or not a pool in the storage system issued an alert.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Displaying capacity alert details for a storage system

You can display the details of the capacity alerts for the specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/storageSystemId/capacity/resourceType
```

Use the storage system ID as the *storageSystemId*.

Use pool as the *resourceType*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "capacityAlertInformationList": [
    {
      "storageSerialNumber": "",
      "storageNickname": "",
      "refCode": "",
      "resourceType": "",
      "timestamp": "",
      "description": "",
      "alertLevel": "",
      "resourceId": ""
    }
  ]
}
```

Parameter	Type	Description
storageSerialNumber	String	Storage system serial number.
storageNickname	String	Storage system name.
refCode	String	Alert reference code.
resourceType	String	Type of resource: pool.
timestamp	String	Timestamp of the alert.
description	String	Description of the alert.
alertLevel	String	Alert level: Warning or Critical.
resourceId	String	ID of the resource.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.113/v1/monitoring/status/capacity/pool
```

Getting a summary of data reduction savings and capacity efficiency

You can get a summary of data reduction savings from deduplication and compression technologies as well as capacity efficiency.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/capacity-savings/summary
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
   "dataReductionSavingsRate":"",
   "capacityEfficiencyRate":""
}
```

Parameter	Type	Description
dataReductionSavingsRate	Float	The ratio of logical used capacity to the physical used capacity, for all compression and deduplication technologies.

Parameter	Type	Description
capacityEfficiencyRate	Float	The ratio of Thin Free plus Thin Used to the physical used capacity. Capacity efficiency is only calculated for volumes on Thin, Tiered, and Snap pools. If disk-based compression is in use, either alone or in combination with controller-based compression, the physical used capacity is that resulting from disk-based compression alone. If only controller-based compression is in use, the physical used capacity is that resulting from controller-based compression. If no compression technology is in use, the physical used capacity is the used capacity of the pools.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

```
{
     "dataReductionSavingsRate" : 3.04,
     "capacityEfficiencyRate" : 65.72
}
```

Getting a data reduction savings and capacity efficiency summary for a specific storage system

You can get a summary of data reduction savings and capacity efficiency for a specific storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/capacity-savings/storage-systems/storageSystemId/summary
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
   "dataReductionSavingsRate":"",
   "capacityEfficiencyRate":""
}
```

Parameter	Type	Description
dataReductionSavingsRate	Float	The ratio of logical used capacity to the physical used capacity, for all compression and deduplication technologies.
capacityEfficiencyRate	Float	The ratio of Thin Free plus Thin Used to the physical used capacity. Capacity efficiency is only calculated for volumes on Thin, Tiered, and Snap pools. If disk-based compression is in use, either alone or in combination with controller-based compression, the physical used capacity is that resulting from disk-based compression alone. If only controller-based compression is in use, the physical used capacity is that resulting from controller-based compression. If no compression technology is in use, the physical used capacity is the used capacity of the pools.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example code

```
{
    'dataReductionSavingsRate' : 3.11,
    'capacityEfficiencyRate' : 1056.72
}
```

Monitoring hardware resources

Request	Method	URI	Role
Listing total number of hardware alerts for all storage systems (on page 867)	GET	/v1/monitoring/status/hardware	Storage administrator System administrator Security administrator
Displaying resource-specific hardware alerts for all storage systems (on page 869)	GET	/v1/monitoring/status/hardware/*resourceType*	Storage administrator System administrator Security administrator
Listing hardware alerts for a storage system (on page 871)	GET	/v1/monitoring/status/*storageSystemId*/hardware	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Displaying resource-specific hardware alerts for a storage system (on page 873)	GET	/v1/monitoring/status/*storageSystemId*/hardware/*resourceType*	Storage administrator System administrator Security administrator
Listing disk information for all storage systems (on page 875)	GET	/v1/monitoring/status/hardware/disk	Storage administrator System administrator Security administrator
Listing disk information for a storage system (on page 877)	GET	/v1/monitoring/status/*storageSystemId*/hardware/disk	Storage administrator System administrator Security administrator

Listing total number of hardware alerts for all storage systems

You can display the total number of alerts and alert types that were issued for all storage systems. Alerts from disk, power supply, battery, fan, port, cache, memory, and processors are displayed.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/hardware
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
    {
        "totalComponentWiseHardwareAlerts": ,
        "hardwareComponents":
```

```
        {
            "diskAlerts": ,
            "powerSupplyAlerts": ,
            "batteryAlerts": ,
            "fanAlerts": ,
            "portAlerts": ,
            "cacheAlerts": ,
            "memoryAlerts": ,
            "processorAlerts":
        }
    }
```

Parameter	Type	Description
totalComponentWiseHardwareAlerts	Integer	Total number of hardware alerts.
diskAlerts	Boolean	Whether there are any disk alerts.
powerSupplyAlerts	Boolean	Whether there are any power supply alerts.
batteryAlerts	Boolean	Whether there are any battery alerts.
fanAlerts	Boolean	Whether there are any fan alerts.
portAlerts	Boolean	Whether there are any port alerts.
cacheAlerts	Boolean	Whether there are any cache alerts.
memoryAlerts	Boolean	Whether there are any shared memory alerts.
processorAlerts	Boolean	Whether there are any processor alerts.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example response

```
https://172.17.64.113/v1/monitoring/status/hardware
```

Example response

```
{
    "totalComponentWiseHardwareAlerts": 0,
    "hardwareComponents":
    {
        "diskAlerts": false,
        "powerSupplyAlerts": false,
        "batteryAlerts": false,
        "fanAlerts": false,
        "portAlerts": false,
        "cacheAlerts": false,
        "memoryAlerts": false,
        "processorAlerts": false
    }
}
```

