Hitachi Storage Advisor v3.3

RESTful API Reference Guide

This guide describes the commands used in the REST API to use with Hitachi Storage Advisor.

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Contents

Preface

Hitachi Storage Advisor 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 better control.

Intended Audience

This document is intended for system administrators, Hitachi Vantara representatives, and authorized service providers who configure and operate the following storage systems with Hitachi Storage Advisor:

- Hitachi Virtual Storage Platform F350, F370, F700, F900
- Virtual Storage Platform F400, F600, F800
- Virtual Storage Platform F1500
- Virtual Storage Platform G350, G370, G700, G900
- Virtual Storage Platform G200, G400, G600, G800
- Virtual Storage Platform G1000
- Virtual Storage Platform G1500

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 Storage Advisor version 3.3 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.

Convention	Description
| 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 important or additional information.
	Tip	Provides helpful information, guidelines, or suggestions for performing tasks more effectively.
	Caution	Warns the user of adverse conditions and/or consequences (for example, disruptive operations, data loss, or a system crash).
	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 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 Hitachi Vantara Support Connect: 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

Hitachi Vantara Support Connect is the destination for technical support of products and solutions sold by Hitachi Vantara. To contact technical support, log on to Hitachi Vantara Support Connect 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 us your comments on this document 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 Corporation.

Thank you!

Chapter 1: Using the Storage Advisor RESTful API

The Storage Advisor API is a REST (representational state transfer) interface for administrative tasks to manage storage resources.

Storage Advisor 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.

Storage Advisor REST API provides a non-GUI interface to storage management operations. 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:

Method	Description
GET	Retrieves information about an individual resource or retrieves a list of resources of a given type. GET is a synchronous operation. Synchronous operations return a response message with information for the given resource. All GET API calls support filtered queries.

Method	Description
	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 may also 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 operations that are asynchronous, return a response message with information about the status and job of the request. POST operations on resources in Storage Advisor are asynchronous with the following exceptions. These operations are synchronous and the response that is returned is a response message with only a 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 operations that are asynchronous, return a response message with information about the status and job of the request.

Method	Description
	DELETE operations on resources in Storage Advisor are an asynchronous operation with the following exceptions. These operations are synchronous and the response that is returned is a response message with only a HTTP status code. ▪ File storage management resources ▪ Account domain resources ▪ Role mapping resources ▪ Token resources ▪ Fabric switch resources

Privileges and roles

Access to the storage system is restricted by roles. Roles determine what a user can and cannot do. The security administrator can grant access to users by assigning users roles with privileges that are attached to those specific roles.

Roles	Privileges
System administrator	▪ Addition, administration, and deletion of servers, storage system, and fabric switches, SNMP manager, and tier management. ▪ Read-only privileges to monitor everything in Storage Advisor. ▪ Registration of Data Instance Director in Storage Advisor.
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 Storage Advisor.

Roles	Privileges
Security administrator	▪ Addition, administration and deletion of remote account domains. ▪ User role assignment to groups. ▪ Read-only privileges to monitor everything in Storage Advisor.

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 Storage Advisor 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 Storage Advisor.

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 provides 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	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.
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 is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor is not able to connect to the node.

Token management resources

Request	Method	URI	Role
Generating a security token (on page 21)	POST	/v1/security/tokens	Storage administrator System administrator Security administrator
Getting a security token (on page 21)	GET	/v1/security/tokens	Storage administrator System administrator Security administrator
Creating a security token (on page 24)	POST	/v1/security/tokens	Storage administrator System administrator Security administrator
Deleting a security token (on page 27)	DELETE	/v1/security/tokens	Storage administrator System administrator Security administrator

Generating a security token

Use this procedure to generate a security token.

A security token is required to access the REST API.

Before you begin

- Prepare your client to make REST calls.
- Add a new header with the following keys:
  - Authorization: set the value for this key as the user name and password.
  - Content-Type: set the value for this key as application/json

Procedure

1. Log in to Hitachi Storage Advisor.
2. In the same browser window, log in to the REST API client.
3. Enter the following to generate the security token:

```
POST https://ipAddress/v1/security/tokens
username <sysadmin>
password <sysadmin>
```

   The system responds with the security token that you need to access the REST API.

4. From the returned response headers, copy the value of X-Auth-Token.
5. Create a new header with the key X-Auth-Token, and set the value to `<copied X-Auth-Token value>`. The generated token is used in successive REST API calls by adding X-Auth-Token in the header of the REST API and setting the value to `<copied X-Auth-Token value>`, which is the generated value from the preceding POST call.

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	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.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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.

Status code	HTTP name	Description
400	Bad request	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.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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	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.
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 is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor is not able to connect to the node.

Sending API requests using cURL

You can use cURL in the command line with Storage Advisor REST APIs.

Procedure

1. To connect to the Storage Advisor 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:sysadmin`

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 the block storage management operations.

Storage system management

Request	Method	URI	Role
Listing storage systems (on page 31)	GET	/v1/storage-systems	Storage administrator System administrator Security administrator
Getting information about a specific storage system (on page 39)	GET	/v1/storage-systems/*storageSystemId*	Storage administrator System administrator Security administrator
Getting summary information about the storage system (on page 48)	GET	/v1/storage-systems/summary	Storage administrator System administrator Security administrator
Listing 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
Managing 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 shown below:

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

```
    "subscribedCapacity": ,
    "unusedDisks": ,
    "unusedDisksCapacity": ,
    "statusMessage": ,
    "gadSummary": "",
    "dataReductionSavingsRate": ,
    "capacityEfficiencyRate": ,
    "migrationTaskCount": ,
    "primaryGumNumber": ,
    "username": "",
    "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":
          }
```

```
        }
      },
      "snapshoEfficiencyRate":  {
        "status": "",
        "value":
      },
      "provisioningEfficiencyPercentage":  {
        "status": "",
        "value":
      },
      "calculationStartTime": "",
      "calculationEndTime": ""
    }
  ],
...
    "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 Storage Advisor. If accessible = TRUE, the storage system can be managed with Storage Advisor. If accessible = FALSE, storage system cannot be managed with Storage Advisor. 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.
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).

Parameter	Type	Description
gum2IpAddress	String	The IP address of the maintenance utility controller 2.
unified	Boolean	Whether or not the storage system includes NAS modules. If included, they can be configured and managed by Storage Advisor.
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.
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 disk and not used for parity group creation.
unusedDisksCapacity	Long	The unused disk capacity in the storage system.
statusMessage	String	Displays errors that may occur while adding a storage system ; null indicates no errors.
gadSummary	String	The status of GAD. Values are:

Parameter	Type	Description
		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 and TIERED 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 Fx00 models and VSP Gx00 models. For VSP F350, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900 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.
totalEfficiency	Object	Ratios regarding total efficiency. For the following storage systems with firmware versions from 88-03-0x or later: VSP F350, VSP F370, VSP F700, VSP F900, , VSP G350, VSP G370, VSP G700, and VSP G900, this parameter has all the totalEfficiency values. For all other storage systems, this value is null.

Parameter	Type	Description
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.
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.
snapshoEfficiencyRate	Object	The efficiency ratio achieved by snapshot.

Parameter	Type	Description
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by 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 resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://hsa_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/storage-systems
```