Displaying resource-specific hardware alerts for all storage systems

You can display alerts for a specific hardware resource in all storage systems such as disk, power supply, battery, fan, port, cache, memory, and processor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/hardware/resourceType
```

Use one of the following hardware components as the *resourceType*.

- disk
- powerSupply
- battery
- fan
- port
- cache
- memory
- processor

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
 "alertInformationList": [
   {
     "storageSerialNumber": "",
     "storageNickname": "",
     "refCode": "",
     "resourceType": "",
     "timestamp": "",
     "description": "",
     "alertLevel": ""
   }
 ]
}
```

Parameter	Type	Description
storageSerialNumber	Integer	Storage system serial number.
storageNickname	String	Storage system name.
refCode	Integer	Alert reference code.
resourceType	String	Type of resource. Valid values: disk, fan, battery, cache, processor, powerSupply, port, or memory.
timestamp	String	Timestamp of the alert.
description	String	Description of the alert.
alertLevel	String	Alert level: Warning or Critical.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Status code	HTTP name	Description
404	Not found	The specified resource ID is not valid or the resource does not exist.

Listing hardware alerts for a storage system

You can display alerts for different hardware components, such as the power supply, battery, fan, port, cache, memory, and processors.

The alerts are received from the storage system. There is one alert per component type, for a maximum of eight.

The alert clearance process runs every 20 minutes for each storage system that includes components with errors. Alerts are only cleared when all components of a given type with errors return to the normal state. The exception is disks, each of which can have alerts cleared, even if other disks have errors. Alerts for ports and processors are cleared together, so alerts are cleared only when all ports and processors are normal.

For example, if there are five fans with alerts in one storage system, they are cleared only when each and every fan alert is cleared. Disk alerts are cleared for individual disks.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/storageSystemId/hardware
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "totalComponentWiseHardwareAlerts": ,
  "hardwareComponents": {
    "diskAlerts": ,
    "powerSupplyAlerts": ,
    "batteryAlerts": ,
    "fanAlerts": ,
    "portAlerts": ,
    "cacheAlerts": ,
    "memoryAlerts": ,
    "processorAlerts":
  }
}
```

Parameter	Type	Description
totalComponentWiseHardwareAlerts	Integer	Total number of hardware components with alerts.
diskAlerts	boolean	Whether there are any disk alerts.
powerSupplyAlerts	boolean	Whether there are any power supply alerts.
batteryAlerts	boolean	Whether there are any battery alerts.
fanAlerts	boolean	Whether there are any fan alerts.
portAlerts	boolean	Whether there are any port alerts.
cacheAlerts	boolean	Whether there are any cache alerts.
memoryAlerts	boolean	Whether there are any shared memory alert.
processorAlerts	boolean	Whether there are any processor alerts

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.113/v1/monitoring/status/410209/hardware/processor
```

Example response

```
    {
        "totalComponentWiseHardwareAlerts": 0,
        "hardwareComponents":
        {
            "diskAlerts": false,
            "powerSupplyAlerts": false,
            "batteryAlerts": false,
```

```
            "fanAlerts": false,
            "portAlerts": false,
            "cacheAlerts": false,
            "memoryAlerts": false,
            "processorAlerts": false
        }
    }
```

Displaying resource-specific hardware alerts for a storage system

You can display the alert notification details for a particular resource for a specified storage system, such as disk, power supply, battery, fan, port, cache, memory, and processor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/storageSystemId/hardware/resourceType
```

Use the storage system ID as the *storageSystemId*.

Use one of the following resources as the *resourceType*.

- disk
- powerSupply
- battery
- fan
- port
- cache
- memory
- processor

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
 "alertInformationList": [
   {
     "storageSerialNumber": "",
     "storageNickname": "",
     "refCode": "",
     "resourceType": "",
     "timestamp": "",
     "description": "",
     "alertLevel": ""
```

```
    }
  ]
}
```

Parameter	Type	Description
storageSerialNumber	Integer	Storage system serial number.
storageNickname	String	Storage system name.
refCode	Integer	Alert reference code.
resourceType	String	Type of resource. Valid values: disk, fan, battery, cache, processor, powerSupply, port, or memory.
timestamp	String	Timestamp of the alert.
description	String	Description of the alert.
alertLevel	String	Alert level: Warning or Critical.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.113/v1/monitoring/status/410209/hardware/powerSupply
```

Example response

```
    {
        "totalComponentWiseHardwareAlerts": 0,
        "hardwareComponents":
        {
            "diskAlerts": false,
            "powerSupplyAlerts": false,
```

```
            "batteryAlerts": false,
            "fanAlerts": false,
            "portAlerts": false,
            "cacheAlerts": false,
            "memoryAlerts": false,
            "processorAlerts": false
        }
    }
```

Listing disk information for all storage systems

You can display the disk information for all storage systems.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/hardware/disk
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "diskAlertInformationList": [
    {
      "storageSerialNumber": "",
      "storageNickname": "",
      "refCode": "",
      "resourceType": "",
      "timestamp": "",
      "description": "",
      "alertLevel": "",
      "resourceLocation": "",
      "diskSpec": {
        "diskType": "",
        "speed": ,
        "capacity": {
          "bytes":
        }
      }
    }
  ]
}
```

Parameter	Type	Description
storageSerialNumber	Integer	Storage serial number.
storageNickname	String	Storage system name.
refCode	Integer	Alert reference code.
resourceType	String	Type of resource.
timestamp	String	Timestamp of the alert.
description	String	Description of the alert.
alertLevel	String	Alert level: Warning or Critical.
resourceId	String	Resource ID.
diskSpec	Object	Disk type, speed, and capacity of the disk.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.
speed	Integer	Disk speed.
capacity	Integer	Disk capacity.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.113/v1/monitoring/status/hardware/disk
```

Example response

```
{
  "diskAlertInformationList": [
```

```
    {
      "storageSerialNumber": "111111",
      "storageNickname": "StorageSystem",
      "refCode": "DF5201",
      "resourceType": "Disk",
      "timestamp": "xxxxxx",
      "description": "xxxxxx",
      "alertLevel": "Critical",
      "resourceLocation": "01-01",
      "diskSpec": {
        "diskType": "SSD(RI)",
        "speed": 0,
        "capacity": {
          "bytes": 10000000
        }
      }
    },
    {
      "storageSerialNumber": "111111",
      "storageNickname": "StorageSystem",
      "refCode": "DF5201",
      "resourceType": "Disk",
      "timestamp": "xxxxxx",
      "description": "xxxxxx",
      "alertLevel": "Critical",
      "resourceLocation": "01-01",
      "diskSpec": {
        "diskType": "SSD",
        "speed": 0,
        "capacity": {
          "bytes": 10000000
        }
      }
    },
    ...
  ]
}
```

Listing disk information for a storage system

You can display the disk information for the specified storage system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/monitoring/status/storageSystemId/hardware/disk
```

Use the storage system ID as the *storageSystemId*.

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "diskAlertInformationList": [
    {
      "storageSerialNumber": "",
      "storageNickname": "",
      "refCode": "",
      "resourceType": "",
      "timestamp": "",
      "description": "",
      "alertLevel": "",
      "resourceLocation": "",
      "diskSpec": {
        "diskType": "",
        "speed": 0,
        "capacity": {
          "bytes": 0
        }
      }
    }
  ]
}
```

Parameter	Type	Description
storageSerialNumber	String	Storage system serial number.
storageNickname	String	Storage system name.
refCode	String	Alert reference code.
resourceType	String	Type of resource.
timestamp	String	Timestamp of the alert.
description	String	Description of the alert.
alertLevel	String	Alert level: Warning or Critical.
resourceLocation	String	ID for the resource.
diskSpec	Object	Disk type, speed, and capacity of the disk.
diskType	String	Type of disk, such as FMD DC2, FMD, SAS, SSD, SSD(RI), SSD NVMe, or SCM NVMe.

Parameter	Type	Description
speed	Integer	Disk speed.
capacity	Size	Disk capacity.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.113/v1/monitoring/status/hardware/disk
```

Example response


```
{
  "diskAlertInformationList": [
   {
     "storageSerialNumber": "111111",
     "storageNickname": "StorageSystem",
     "refCode": "DF5201",
     "resourceType": "Disk",
     "timestamp": "xxxxxx",
     "description": "xxxxxx",
     "alertLevel": "Critical",
     "resourceLocation": "01-01",
     "diskSpec": {
       "diskType": "SSD(RI)",
       "speed": 0,
       "capacity": {
         "bytes": 10000000
       }
     }
   },
   {
```

```
      "storageSerialNumber": "111111",
      "storageNickname": "StorageSystem",
      "refCode": "DF5201",
      "resourceType": "Disk",
      "timestamp": "xxxxxx",
      "description": "xxxxxx",
      "alertLevel": "Critical",
      "resourceLocation": "01-01",
      "diskSpec": {
        "diskType": "SSD",
        "speed": 0,
        "capacity": {
          "bytes": 10000000
        }
      }
    },
    ...
  ]
 }
}
```

SNMP resources

Request	Method	URI	Role
Listing SNMP managers (on page 880)	GET	/v1/snmp-managers	Storage administrator System administrator Security administrator
Adding SNMP managers (on page 882)	POST	/v1/snmp-managers	System administrator
Updating an SNMP manager (on page 886)	POST	/v1/snmp-managers/*snmpMgrName*	System administrator
Deleting an SNMP manager (on page 889)	DELETE	/v1/snmp-managers/*snmpMgrName*	System administrator

Listing SNMP managers

You can display a list of SNMP managers.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/snmp-managers
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
  "snmpManagerInformationList": [
    {
      "name": "",
      "ipAddress": "",
      "username": "",
      "privacyProtocol": "",
      "privacyPassword": ,
      "authProtocol": "",
      "authPassword": ,
      "port":
    }
  ]
}
```

Parameter	Type	Description
name	String	The name of the SNMP manager.
ipAddress	String	IP address of the resource.
username	String	User name of the SNMP manager.
privacyProtocol	String	Privacy protocol for the SNMP manager. Valid values: DES, TRIPLE_DES, AES_128, OR NO_PRIV.
privacyPassword	String	Privacy password for the SNMP manager.
authProtocol	String	The SNMP authentication protocol: MD5, SHA, or NO_AUTH.
authPassword	String	Authentication password.

Parameter	Type	Description
port	String	The ethernet port to which the IP address for the SNMP manager is assigned.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Example request

```
https://172.17.64.111/v1/snmp-managers
```

Example response

```
{
  "snmpManagerInformationList": [
    {
      "name": "snmp-manager-1",
      "ipAddress": "172.17.91.22",
      "username": "kh",
      "privacyProtocol": "DES",
      "privacyPassword": null,
      "authProtocol": "MD5",
      "authPassword": null,
      "port": 162
    }
  ]
}
```

Adding SNMP managers

You can add SNMP managers so they can receive SNMP traps related to the monitored components of the registered storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/snmp-managers
```

Request structure

The request body structure is shown below:

```
{
  "snmpManagers": [
    {
      "name": "",
      "username": "",
      "ipAddress": "",
      "authProtocol": "",
      "authPassword": "",
      "privacyProtocol": "",
      "privacyPassword": "",
      "port": ""
    }
  ]
}
```

Parameter	Required	Type	Description
name	No	String	The name of the SNMP manager.
ipAddress	No	String	IP address of the resource.
username	No	String	User name of the SNMP manager.
privacyProtocol	No	String	Privacy protocol for the SNMP manager. Valid values: DES, TRIPLE_DES, AES_128, or NO_PRIV.
privacyPassword	No	String	Privacy password for the SNMP manager.
authProtocol	No	String	The SNMP authentication protocol: MD5, SHA, or NO_AUTH.
authPassword	No	String	Authentication password.
port	No	Integer	The SNMP port number in the range between 0 to 65535.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.