JSON response. For the following storage systems, TotalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP F400, VSP F600, VSP F800 and VSP G200, VSP G400, VSP G600, VSP G800.


```
{
  "resources":
  [
   {
   "storageSystemId": "410031",
   "storageSystemName": "RN-SC-41130-HID_SVOS7.3-Gsd-41.130",
   "accessible": true,
   "model": "VSP F600",
   "svpIpAddress": "172.17.41.130",
   "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,
   "primaryGumNumber": 1,
   "username": "maintenance",
   "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
        }
      }
    },
    "snapshoEfficiencyRate":  {
      "status": "CALCULATED",
      "value": 10.37
    },
    "provisioningEfficiencyPercentage":  {
      "status": "CALCULATED",
      "value": 170
    },
    "calculationStartTime": "2018-05-15T10:05",
    "calculationEndTime": "2018-05-15T10:38"
  }
       ...
  ],
  "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 shown below:

```
{
   "storageSystemId": "",
   "storageSystemName": "",
   "accessible": ,
   "model": "",
   "svpIpAddress": "",
   "gum1IpAddress": "",
   "gum2IpAddress": "",
   "unified": ,
   "firmwareVersion": "",
   "horcmVersion": "",
   "cacheCapacity": ,
   "totalUsableCapacity": ,
   "allocatedToPool": ,
   "unallocatedToPool": ,
   "usedCapacity": ,
   "availableCapacity": ,
   "subscribedCapacity": ,
   "unusedDisks": ,
   "unusedDisksCapacity": ,
   "statusMessage": ,
   "gadSummary": "",
   "dataReductionSavingsRate": ,
   "capacityEfficiencyRate": ,
   "primaryGumNumber": ,
   "username": "",
   "migrationTaskCount" ,
   "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":
          }
        }
      },
      "snapshoEfficiencyRate":  {
        "status": "",
        "value":
      },
      "provisioningEfficiencyPercentage":  {
        "status": "",
        "value":
      },
      "calculationStartTime": "",
      "calculationEndTime": ""
    }
}
```

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 Storage Advisor. If accessible = TRUE, the storage system can be managed with Storage Advisor. If accessible = FALSE, storage system cannot be managed with Storage Advisor. 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.
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 or not the storage system includes NAS modules. If included, they can be configured and managed by Storage Advisor.
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.
totalUsableCapacity	Long	The total usable capacity in the storage system. This is the sum of all parity group capacities in the system.

Parameter	Type	Description
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 disk and not used for parity group creation.
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 and TIERED 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.

Parameter	Type	Description
		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 Fx00 models and VSP Gx00 models. For VSP F350, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900 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.
totalEfficiency	Object	Percentages regarding total efficiency. For the following storage systems with firmware versions from 88-03-0x or later: VSP F350, VSP F370, VSP F700, VSP F900, , VSP G350, VSP G370, VSP G700, and VSP G900, 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.
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.
snapshoEfficiencyRate	Object	The efficiency ratio achieved by snapshot.
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by 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.

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 with JSON command:

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

JSON response. For the following storage systems, TotalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP F400, VSP F600, VSP F800 and VSP G200, VSP G400, VSP G600, VSP G800.


```
{
   "storageSystemId": "410031",
   "storageSystemName": "RN-SC-41130-HID_SVOS7.3-Gsd-41.130",
   "accessible": true,
   "model": "VSP F600",
   "svpIpAddress": "172.17.41.130",
   "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,
   "primaryGumNumber": 1,
```

```
    "username": "maintenance",
    "migrationTaskCount" 1,
    "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
          }
        }
      },
      "snapshoEfficiencyRate":  {
        "status": "CALCULATED",
        "value": 10.37
      },
      "provisioningEfficiencyPercentage":  {
        "status": "CALCULATED",
```

```
        "value": 170
      },
      "calculationStartTime": "2018-05-15T10:05",
      "calculationEndTime": "2018-05-15T10:38"
    }
}
```

Getting storage systems summary

You can display a report of all storage systems in Storage Advisor.

HTTP request syntax (URI)

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

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
        "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.

Parameter	Type	Description
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.
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
```

JSON response

```
{
    "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 shown below:

```
{
  "storageSystemId": "",
  "licenseSettings": [
    {
     "productName": "",
     "productId": "",
     "installed": ,
     "licenseCapacity": {
        "permitted": {
```

```
            "unlimited": ,
            "value":
            },
            "usedCapacity": ""
          }
      },
      ...
  ]
}
```

Parameter	Type	Description
storageSystemId	String	ID of the storage system.
productName	String	Name of the software application.
productId	String	Product ID of the license.
installed	Boolean	Whether or not 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.

Example response

```
  {
      "storageSystemId": "1234",
      "licenseSettings": [
          {
```

```
                "productName": "Thin 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 shown below:

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

Parameter	Required	Type	Description
password	Yes	String	Password.
username	Yes	String	User name.
ipAddress	No	String	GUM IP address. If you specify the GUM IP address as svpIpAddress during onboarding, the onboard job fails. For HSA v3.1 and later, it is recommended that you use ipAddress instead of svpIpAddress. You specify either svpIpAddress or ipAddress.

Parameter	Required	Type	Description
svpIpAddress	No	String	IP address of the SVP.

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	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 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.
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 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`.

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.

Status code	HTTP name	Description
403	Forbidden	The server failed to authenticate the request.
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 Storage Advisor and you can modify the storage system name.

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 shown below:

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

Parameter	Required	Type	Description
password	Yes*	String	Password used to connect to the SVP of the storage system.

Parameter	Required	Type	Description
username	Yes*	String	User name that is used to connect to the service processor (SVP) of the storage system.
storageSystemName	Yes*	String	The name of the storage system.

* Execution requires storageSystemName or password and username, but not all three.

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	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 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.
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 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`.

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 Storage Advisor.

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 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	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 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.
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 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`.

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 Storage Advisor. If one of the controllers fails and Storage Advisor cannot manage the storage system any longer, you execute this operation to use the other controller.

HTTP request syntax (URI)

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

Request structure

The request body structure is shown below:

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

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

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	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 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.
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 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`.

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
400	Bad request	Required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
409	Conflict	The GUM number has already been configured.