Parameter	Type	Description
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Updating an SNMP manager

You can update information for an SNMP manager so it receives SNMP traps related to the monitored components of the registered storage system.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/snmp-managers/snmpMgrName
```

Use the SNMP manager name as the *snmpMgrName*.

Request structure

The request body structure is shown below:

```
{
  "username": "",
  "ipAddress": "",
  "authProtocol": "",
  "authPassword": "",
  "privacyProtocol": "",
  "privacyPassword": "",
  "port": ""
}
```

Parameter	Required	Type	Description
ipAddress	No	String	IP address of the resource.
username	No	String	User name of the SNMP manager.
privacyProtocol	No	String	Privacy protocol for the SNMP manager. Valid values: DES, TRIPLE_DES, AES_128, or NO_PRIV.

Parameter	Required	Type	Description
privacyPassword	No	String	Privacy password for the SNMP manager.
authProtocol	No	String	The SNMP authentication protocol: MD5, SHA, or NO_AUTH.
authPassword	No	String	Authentication password.
port	No	Integer	The SNMP port number in the range between 0 to 65535.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Deleting an SNMP manager

You can delete an SNMP manager.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/snmp-managers/snmpMgrName
```

Use the SNMP manager name as the *snmpMgrName*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
   {
     "text": "",
     "messageCode": "",
     "parameters":
      {
      }
   },
   "user": "",
```

```
   "status": "",
   "createdDate":,
   "scheduledDate":,
   "startDate": ,
   "endDate": ,
   "parentJobId": ,
   "reports":
   [
   ],
   "links":
   [
      {
         "rel": "_self",
         "href": "/v1/jobs/jobId"
      }
   ],
   "tags":
   [
   ],
   "isSystem":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.

Return codes

Status code	HTTP name	Description
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Chapter 10: System administration resources

You can use Ops Center Administrator APIs to perform system administration operations.

Account domain resources

Request	Method	URI	Role
Listing account domains (on page 892)	GET	/v1/security/account-domains	Security administrator
Getting an account domain (on page 894)	GET	/v1/security/account-domains/*domainId*	Security administrator
Adding an account domain (on page 896)	POST	/v1/security/account-domains	Security administrator
Updating an account domain (on page 899)	POST	/v1/security/account-domains/*domainId*	Security administrator
Deleting an account domain (on page 902)	DELETE	/v1/security/account-domains/*domainId*	Security administrator

Listing account domains

You can display account domains that have been added to Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/account-domains
```

Request structure

Not applicable.

Response structure

```
{
  "accountDomains": [
    {
      "id": "",
      "domain": "",
```

```
      "username": "",
      "type": ""
    }
  ]
}
```

Parameter	Type	Description
id	String	The ID that is assigned to the domain.
domain	String	The name or address of the domain.
username	String	The user name that is being used to access the domain.
type	String	The domain type `LOCAL` or `ACTIVE DIRECTORY`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.

Status code	HTTP name	Description
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
GET https: //172.17.64.116/v1/security/account-domains
```

Example response

```
{
  "accountDomains": [
    {
      "id": "57503d78-3294-44c6-8c8a-08edd38a08be",
      "domain": "LOCAL",
      "username": "",
      "type": "LOCAL"
    }
  ]
}
```

Getting an account domain

You can display information of a specific account domain.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/account-domains/domainId
```

Request structure

Not applicable.

Response structure

```
{
 "id": "",
 "domain": "",
 "username": "",
 "type": ""
}
```

Parameter	Type	Description
id	String	The ID that is assigned to the domain.
domain	String	The name or address of the domain.
username	String	The user name that is being used to access the domain.
type	String	The domain type (`LOCAL` or `ACTIVE DIRECTORY`).

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
GET https: //172.17.64.116/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd
```

Example response

```
{
 "id": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
 "domain": "example.com",
 "username": "jdoe",
 "type": "ACTIVE_DIRECTORY"
}
```

Adding an account domain

You can add an account domain to Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/security/account-domains
```

Request structure

```
{
  "domain": "",
  "username": "",
  "password": ""
}
```

Parameter	Required	Type	Description
domain	Yes	String	The name or address of the domain.
username	Yes	String	The user name that will be used to access the domain.
password	Yes	String	The password that will be used to access the domain.

Response structure

```
{
 "jobId": "",
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports": [],
 "tags": [],
 "isSystem":,
 "title":
```

```
  {
   "text": "",
   "messageCode": "",
   "parameters": { }
  },
 "links": [
   {
    "rel": "_self",
    "href": "/v1/jobs/jobId"
   }
  ],
}
```

Parameter	Type	Description
jobId	String	ID of the job.
user	String	User who initiated the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether or not a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
title	Object	Title of the job.
links	List	Link information of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
POST https: //172.17.64.116/v1/security/account-domains
{
  "domain": "example.com",
  "username": "jdoe",
  "password": "test123"
}
```

Updating an account domain

You can update the credentials that are used to access an account domain that has been added to You can add an account domain to Ops Center Administrator.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/security/account-domains/domainId
```

Use the domain ID as the *domainId*.

Request structure

```
{
  "username": "jwei",
  "password": "newPassword"
}
```

Parameter	Required	Type	Description
username	Yes	String	The user name that will be used to access the domain.
password	Yes	String	The password that will be used to access the domain.

Response structure

```
{
 "jobId": "",
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports": [],
 "tags": [],
 "isSystem":,
```

```
 "title":
  {
   "text": "",
   "messageCode": "",
   "parameters": { }
  },
 "links": [
   {
    "rel": "_self",
    "href": "/v1/jobs/jobId"
   }
  ],
}
```

Parameter	Type	Description
jobId	String	ID of the job.
user	String	User who initiated the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether or not a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
title	Object	Title of the job.
links	List	Link information of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
POST https: //172.17.64.116/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd
{
  "username": "jwei",
  "password": "newPassword"
}
```

Deleting an account domain

You can remove an account domain from Ops Center Administrator.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/security/account-domains/domainId
```

Use the domain ID as the *domainId*.

Request structure

Not applicable.

Response structure

```
{
 "jobId": "",
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports": [],
 "tags": [],
 "isSystem":,
 "title":
  {
   "text": "",
   "messageCode": "",
   "parameters": { }
  },
 "links": [
   {
    "rel": "_self",
    "href": "/v1/jobs/jobId"
   }
  ],
}
```

Parameter	Type	Description
jobId	String	ID of the job.
user	String	User who initiated the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether or not a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
title	Object	Title of the job.
links	List	Link information of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
DELETE https: //172.17.64.116/v1/security/account-domains/20ee96fe-fb69-4f68-994f-a2fbffcea9fd
```

User management resources

Request	Method	URI	Role
Listing user groups (on page 906)	GET	/v1/security/account-domains/*domainId*/groups	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Listing group mappings (on page 908)	GET	/v1/security/account-domains/*domainId*/group-mappings	Storage administrator System administrator Security administrator
Getting a group mapping (on page 910)	GET	/v1/security/account-domains/*domainId*/group-mappings/*mappingId*	Storage administrator System administrator Security administrator
Creating role mappings (on page 912)	POST	/v1/security/account-domains/*domainId*/group-mappings	Security administrator
Deleting role mappings (on page 915)	DELETE	/v1/security/account-domains/*domainId*/group-mappings/*mappingId*	Security administrator
Listing users (on page 918)	GET	/v1/security/account-domains/*domainId*/users	Storage administrator System administrator Security administrator
Getting detailed information for specific users in an account domain (on page 920)	GET	/v1/security/account-domains/*domainId*/users/*userId*	Storage administrator System administrator Security administrator
Updating user information in an account domain (on page 921)	POST	/v1/security/account-domains/*domainId*/users/*userId*	Security administrator

Listing user groups

You can display a list of all the user groups in the account domain.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/account-domains/domainId/groups
```

Use the account domain ID as the *domainId*.

Request structure

Not applicable.

Parameter	Required	Type	Description
filter	Yes	String	Standard parameter used to build a query. As an example, this can be set to a letter to filter by group names containing that letter.

Response structure

```
{
  "groups": [
    ""
  ]
}
```

Parameter	Type	Description
groups	String	Groups in the account domain.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.

Status code	HTTP name	Description
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
GET https: //172.17.64.116/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd/groups?filter=r
```

Example response

```
{
    "groups": [
        "RAINIER_SECURITY@GSELAB.EXAMPLE.COM",
        "RAINIER_MONITORING@GSELAB.EXAMPLE.COM",
        "Enterprise Admins@GSELAB.EXAMPLE.COM",
        "Read-only Domain Controllers@GSELAB.EXAMPLE.COM",
```

```
        "Domain Computers@GSELAB.EXAMPLE.COM",
        "Domain Users@GSELAB.EXAMPLE.COM",
        "RAINIER_ADMIN@GSELAB.EXAMPLE.COM",
        "Domain Controllers@GSELAB.EXAMPLE.COM",
        "Enterprise Read-only Domain Controllers@GSELAB.EXAMPLE.COM",
        "Cloneable Domain Controllers@GSELAB.EXAMPLE.COM",
        "RAINIER_TENANT_ENG@GSELAB.EXAMPLE.COM",
        "DnsUpdateProxy@GSELAB.EXAMPLE.COM",
        "Group Policy Creator Owners@GSELAB.EXAMPLE.COM",
        "Protected Users@GSELAB.EXAMPLE.COM"
    ]
}
```

Listing group mappings

You can display a list of all the user group mappings in Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/account-domains/domainId/group-mappings
```

Use the account domain ID as the *domainId*.

Request structure

Not applicable.

Response structure

```
{
  "mappings": [
    {
      "id": "44c08be3-ba36-49eb-a104-48911a2815cb",
      "accountDomainId": "",
      "groupName": "",
      "userRole": ""
    }
  ]
}
```

Parameter	Type	Description
id	Integer	ID
accountDomainId	Integer	ID of the domain.
groupName	String	Name of the domain.

Parameter	Type	Description
userRole	String	Role to be assigned to the user group. Values include the SystemAdministrator, StorageAdministrator, SecurityAdministrator, and MonitoringUser.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
GET https: //172.17.64.116/v1/security/account-domains/44c08be3-ba36-49eb-a104-
48911a2815cb/group-mappings
```

Example response

```
{
  "mappings": [
    {
      "id": "44c08be3-ba36-49eb-a104-48911a2815cb",
      "accountDomainId": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
      "groupName": "admin",
      "userRole": "SecurityAdministrator"
    }
  ]
}
```

Getting a group mapping

You can display role mappings in a particular user group.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/account-domains/domainId/group-mappings/mappingId
```

Use the account domain ID as the *domainId*.

Use the group mapping ID for the *mappingId*.

Request structure

Not applicable.

Response structure