Example request

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

Disk management

Request	Method	URI	Role
Getting a list of disks (on page 63)	GET	/v1/storage-systems/*storageSystemId*/disks	Storage administrator System administrator Security administrator
Getting information about a specific disk (on page 67)	GET	/v1/storage-systems/*storageSystemId*/disks/*diskId*	Storage administrator System administrator Security administrator
Managing disks (on page 69)	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 shown below:

```
{
  "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.

Parameter	Type	Description
version	String	For storage systems with an SVP, returns the version of the disk. For storage systems without an SVP, returns null.
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
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://hsa_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"
        },
        ...
    ],
    "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 shown below:

```
{
  "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.

Parameter	Type	Description
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 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

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

JSON 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 can not update disks for VSP G1000, VSP G1500, and VSP F1500 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 shown below:

```
{
  "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 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	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 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.
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 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`.

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 74)	GET	/v1/storage-systems/*storageSystemId*/parity-groups	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Getting a parity group (on page 79)	GET	/v1/storage-systems/*storageSystemId*/parity-groups/*parityGroupId*	Storage administrator System administrator Security administrator
Listing parity groups summary (on page 83)	GET	/v1/storage-systems/*storageSystemId*/parity-groups/summary	Storage administrator System administrator Security administrator
Listing external parity groups (on page 85)	GET	/v1/storage-systems/*storageSystemId*/external-parity-groups	Storage administrator System administrator Security administrator
Getting an external parity group (on page 88)	GET	/v1/storage-systems/*storageSystemId*/external-parity-groups/*parityGroupId*	Storage administrator System administrator Security administrator
Listing external parity groups summary (on page 90)	GET	/v1/storage-systems/*storageSystemId*/external-parity-groups/ summary	Storage administrator System administrator Security administrator
Creating a parity group (on page 91)	POST	/v1/storage-systems/*storageSystemId*/parity-groups	System administrator
Setting a parity group compression (on page 96)	POST	/v1/storage-systems/*storageSystemId*/parity-	System administrator

Request	Method	URI	Role
		groups/*parityGroupId*/compress	
Initializing parity groups (on page 98)	POST	/v1/storage-systems/*storageSystemId*/parity-groups/*parityGroupId* /initialize	System administrator
Deleting parity groups (on page 102)	DELETE	/v1/storage-systems/*storageSystemId*/parity-groups/*parityGroupId*	System administrator

The following are parity group template APIs:

Request	Method	URI	Role
Getting information about parity groups based on best practices (on page 106)	GET	/v1/storage-systems/*storageSystemId*/templates/parity-group	Storage Administrator System Administrator Security Administrator
Creating parity groups based on best practices (on page 109)	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 shown below:

```
{
    "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.
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 Gx00: ▪ RAID1+0 - (2D+2D) ▪ RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P) ▪ RAID6 – (6D+2P),(14D+2P),(12D+2P) For VSP G1000, G1500, F1500: ▪ RAID5- (3D+1P),(7D+1P) ▪ RAID6 –(6D+2P),(14D+2P) ▪ RAID1+0 – (2D+2D), (2D+2D)x2
diskSpec	DiskSpec	Disk type, speed, and capacity of the disks that are used to create the parity group.
type	String	Type of disk, such as FMD, FMD DC2, FMD HDE, SSD, or SAS.
speed	Integer	Speed of the disk, measured in revolutions per minute.
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.
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.

Parameter	Type	Description
		▪ 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 checked, the files are still there, and the volume could be re-built 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 - 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 SN2/HCS.
encryption	Boolean	Whether or not 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 boot volumes. Values are TRUE or FALSE.
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. Example: `https://hsa_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
        },
                                                ...
    ],
  "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 shown below:

```
{
        "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: For Gx00: ▪ RAID1+0 - (2D+2D) ▪ RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P) ▪ RAID6 – (6D+2P),(14D+2P),(12D+2P) For VSP G1000, G1500, F1500: ▪ RAID5- (3D+1P),(7D+1P) ▪ RAID6 –(6D+2P),(14D+2P) ▪ RAID1+0 – (2D+2D), (2D+2D)x2

Parameter	Type	Description
diskSpec	DiskSpec	Disk type, speed, and capacity of the disks that are used to create the parity group.
type	String	Type of disk, such as FMD, FMD DC2, FMD HDE, SSD, and SAS.
speed	Integer	Speed of the disk, measured in revolutions per minute.
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.
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 checked, the files are still there, and the volume could be re-built 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.

Parameter	Type	Description
		▪ 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 SN2/HCS.
encryption	Boolean	Whether or not 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 pool consists of NAS boot 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 shown below:

```
{
    "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, FMD DC2, FMD HDE, SSD, or SAS.
speed	Integer	Speed of the disk, measured in revolutions per minute.
size	Long	Size of the volume, in bytes.
tierName	String	Custom name of the tier, such as Platinum, Gold, Silver, Bronze, or External.
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.

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

Example response

```
{
    "parityGroupSummaryItems":
    [
        {
            "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 shown below:

```
{
  "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.
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
```

JSON response:

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

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 shown below:

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

```
      "externalStorageProduct": ""
}
```

Parameter	Type	Description
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.
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": "410031",
      "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 shown below:

```
{
  "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.

Parameter	Type	Description
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.
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/50101/external-parity-groups/
summary
```

Response structure

```
{
  "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 can not create parity groups on VSP G1000, VSP G1500, or VSP F1500 storage systems. To set encryption on the parity groups on VSP G1000, VSP G1500, or VSP F1500 storage systems, 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 shown below:

```
{
    "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 Gx00: RAID1+0 - (2D+2D), RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P), RAID6 - (6D+2P),(14D+2P),(12D+2P). For VSP G1000, VSP G1500, VSP F1500: RAID5- (3D+1P),(7D+1P) RAID6 -(6D+2P),(14D+2P) RAID1+0 - (2D+2D), (2D+2D)x2
encryption	No	Boolean	Whether or not 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 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.
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 utilize 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 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	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 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.
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 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`.

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 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 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.

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
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/450439/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, or VSP F1500. 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 shown below:

```
{
        "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
    }
```

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.

Parameter	Type	Description
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
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, or VSP F1500, you can not 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 recommended 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 shown below:

```
{
    "parityGroupTemplateItems":
    [
        {
            "diskType": "",
            "speed": ,
            "size": "",
            "totalNumberOfDisks": ,
            "numberOfAvailableDisks": ,
            "numberOfNewHotSpares": ,
            "numberOfExistingHotSpares": ,
            "raidOptions":
            [
```

```
                {
                    "raidLayout": "",
                    "raidLevel": "",
                    "numberOfDisksForRaidLayout": ,
                    "numberOfParityGroups": ,
                    "usableCapacity": "",
                    "isDefault":,
                    "numberOfUnusedDisks":
                },
            ]
                                }
    ]
}
```

Parameter	Type	Description
diskType	String	Disk type, such as FMD, FMD DC2, SAS, or SSD.
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: For Gx00: ▪ RAID1+0 - (2D+2D) ▪ RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P) ▪ RAID6 – (6D+2P),(14D+2P),(12D+2P)

Parameter	Type	Description
		For VSP G1000, G1500, F1500: ▪ RAID5- (3D+1P),(7D+1P) ▪ RAID6 –(6D+2P),(14D+2P) ▪ RAID1+0 – (2D+2D), (2D+2D)x2
numberOfDisksForRaidLayout	Integer	The number of disks that is 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 recommended 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": "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, and VSP F1500 storage systems, you can not 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, Storage Advisor 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:** Storage Advisor determines the ratio of hot spare disks per disk type and the selection of hot spare disks from the following supported types:

Disk type	Hot spare ratio
SSD	1 per 32
FMD	1 per 24
FMD DC2	1 per 24
SAS	1 per 32

- **Best practice 2, RAID configuration and layout:** Storage Advisor provides a recommended RAID configuration and the number of disks per disk type and model based on the following information:

Disk type and speed	RAID and layout
SATA, SSD, 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:** Storage Advisor 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 (SSD, FMD, FMD DC2, and SAS):

- 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 shown below:

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

Parameter	Required	Type	Description
diskType	Yes	String	Type of disk, such as FMD DC2, FMD, SAS, or SSD.
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, or FMD DC2, the speed is 0.
size	Yes	Long	Size of the resource, in bytes.
encryption	No	Boolean	Whether or not 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 Gx00: RAID1+0 - (2D+2D), RAID5 - (3D+1P),(4D+1P),(6D+1P)& (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 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	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 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.
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 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`.

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
Getting a list of storage pools (on page 116)	GET	/v1/storage-systems/*storageSystemId*/storage-pools	Storage administrator System administrator Security administrator
Getting information about a specific storage pool (on page 129)	GET	/v1/storage-systems/*storageSystemId*/storage-pools/*storagePoolId*	Storage administrator System administrator Security administrator
Getting summary information about storage pools (on page 140)	GET	/v1/storage-systems/*storageSystemId*/storage-pools/summary	Storage administrator System administrator Security administrator
Creating storage pools (on page 143)	POST	/v1/storage-systems/*storageSystemId*/storage-pools	Storage administrator
Updating storage pools (on page 147)	POST	/v1/storage-systems/*storageSystemId*/storage-pools/*storagePoolId*	Storage administrator
Deleting storage pools (on page 151)	DELETE	/v1/storage-systems/*storageSystemId*/storage-pools/*storagePoolId*	Storage administrator

The following are pool management template APIs:

Request	Method	URI	Role
Getting information about storage pools based on best practices (on page 154)	GET	/v1/storage-systems/*storageSystemId*}/templates/pool	Storage Administrator System Administrator

Request	Method	URI	Role
			Security Administrator
Getting information about a specific storage pools based on best practices (on page 157)	GET	/v1/storage-systems/*storageSystemId*}/templates/pool/*storagePoolId*	Storage Administrator System Administrator Security Administrator
Creating storage pools based on best practices (on page 159)	POST	/v1/storage-systems/*storageSystemId*}/templates/pool	Storage Administrator
Updating storage pools based on best practices (on page 163)	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 shown below:

```
{
"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": "",
            "activeFlashEnabled": ,
            "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":
                  }
                }
              },
              "snapshoEfficiencyRate":  {
                "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.
availableCapacityInBytes	Long	Unused capacity of the volume that is attached to the host.
usedSubscribedCapacityIn Bytes	Long	Used subscribed capacity for this pool.

Parameter	Type	Description
logicalCapacityInBytes	Long	Unused logical capacity.
usedLogicalCapacityInBytes	Long	Used logical capacity for this pool.
availableLogicalCapacityInBytes	Long	Unused logical capacity of the volume that is attached to the host.
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	The pool capacity utilization threshold at which first warning is issued.
utilizationThreshold2	Integer	The pool capacity utilization threshold at which second warning is issued.
subscriptionLimit	Object	If subscription limit is set, unlimited is false and value indicates the limit. If 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 would 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".
unlimited	Boolean	Whether there is a limit on available capacity. Values are TRUE or FALSE.

Parameter	Type	Description
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 or not a limit is set.
value	Integer	
bufferSpace	Object	Tier buffer space.
newPageAssignment	Object	The buffer space for new page assignment.
unlimited	Boolean	Whether or not the buffer space for new page assignment is limited. Values are TRUE or FALSE.
value	Integer	
tierRelocation	Object	The buffer space for tier relocation.
unlimited	Boolean	Whether or not a limit is set.
value	Integer	

Parameter	Type	Description
performanceUtilization	Object	Tier performance usage percentage.
unlimited	Boolean	Whether or not the buffer space for new page assignment is limited. Values are TRUE or FALSE.
value	Integer	
tieringMode	String	Tiering mode for Tiered pool. Values: MANUAL, AUTOMATIC, NONE, UNKNOWN. The value for a non-Tiered pool should be NONE.
monitoringMode	String	Monitoring mode for Tiered pool. Values: PERIODICAL, CONTINUOUS, PERIODICAL_WITH_ACTIVE_FLASH, CONTINUOUS_WITH_ACTIVE_FLASH, NONE. The value for a non-Tiered pool should be NONE.
activeFlashEnabled	Boolean	Whether active flash is enabled. To enable active flash, one of the tiers must be Platinum and disk types: FMD, SSD, or FMD DC2. You also need enable the active flash license.
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.

Parameter	Type	Description
savingsPercentage	Integer	Displays the percentage of the capacity reduced by controller-based deduplication and compression 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.
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 dedup 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 and TIERED 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.

Parameter	Type	Description
		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 the following storage systems with firmware versions from 88-03-0x or later: VSP F350, VSP F370, VSP F700, VSP F900, , VSP G350, VSP G370, VSP G700, and VSP G900, 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.
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.

Parameter	Type	Description
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.
snapshoEfficiencyRate	Object	The efficiency ratio achieved by snapshot.
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by 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 resources, append a question mark (?) and "nextToken= ", and then the token. Example: `https://hsa_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/file/storage-systems/410209/storage-pools
```

JSON response. For the following storage systems, TotalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP F400, VSP F600, VSP F800 and VSP G200, VSP G400, VSP G600, VSP G800.