```
{
  "id": "",
  "accountDomainId": "",
  "groupName": "",
  "userRole": ""
}
```

Parameter	Type	Description
id	String	ID of the group mapping.
accountDomainId	String	ID of the domain.
groupName	String	Name of the domain.

Parameter	Type	Description
userRole	String	Role to be assigned to the user group. Values include the SystemAdministrator, StorageAdministrator, SecurityAdministrator, and MonitoringUser.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
GET https: //172.17.64.116/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd/group-mappings/44c08be3-ba36-49eb-a104-48911a2815cb
```

Example response

```
{
  "id": "44c08be3-ba36-49eb-a104-48911a2815cb",
  "accountDomainId": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
  "groupName": "admin",
  "userRole": "SecurityAdministrator"
}
```

Creating role mappings

You can create a user group and assign roles to the user group.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/security/account-domains/domainId/group-mappings
```

Use the account domain ID as the *domainId*.

Request structure

```
{
  "groupName": "",
  "userRole": ""
}
```

Parameter	Required	Type	Description
groupName	Yes	String	Name of the group.
userRole	Yes	String	Role to be assigned to the user group. Values include the SystemAdministrator, StorageAdministrator, SecurityAdministrator, and MonitoringUser.

Response structure

```
{
 "jobId": "",
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports": [],
 "tags": [],
 "isSystem":,
```

```
 "title":
  {
   "text": "",
   "messageCode": "",
   "parameters": { }
  },
 "links": [
   {
    "rel": "_self",
    "href": "/v1/jobs/jobId"
   }
  ],
}
```

Parameter	Type	Description
jobId	String	ID of the job.
user	String	User who initiated the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether or not a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
title	Object	Title of the job.
links	List	Link information of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.

Status code	HTTP name	Description
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
POST https://ipAddress/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd/group-mappings
{
    "groupName": "admin",
    "userRole": "SecurityAdministrator"
}
```

Deleting role mappings

You can remove a role that was assigned to a user group.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/security/account-domains/domainId/group-mappings/mappingId
```

Use the domain ID as the *domainId*.

Use the group mapping ID for the *mappingId*.

Request structure

Not applicable.

Response structure

```
{
 "jobId": "",
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports": [],
 "tags": [],
 "isSystem":,
```

```
 "title":
  {
   "text": "",
   "messageCode": "",
   "parameters": { }
  },
 "links": [
   {
    "rel": "_self",
    "href": "/v1/jobs/jobId"
   }
  ],
}
```

Parameter	Type	Description
jobId	String	ID of the job.
user	String	User who initiated the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether or not a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
title	Object	Title of the job.
links	List	Link information of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.

Parameter	Type	Description
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
DELETE https: //172.17.64.116/v1/security/account-domains/57503d78-3294-44c6-8c8a-
08edd38a08be/group-mappings/44c08be3-ba36-49eb-a104-48911a2815cb
```

Listing users

You can display a list of users in the local domain.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/account-domains/domainId/users
```

Use the account domain ID as the *domainId*.

Request structure

Not applicable.

Response structure

```
{
  "users": [
    {
      "id": "",
      "accountDomainId": "",
      "loginName": ""
    }
  ]
}
```

Parameter	Type	Description
id	String	ID of the user in the account domain.
accountDomainId	String	ID of the account domain
loginName	String	Login name of the user.

Return codes

Status code	HTTP name	Description
200	OK	Success.

Status code	HTTP name	Description
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
GET https: //172.17.64.116/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd/users
```

Example response

```
{
  "users": [
    {
      "id": "b5d15f7f-3e2e-43c1-9734-c447cfb260f7",
      "accountDomainId": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
      "loginName": "jwei"
    }
  ]
}
```

Getting users

You can get details on a specific user in the domain.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/security/account-domains/domainId/users/userId
```

Use the account domain ID as the *domainId*.

Use the user ID as the *userId*.

Request structure

Not applicable.

Response structure

```
{
  "id": "",
  "accountDomainId": "",
  "loginName": ""
}
```

Parameter	Type	Description
id	String	ID of the user in the account domain.
accountDomainId	String	ID of the account domain
loginName	String	Login name of the user.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").

Status code	HTTP name	Description
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
GET https: //172.17.64.116/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd/users/b5d15f7f-3e2e-43c1-9734-c447cfb260f7
```

Example response

```
{
  "id": "b5d15f7f-3e2e-43c1-9734-c447cfb260f7",
  "accountDomainId": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
  "loginName": "jwei"
}
```

Updating users

You can change the password of a user in the local domain.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/security/account-domains/domainId/users/userId
```

Use the account domain ID as the *domainId*.

Use the User ID as the *userId*.

Request structure

```
{
  "password": ""
}
```

Parameter	Required	Type	Description
password	Yes	String	The user password.

Response structure

```
{
 "jobId": "",
 "user": "",
 "status": "",
 "startDate": ,
 "endDate": ,
 "parentJobId": ,
 "reports": [],
 "tags": [],
 "isSystem":,
 "title":
  {
   "text": "",
   "messageCode": "",
   "parameters": { }
  },
 "links": [
   {
    "rel": "_self",
    "href": "/v1/jobs/jobId"
   }
  ],
}
```

Parameter	Type	Description
jobId	String	ID of the job.
user	String	User who initiated the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.

Parameter	Type	Description
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether or not a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
title	Object	Title of the job.
links	List	Link information of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.

Return codes

Status code	HTTP name	Description
200	OK	Success.
204	No content	The request was successful, but the response does not exist.

Status code	HTTP name	Description
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Example request

```
POST https://ipAddress/v1/security/account-domains/20ee96fe-fb69-4f68-994f-
a2fbffcea9fd/users/b5d15f7f-3e2e-43c1-9734-c447cfb260f7
{
  "password": "newpassword"
}
```

Getting a job

You can display information about a task that was submitted. This returns the information about who submitted the task, the time that the task was submitted, and the action taken by Ops Center Administrator.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/jobs/jobId
```

Use the ID of the job as the *jobId*.