```
{
"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
                 }
               }
             },
             "snapshoEfficiencyRate":  {
               "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 shown below:

```
        {
            "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": ,
                    "compressionSupported":
                }
            ],
            "externalParityGroupIds": [],
            "tiers": [
                {
                    "tier": "",
                    "capacity": ,
                    "usedCapacity": ,
                    "usage": {
                        "unlimited": ,
                        "value":
                    },
                    "bufferSpace": {
                        "newPageAssignment": {
                            "unlimited": ,
                            "value":
                        },
                        "tierRelocation": {
                            "unlimited": ,
                            "value":
                        }
                    },
                    "performanceUtilization": {
                        "unlimited": ,
                        "value":
                    }
                }
            ],
            "tieringMode": "",
            "monitoringMode": "",
            "activeFlashEnabled": ,
            "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":
                  }
                }
              },
              "snapshoEfficiencyRate":  {
                "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 of the volume that is attached to the host.
usedSubscribedCapacityIn Bytes	Long	Used subscribed capacity for this pool.
logicalCapacityInBytes	Long	Unused logical capacity.
usedLogicalCapacityInBytes	Long	Used logical capacity for this pool.
availableLogicalCapacityInB ytes	Long	Unused logical capacity of the volume that is attached to the host.
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, returns NULL.
type	String	Pool type: ▪ THIN ▪ TIERED ▪ SNAP

Parameter	Type	Description
utilizationThreshold1	Integer	The pool capacity utilization threshold at which first warning is issued.
utilizationThreshold2	Integer	The pool capacity utilization threshold at which second warning is issued.
subscriptionLimit	Object	If subscription limit is set, unlimited is false and value indicates the limit. If 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.
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.

Parameter	Type	Description
bufferSpace	Object	Tier buffer space.
newPageAssignment	Object	The buffer space for new page assignment.
unlimited	Boolean	Whether the buffer space for 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 new page assignment is limited. Values are TRUE or FALSE.
tieringMode	String	Tiering mode for Tiered pool. Values: MANUAL, AUTOMATIC, NONE, UNKNOWN. The value for a non-Tiered pool should be NONE.
monitoringMode	String	Monitoring mode for Tiered pool. Values: PERIODICAL, CONTINUOUS, PERIODICAL_WITH_ACTIVE_FLASH, CONTINUOUS_WITH_ACTIVE_FLASH, NONE. The value for a non-Tiered pool should be NONE.
activeFlashEnabled	Boolean	Whether active flash is enabled. To enable active flash, one of the tiers must be Platinum and disk types: FMD, SSD, or FMD DC2. You also need enable the active flash license.
ddmEnabled	Boolean	Whether the pool is of type DDM. Valid 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.

Parameter	Type	Description
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 the capacity reduced by controller-based deduplication and compression 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 dedup function is enabled.
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.

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 and TIERED 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 the following storage systems with firmware versions from 88-03-0x or later: VSP F350, VSP F370, VSP F700, VSP F900, , VSP G350, VSP G370, VSP G700, and VSP G900, 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.
dataReductionEfficiency	Object	Ratios regarding data reduction efficiency.
totalDataReductionRate	Object	Data reduction ratio before and after accelerated compression and capacity saving (compression and deduplication).

Parameter	Type	Description
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.
snapshoEfficiencyRate	Object	The efficiency ratio achieved by snapshot.
provisioningEfficiencyPercentage	Object	The efficiency ratio achieved by 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.

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 the resource does not exist.

Example code

Request with JSON command:

```
https://172.17.64.109/v1/file/storage-systems/410033/storage-pools/3
```

JSON response. For the following storage systems, TotalEfficiency is set to null: VSP F1500 and VSP G1000, VSP G1500 and VSP F400, VSP F600, VSP F800 and VSP G200, VSP G400, VSP G600, VSP G800.


```
{
    {
        "storagePoolId": 3,
        "storageSystemId": "410033",
        "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,
```

```
                "compressionSupported": 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
                   }
                 }
               },
               "snapshoEfficiencyRate":  {
                 "status": "CALCULATED",
                 "value": 10.37
               },
               "provisioningEfficiencyPercentage":  {
                 "status": "CALCULATED",
                 "value": 170
               },
               "calculationStartTime": "2018-05-15T10:05",
               "calculationEndTime": "2018-05-15T10:38"
      }
    }
}
```


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 shown below:

```
{
   "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
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.

Parameter	Type	Description
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 shown below:

```
{
"label":" ",
"type":"",
"activeFlashEnabled":,
"ddmEnabled":,
"utilizationThreshold1": ,
"utilizationThreshold2":,
"subscriptionLimit": {
"value" : ,
"unlimited":
},
"parityGroupIds":[""],
"suspendSnapshot":
}
```

Parameter	Required	Type	Description
label	Yes	String	The pool name.
type	Yes	String	The pool type: THIN, TIERED, or SNAP.
activeFlashEnabled	No	Boolean	Whether or not active flash is enabled. To enable active flash, one of the tiers must be Platinum and disk types: SSD, FMD, FMD DC2, or FMD HDE. You also need to enable the active flush license.
ddmEnabled		Boolean	Whether there is a DDM pool creation request. Valid values are TRUE or FALSE.
utilizationThreshold1	No	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, Storage Advisor sets it to 70%.
utilizationThreshold2	No	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, Storage Advisor sets it to 80%.
subscriptionLimit	No	Integer	This is the maximum volume capacity subscription that is allowed on a given storage pool. The allowed values are between 1 - 65534. To set unlimited subscription limit, set unlimited = true. If the subscriptionLimit is not specified, Storage Advisor sets this to 100%. This parameter cannot be set for VSP F350, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
parityGroupIds	No	String	List of parity group IDs that belong to this pool.
suspendSnapshot	No	Boolean	Set to TRUE by default.

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	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 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.
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 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`.

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/file/storage-systems/410209/storage-pools
```

Example request

```
{
"label":"TIERED-encrypt-P0",
"type":"TIERED",
"activeFlashEnabled":true,
"ddmEnabled": false,
"utilizationThreshold1": 90,
"utilizationThreshold2":95,
"subscriptionLimit": {
"value" : 100,
"unlimited": false
},
"parityGroupIds":["5-1"]
}
```

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":"",
"activeFlashEnabled":,
"utilizationThreshold1": ,
"utilizationThreshold2":,
"subscriptionLimit": {
"value" : ,
```

```
"unlimited":
},
"parityGroupIds":[""],
"suspendSnapshot":
}
```

Parameter	Required	Type	Description
label	No	String	The pool name.
poolType	No	String	The pool type: THIN, TIERED, and SNAP.
activeFlashEnabled	No	String	Whether or not active flash is enabled. To enable active flash, one of the tiers must be Platinum and disk types: SSD, FMD, FMD DC2, or FMD HDE. You also need to enable the active flush license.
utilizationThreshold1	No	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, Storage Advisor sets it to 70%.
utilizationThreshold2	No	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, Storage Advisor sets it to 80%.
subscriptionLimit	No	Integer	This is the maximum volume capacity subscription that is allowed on a given storage pool. The allowed values are between 1 - 65534. To set unlimited subscription limit, set unlimited = true. If the subscriptionLimit is not specified, Storage Advisor sets this to 100%. This parameter cannot be set for VSP F350, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
parityGroupIds	No	String	List of parity group IDs that belong to this pool.

Parameter	Required	Type	Description
suspendSnapshot	No	Boolean	Set to TRUE by default.

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	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 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.
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 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`.

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.

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/storage-systems/440084/storage-pools
```

Example request

```
{
"label":" TIERED-encrypt-P0",
"type":"TIERED",
"activeFlashEnabled":true,
"utilizationThreshold1": 90,
"utilizationThreshold2":95,
"subscriptionLimit": {
"value" : 100,
"unlimited": false
},
"parityGroupIds":["5-1"]
}
```

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 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	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 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).

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 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`.

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	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 pool template

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, raidlLevel, 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 shown below:

```
{
  "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.

Parameter	Type	Description
utilizationThreshold1	String	The pool capacity utilization threshold at which first warning is issued.
utilizationThreshold2	String	The pool capacity utilization threshold at which second warning is issued.
subscriptionLimit	String	Maximum subscription of volume capacity allowed on this pool. If there is an unlimited subscription limit, unlimited = true. Always NULL for VSP F350, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
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, or SSD.
speed	String	The speed of the disk, measured in revolutions per minute.
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: For Gx00: ▪ RAID1+0 - (2D+2D) ▪ RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P) ▪ RAID6 – (6D+2P),(14D+2P),(12D+2P)

Parameter	Type	Description
		For VSP G1000, G1500, F1500: ▪ RAID5- (3D+1P),(7D+1P) ▪ RAID6 –(6D+2P),(14D+2P) ▪ RAID1+0 – (2D+2D), (2D+2D)x2
availiableSizesInBytes	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/file/storage-systems/410209/templates/pool
```

Example response

```
{
  "label": null,
  "utilizationThreshold1": 70,
  "utilizationThreshold2": 80,
  "subscriptionLimit": {
    "unlimited": false,
    "value": 100
  },
  "tiers": [
    {
      "name": "Platinum",
      "templateSubTiers": [
        {
          "description": "FMD RAID1+0 2D+2D",
          "diskType": "FMD",
```

```
          "speed": 0,
          "capacity": "1759216926208",
          "raidLevel": "RAID1+0",
          "raidLayout": "2D+2D",
          "availableSizesInBytes": [
            "3518431756288"
          ]
}
```

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	The pool capacity utilization threshold at which first warning is issued.
utilizationThreshold2	String	The pool capacity utilization threshold at which second warning is issued.
subscriptionLimit	String	Maximum subscription of volume capacity allowed on this pool. If there is an unlimited subscription limit, unlimited = true. Always NULL for VSP F350, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.
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, returns NULL.
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, FMD DC2, FMD HDE, SSD, or SAS.
speed	String	The speed of the disk, measured in revolutions per minute.
capacity	String	Capacity of the tier in bytes.

Parameter	Type	Description
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.

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 shown below:

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

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

Parameter	Required	Type	Description
utilizationThreshold1	No	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, Storage Advisor sets it to 70%.
utilizationThreshold2	No	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, Storage Advisor sets it to 80%.
subscriptionLimit	No	Integer	This is the maximum volume capacity subscription that is allowed on a given storage pool. The allowed values are between 1 - 65534. To set unlimited subscription limit, set unlimited = true. If the subscriptionLimit is not specified, Storage Advisor sets this to 100%. This parameter cannot be set for VSP F350, VSP F370, VSP F700, VSP F900 and VSP G350, VSP G370, VSP G700, VSP G900.

Parameter	Required	Type	Description
htiPool	No	Boolean	Determines whether the pool is a HTI pool. Set this to be true when you want the pool to be a HTI pool.
diskType	Yes	String	Type of disk, such as FMD, FMD DC2, FMD HDE, SSD, or SAS.
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 Gx00: RAID1+0 - (2D+2D), RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P), RAID6 - (6D+2P),(14D+2P),(12D+2P). For VSP G1000, VSP G1500, VSP F1500: 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, 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.
suspendSnapshot	No	Boolean	Set to TRUE by default.

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	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 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).

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 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`.

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 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, raidlLevel, 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 shown below:

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

Parameter	Required	Type	Description
utilizationThreshold1	Yes	String	The pool capacity utilization threshold at which first warning is issued. Range is 0 - 100.
utilizationThreshold2	Yes	String	The pool capacity utilization threshold at which second warning is issued. Range is 0 - 100 and should be at a higher value than utilizationThreshold1.

Parameter	Required	Type	Description
subscriptionLimit	No	String	Maximum subscription of volume capacity allowed on this pool. Value must be greater than 0. If there is an unlimited subscription limit, unlimited = true. This parameter cannot be set for VSP F350, 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 a HTI pool.
capacity	No	String	Capacity of the tier in bytes.
diskType	No	String	Type of disk, such as FMD, FMD DC2, FMD HDE, SSD, or SAS.
raidLevel	No	String	RAID level, such as RAID 5 or RAID 6.
raidLayout	No	String	RAID layout
speed	No	String	The speed of the disk, measured in revolutions per minute.
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.
suspendSnapshot	No	Boolean	Set to TRUE by default.

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	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 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.

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 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`.

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	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.

Status code	HTTP name	Description
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 is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor is not able to connect to the node.

Volume management resources

Request	Method	URI	Role
Listing volumes (on page 171)	GET	/v1/storage-systems/*storageSystemId*/volumes	Storage administrator System administrator Security administrator
Getting a volume (on page 179)	GET	/v1/storage-systems/*storageSystemId*/volumes/volumeId	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 187)	POST	/v1/storage-systems/*storageSystemId*/volumes	Storage administrator
Updating a volume (on page 192)	POST	/v1/storage-systems/*storageSystemId*/volumes	Storage administrator
Deleting a volume (on page 196)	DELETE	/v1/storage-systems/*storageSystemId*/volumes	Storage administrator
Detaching a volume (on page 199)	POST	/v1/volume-manager/detach	Storage administrator
Edit volume LUN path (on page 242)	POST	/v1/volume-manager/edit-lun-paths	Storage administrator
Getting auto-selection paths (on page 252)	GET	/v1/volume-manager/auto-path-select	Storage administrator System administrator Security administrator
Getting host groups (on page 259)	GET	/v1/storage-systems/*storageSystemId*/host-groups	Storage administrator System administrator Security administrator
Getting host group information (on page 264)	GET	/v1/storage-systems/*storageSystemId*/host-groups/*hostGroupId*	Storage administrator System administrator Security administrator
Adding a mutual CHAP user of a host group (on page 268)	PATCH	/v1/storage-systems/*storageSystemId*/hostgroups/*hostGroupId*	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Updating a mutual CHAP user of a host group (on page 272)	PATCH	/v1/storage-systems/*storageSystemId*/hostgroups/*hostGroupId*	Storage administrator System administrator Security administrator
Deleting a mutual CHAP user of a host group (on page 275)	PATCH	/v1/storage-systems/*storageSystemId*/hostgroups/*hostGroupId*	Storage administrator System administrator Security administrator
Shredding volumes (on page 279)	POST	/v1/volume-manager/shred	Storage administrator
Interrupting volume shredding (on page 283)	POST	/v1/volume-manager/shred/interrupt	Storage administrator
Updating preferred path setting of a hostgroup (on page 285)	PATCH	/v1/storage-systems/*storageSystemId*/host-groups/*hostGroupId*	Storage administrator System administrator

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

Request	Method	URI	Role
Creating volumes (on page 202)	POST	/v1/volume-manager/create	Storage administrator
Attaching volumes (on page 207)	POST	/v1/volume-manager/attach	Storage administrator
Creating and attaching volumes (on page 223)	POST	/v1/volume-manager/create-attach	Storage administrator
Attaching and protecting volumes (on page 217)	POST	/v1/volume-manager/attach-protect	Storage administrator
Creating attaching and protecting volumes (on page 233)	POST	/v1/volume-manager/create-attach-protect	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 shown below:

```
{
    "resources":
    [
        {
            "volumeId": ,
            "storageSystemId": "",
            "poolId": "",
            "label": "",
            "size": "",
            "usedCapacity": "",
            "availableCapacity": "",
            "utilization": ,
            "status": "",
            "type": "":,
            "provisioningStatus": "",
            "aluaEnabled":,
            "attachedVolumeServerSummary":
              {
                [
                  {
                     "serverId": ,
                     "paths":
                       [
                         {
                           "storagePortId": "",
                           "storageSystemId": "",
                           "lun": ,
                           "name": "",
                           "hostMode": "",
                           "wwns": null,
                           "iscsiTargetInformation": {
                              "iscsiTargetName": "",
                              "iscsiInitiatorNames": [
```

```
                                  "",
                                ],
                                "mutualChapUser": "",
                                "chapUsers": [
                                  "",
                                ],
                                "authenticationMode": "",
                                "authenticationDirection": ""
                            },
                            "hostModeOptions": [],
                            "preferredPath": ,
                          }
                        ]
                      }

              "dataProtectionSummary":
              {
                  "replicationType": [],
                  "volumeType": [],
                  "replicationGroupIdMap":
                  {
                  },
                  "hasFailures": ,
                  "secondaryVolumeCount": ,
                  "secondaryVolumeFailures":
              },
              "gadSummary":
              {
                  "vsmId": "",
                  "virtualLdevId": "",
                  "volumeType": ""
              },
              "dkcDataSavingType": "",
              "migrationSummary": {
                 "ownerTaskId": "",
                 "migrationType": ""
              }
              "virtualStorageMachineInformation": {
                   "virtualStorageMachineId":""
                   "storageSystemId":"",
                   "model":"",
                   "virtualVolumeId":
              }
   ]
   "total": ,
   "nextToken":
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
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, 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.
aluaEnabled	Boolean	Whether or not ALUA mode of the volume is enabled.
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.
name	String	Name of the resource.
hostMode	String	Host mode set for the volume.

Parameter	Type	Description
wwns	List	List of WWNs of connected hosts. 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 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 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. ▪ ONEWAY: 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.
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 a S-VOL.
gadSummary	Object	List of the GAD attributes of the volume. If there is no GAD pair, this returns null.
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
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSION, and NONE.
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
virtualStorageMachineInformation	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.
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://hsa_server/v1/storage-systems/serial/disks?nextToken=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.

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://172.17.64.116/v1/storage-systems/410209/volumes
```

Example response


```
{
    "resources":
    [
        {
            "volumeId": 68,
            "storageSystemId": "410209",
            "poolId": "0",
            "label": "100-GAD-PAIRS_41176_41180129",
            "size": 5368709120,
            "usedCapacity": 0,
            "availableCapacity": 5368709120,
            "utilization": 0,
            "status": "SHREDDING",
            "type": "TIERED":,
            "provisioningStatus": "ATTACHED",
            "aluaEnabled": true,
            "attachedVolumeServerSummary":
              {
                [
                  {
                     "serverId": 1,
                     "paths":
                       [
                         {
                           "storagePortId": "CL2-G",
                           "storageSystemId": "410209",
                           "lun": 33,
                           "name": "GAD_ESX_6524",
                           "hostmode": "VMWARE",
                           "wwns": null,
```

```
                        "iscsiTargetInformation": {
                          "iscsiTargetName": "",
                          "iscsiInitiatorNames": [
                             "",
                          ],
                          "mutualChapUser": "",
                          "chapUsers": [
                             "",
                          ],
                          "authenticationMode": "BOTH",
                          "authenticationDirection": "MUTUAL"
                        },
                        "hostModeOptions": [].
                        "preferredPath": true
                       }
                     ]
                  }
              ]
          "dataProtectionSummary":
          {
              "replicationType": ["SNAP"],
              "volumeType": ["P-VOL"],
              "replicationGroupIdMap":
              {
                  "7": "RL_SNAP_41180_41176_68"
              },
              "hasFailures": false,
              "secondaryVolumeCount": 2,
              "secondaryVolumeFailures": 0
          },
          "gadSummary": {
              "vsmId": "2",
              "virtualLdevId": "68",
              "volumeType": "Active-Primary"
          },
          "dkcDataSavingType": "NONE",
          "migrationSummary": {
              "ownerTaskId": null,
              "migrationType": "NONE"
          }
          "virtualStorageMachineInformation": {
              "virtualStorageMachineId":"123456VSPG800",
              "storageSystemId":"123456",
              "model":"VSP G800",
              "virtualVolumeId":2
          }
      }

      ...
    ],
  "total": 12,
```

```
   "nextToken": null
}
```

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 shown below:

```
        {
            "volumeId": ,
            "storageSystemId": "",
            "poolId": "",
            "label": "",
            "size": "",
            "usedCapacity": "",
            "availableCapacity": "",
            "utilization": ,
            "status": "",
            "type": "":,
            "provisioningStatus": "",
            "aluaEnabled":,
            "attachedVolumeServerSummary":
              {
                [
                  {
                     "serverId": ,
                     "paths":
                       [
                         {
                           "storagePortId": "",
                           "storageSystemId": "",
                           "lun": ,
                           "name": "",
                           "hostMode": "",
```