Request structure

Not applicable.

Response structure

The response body structure is as follows:

```
{
  "jobId": "",
  "title":
  {
    "text": "",
    "messageCode": "",
    "parameters":
      {
      }
  },
  "user": "",
  "status": "",
  "createdDate":,
  "scheduledDate":,
  "startDate": ,
  "endDate": ,
  "parentJobId": ,
  "reports":
  [
  ],
  "links":
  [
    {
      "rel": "_self",
      "href": "/v1/jobs/jobId"
    }
  ],
  "tags":
  [
  ],
```

```
  "isSystem":,
  "resources": [
    {
      "type": "",
      "ids": [],
      "childResources": [
        {
          "type": "",
          "ids": [],
          "childResources": [
              ...
          ]
        },
        ...
      ]
    },
    ...
  ]
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).

Parameter	Type	Description
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
resources	List	List of the resources operated in the job.
type	Enum	Type of the resources.
ids	List	List of Ids of the resources.
childResources	List	List of the child resources belonging to the resource.

Return codes

Status code	HTTP name	Description
200	OK	Success.
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.

Request example

```
https: //172.17.64.116/v1/ffa07b8a-e35d-4dc9-b054-232c6e4a9f51
```

Response example


```
{
  "jobId": "ffa07b8a-e35d-4dc9-b054-232c6e4a9f51",
  "title": {
    "text": "Attach volumes to server.",
    "messageCode": "AttachVolumesToServerJobTitleMessage",
    "parameters": {}
  },
  "user": "sysadmin",
  "status": "SUCCESS",
  "startDate": 1456869156565,
  "endDate": 1456869229109,
  "parentJobId": "9d66fc27-473f-4d8b-8998-635da11f0260",
  "reports": [
  {
    "reportMessage": {
    "text": "Storage System "410033". Attaching volumes Lun{volumeId=474, lun=1} to
server 1.",
    "messageCode": "AttachVolumesToServerPreStepMessage",
    "parameters": {
      "storageSystemId": "410033",
      "volumes": "Lun{volumeId=474, lun=1}",
      "serverId": 1
    }
  },
  "severity": "INFORMATION",
  "creationDate": 1456869156627
  },
  ]
  "links": [
    {
    "rel": "_self",
    "href": "/v1/jobs/ffa07b8a-e35d-4dc9-b054-232c6e4a9f51"
    }
  ],
  "tags": [],
  "isSystem": false
  "resources": [
    {
      "type": "STORAGE_SYSTEM",
      "ids": [
        "20055",
      ],
      "childResources": [
        {
          "type": "VOLUME",
          "ids": [
            "100",
            "101"
          ],
```

```
        }
      ]
    },
    {
      "type": "SERVER",
      "ids": [
        "2"
      ],
    }
  ]
}
```

Listing jobs

You can display information about submitted tasks. The information includes, who submitted the task, the time that the task was submitted, and the action taken by Ops Center Administrator. In a paginated response, if more than 100 jobs are in the system, this API call does not return all of the jobs. At the bottom of the returned response is a link to another GET call you can make to retrieve the next page of jobs. Copy the href link that includes the next token and paste it in your Ops Center Administrator browser. Perform this step if you want to retrieve all the jobs in the system.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/jobs
```

Request structure

Not applicable.

Response structure

```
{
    "jobs": [
        {
            "jobId": "",
            "title": {
                "text": "",
                "messageCode": "",
                "parameters": {
                }
            },
            "user": "",
            "status": "",
            "createdDate":,
            "scheduledDate":,
            "startDate": ,
            "endDate": ,
            "parentJobId": ,
```

```
            "reports": [
            ],
            "links": [
                {
                    "rel": "_self",
                    "href": "/v1/jobs/jobId"
                }
            ],
            "tags": [
            ],
            "isSystem": ,
            "resources": [
                {
                    "type": "",
                    "ids": [
                    ],
                    "childResources": [
                     {
                        "type": "",
                        "ids": [
                        ],
                        "childResources": [
                        ]
                    }
                },
                ...
            ]
        },
        ...
    ],
    "total": ,
    "links": [],
    "nextToken":
}
```

Parameter	Type	Description
jobId	String	ID of the job.
text	String	Title of the task that is in progress.
messageCode	String	ID of the message.
parameters	Object	List of parameters and the values, as captured in the job message.
user	String	User who made the request.
status	String	Status of the job: `IN_PROGRESS`, `SUCCESS`, `SUCCESS_WITH_ERRORS`, or `FAILED`.

Parameter	Type	Description
createdDate	Long	The date and time the job was created (in Epoch time format).
scheduledDate	Long	Scheduled date and time the job starts to run (in Epoch time format). For the job not scheduled to run on the specified time, this parameter is null.
startDate	Long	Start date and time of the job (in Epoch time format).
endDate	Long	End date and time of the job (in Epoch time format).
parentJobId	String	ID of the job that spawned this job. If there is no parent job, this value is null.
reports	List	Messages associated with this job.
rel	String	Indicates the type of link for the `href` parameter. If the value is `_self`, it identifies a resource equivalent to the containing element.
href	String	URL of this job.
tags	Set	Any tags applied to this job.
isSystem	Boolean	Whether a system or a user has created a job. If the job is generated by a system, the system automatically sets it to `true`. If a user generates a job, the system sets it to `false`.
resources	List	List of the resources operated in the job.
type	Enum	Type of the resources.
ids	List	List of Ids of the resources.
childResources	List	List of the child resources belonging to the resource.
total	Long	The total number of resources.

Parameter	Type	Description
nextToken	String	The API will return up to 100 resources with one call. `nextToken` is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token.

Return codes

Status code	HTTP name	Description
200	OK	Success.
201	Created	The server has started the operation.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
204	No content	The request was successful, but the response does not exist.
400	Bad request	The required HTTP header was not specified or the format of the specified HTTP header was invalid*. *: The specified HTTP header is not handled correctly when the header contains a carriage return("\r").
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.
404	Not found	The specified resource ID is not valid or the resource does not exist.
404	Not found	The specified storage system ID is not valid or the storage system does not exist.
409	Conflict	The specified resource type does not match the existing resource type.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.

Status code	HTTP name	Description
503	Service unavailable	The server currently cannot receive requests. Try your request again.
504	Gateway timeout	The request timed out waiting for a response. The Ops Center Administrator is not able to connect to the node.

Request example

```
https: //172.17.64.116/v1/jobs
```

Response example


```
{
  "jobs": [
    {
      "jobId": "ffa07b8a-e35d-4dc9-b054-232c6e4a9f51",
      "title": {
        "text": "Attach volumes to server.",
        "messageCode": "AttachVolumesToServerJobTitleMessage",
        "parameters": {}
      },
      "user": "sysadmin",
      "status": "SUCCESS",
      "startDate": 1456869156565,
      "endDate": 1456869229109,
      "parentJobId": "9d66fc27-473f-4d8b-8998-635da11f0260",
      "reports": [
        {
          "reportMessage": {
            "text": "Storage System "410033". Attaching volumes Lun{volumeId=474,
lun=1} to server 1.",
            "messageCode": "AttachVolumesToServerPreStepMessage",
            "parameters": {
              "storageSystemId": "410033",
              "volumes": "Lun{volumeId=474, lun=1}",
              "serverId": 1
            }
          },
          "severity": "INFORMATION",
          "creationDate": 1456869156627
        },
      ]
      "links": [
        {
          "rel": "_self",
```

```
          "href": "/v1/jobs/ffa07b8a-e35d-4dc9-b054-232c6e4a9f51"
        }
      ],
      "tags": [],
      "isSystem": false,
      "resources": [
        {
          "type": "STORAGE_SYSTEM",
          "ids": [
             "20055",
          ],
          "childResources": [
            {
              "type": "VOLUME",
              "ids": [
                "100",
                "101"
              ],
            }
          ]
        },
        {
          "type": "SERVER",
          "ids": [
            "2"
          ],
        }
      ],
    }
    ...
  ],
  "total": 66,
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs"
    }
  ],
  "nextToken": null
}
```


Listing storage system task information

You can display information about submitted storage system tasks. The information includes:

- Who submitted the task
- The time that the task was submitted
- The action taken by Ops Center Administrator

Note: For storage system configurations without SVP, an empty list is returned.

You must have one of the following roles:

- System administrator
- Storage administrator
- Security administrator

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/system-tasks
```

Request structure

Not applicable.

Response structure

```
{
    "resources": [
        {
            "storageSystemId": "",
            "storageSystemName": "",
            "taskId": "",
            "taskType": "",
            "title": "",
            "user": ""
            "status": "",
            "startDate": ,
            "endDate":
        },
    ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
storageSystemId	String	The storage system ID (serial number).
storageSystemName	String	The storage system name.
taskId	String	The task ID.
taskType	String	The task type.
title	String	The task title.

Parameter	Type	Description
user	String	The user who initiated the request.
status	String	The task status. Possible values are: IN_PROGRESS, SUCCESS, WAITING, or FAILED.
startDate	Long	The job's start date and time in Epoch time format.
endDate	Long	The job's end date and time in Epoch time format.
total	Long	The total number of resources.
nextToken	String	The API will return up to 100 resources with one call. `nextToken` is used for pagination when there are more than 100 resources in the system. The token is included in the list of resources. To retrieve the next list of resources, append a question mark (?) and "nextToken= ", and then the token.

Return codes

Status code	HTTP name	Description
200	OK	Success
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Response example

```
{
    "resources": [
        {
            "storageSystemId": "12345",
            "storageSystemName": "Storage_System_12345",
            "taskId":
"d5458c080435c3f88f702a36675dc5ae45ea9262340f6cdbae51c7d597b7c7aa",
            "taskType": "Delete LDEVs",
            "title": "200128-DeleteLDEVs",
            "user": "system-user"
```

```
            "status": "FAILED",
            "startDate": 1580187419899,
            "endDate": 1580187539545
        }
    ],
    "total": 1,
    "nextToken": null
}
```

Getting a storage system task information summary

You can display summary information about submitted storage system tasks.

Note: For storage system configurations without SVP, an empty list is returned.

You must have one of the following roles:

- System administrator
- Storage administrator
- Security administrator

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/system-tasks-summary
```

Request structure

Not applicable.

Response structure

```
{
    "taskCountByStatus": [
        {
            "status": "",
            "count":
        },
    ]
}
```

Parameter	Type	Description
taskCountByStatus	List	The total number of tasks by status.

Parameter	Type	Description
status	String	The task status. Possible values are: IN_PROGRESS, SUCCESS, WAITING, or FAILED.
count	Long	The number of tasks of a given status.

Return codes

Status code	HTTP name	Description
200	OK	Success
401	Unauthorized	The operation is not authorized.
403	Forbidden	The server failed to authenticate the request.

Response example

```
{
    "taskCountByStatus": [
        {
            "status": "SUCCESS",
            "count": 10
        },
        {
            "status": "FAILED",
            "count": 2
        },
        {
            "status": "IN_PROGRESS",
            "count": 3
        },
        {
            "status": "WAITING",
            "count": 1
        }
    ]
}
```

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