```
                        "wwns": null,
                        "iscsiTargetInformation": {
                           "iscsiTargetName": "",
                           "iscsiInitiatorNames": [
                             "",
                           ],
                           "mutualChapUser": "",
                           "chapUsers": [
                             "",
                           ],
                           "authenticationMode": "",
                           "authenticationDirection": ""
                        },
                        "hostModeOptions": [],
                        "preferredPath": ,
                       }
                     ]
                  }

        "dataProtectionSummary":
        {
            "replicationType": [],
            "volumeType": [],
            "replicationGroupIdMap":
            {
            },
            "hasFailures": ,
            "secondaryVolumeCount": ,
            "secondaryVolumeFailures":
        },
        "gadSummary":
        {
            "vsmId": "",
            "virtualLdevId": "",
            "volumeType": ""
        },
        "dkcDataSavingType": "",
        "migrationSummary": {
            "ownerTaskId": "",
            "migrationType": ""
        }
        "virtualStorageMachineInformation": {
             "virtualStorageMachineId":""
             "storageSystemId":"",
             "model":"",
             "virtualVolumeId":
        }
    }
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
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, 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.
aluaEnabled	Boolean	Whether or not ALUA mode of the volume is enabled.
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.
name	String	Name of the resource.
hostMode	String	Host mode set for the volume.

Parameter	Type	Description
wwns	List	List of WWNs of connected hosts. 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. 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 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. ▪ ONEWAY: 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.
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 a S-VOL.
gadSummary	Object	List of the GAD attributes of the volume. If there is no GAD pair, this returns null.
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
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSION, and NONE.
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
virtualStorageMachineInformation	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.

Return codes

Status code	HTTP name	Description
200	OK	Success.
400	Bad request	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/storageSystems/410209/volumes/68
```

Example response

```
        {
            "volumeId": 68,
            "storageSystemId": "410209",
            "poolId": "0",
            "label": "100-GAD-PAIRS_41176_41180129",
            "size": 5368709120,
            "usedCapacity": 0,
            "availableCapacity": 5368709120,
            "utilization": 0,
            "status": "SHREDDING",
            "type": "TIERED":,
            "provisioningStatus": "ATTACHED",
            "aluaEnabled":true,
            "attachedVolumeServerSummary":
              {
                [
                  {
                     "serverId": 1,
                     "paths":
                       [
                         {
                           "storagePortId": "CL2-G",
                           "storageSystemId": "410209",
                           "lun": 33,
                           "name": "GAD_ESX_6524",
                           "hostmode": "VMWARE",
                           "wwns": null,
                           "iscsiTargetInformation": {
                             "iscsiTargetName": "",
                             "iscsiInitiatorNames": [
                                "",
                             ],
                             "mutualChapUser": "",
                             "chapUsers": [
                                "",
                             ],
                             "authenticationMode": "BOTH",
                             "authenticationDirection": "MUTUAL"
                           },
                           "hostModeOptions": [],
                           "preferredPath": true
                         }
                       ]
                  }
                ]
            "dataProtectionSummary":
            {
                "replicationType": ["SNAP"],
                "volumeType": ["P-VOL"],
                "replicationGroupIdMap":
                {
```

```
                    "7": "RL_SNAP_41180_41176_68"
                },
                "hasFailures": false,
                "secondaryVolumeCount": 2,
                "secondaryVolumeFailures": 0
            },
            "gadSummary": {
                "vsmId": "2",
                "virtualLdevId": "68",
                "volumeType": "Active-Primary"
            },
            "dkcDataSavingType": "NONE",
            "migrationSummary": {
                "ownerTaskId": null,
                "migrationType": "NONE"
            }
            "virtualStorageMachineInformation": {
                "virtualStorageMachineId":"123456VSPG800",
                "storageSystemId":"123456",
                "model":"VSP G800",
                "virtualVolumeId":2
            }
        }
```

Getting 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*.

Response structure

The response body structure is shown below:

```
{
   "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.
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/410031/volumes/summary
```

Example response

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

Creating a volume

You can create a volume on a given pool or create a snapshot of a volume.

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 shown below:

```
{
  "capacityInBytes": "",
  "poolId": "",
  "dkcDataSavingType": "",
  "label": "",
  "virtualStorageMachineId": ""
}
```

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. **Note:** If DEDUPLICATION_AND_COMPRESSION is enabled, the setting cannot later be changed to COMPRESSION only.
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.

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.

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
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	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

```
{
  "capacityInBytes": "5368709120",
  "poolId": "0",
  "dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION"
  "label": "test-volume-MD",
  "virtualStorageMachineId":"123456VSPG800"
}
```

Example request

```
https://172.17.64.111/v1/440084/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 updated or deleted. 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 shown below:

```
{
  "capacityInBytes": "",
  "label": "",
  "dkcDataSavingType": "",
  "aluaEnabled":,
}
```

Parameter	Required	Type	Description
capacityInBytes	No	Long	Expanded size of the volume. The new size should be larger than the current size of the volume.
label	No	String	Description of the volume up to 32 characters.

Parameter	Required	Type	Description
dkcDataSavingType	No	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSION, and NONE. 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. If DEDUPLICATION_AND_COMPRESSION is enabled, the setting cannot later be changed to COMPRESSION directly. If you want to change to COMPRESSION directly, you must disable the capacity saving function first.
aluaEnabled	No	Boolean	Describes whether or not ALUA mode of the volume is enabled.

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.
links	List	Displays related resources.

Parameter	Type	Description
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	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

The request with JSON command:

```
{
"capacityInBytes": "5368709120",
"label": "test-volume-MD"
"dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION",
"aluaEnabled":true
}
```

Example request

The request with JSON command:

```
https://172.17.64.111/v1/storage-systems/410500/volumes/volumeId
```

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 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.
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.
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/410500/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
    }
```

Detaching a volume

You can detach a volume from a server.

HTTP request syntax (URI)

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

Request Structure

```
{
  "volumeId": ,
  "serverId": ,
  "storageSystemId": "",
  "removeConnection":
}
```

Parameter	Required	Type	Description
volumeId	Yes	String	ID of the volume to be detached.
serverId	Yes	Integer	ID of the server that the volume is detaching from.

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the storage system.
removeConnection	No	Boolean	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 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.
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

```
{
  "volumeId": "17",
  "serverId": "3",
  "storageSystemId": "440084",
  "removeConnection": "false"
}
```

Example request

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

Creating multiple volumes

You can create different volumes, poolType, and tier on the storage system. If a pool ID is not specified, the least utilized 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 shown below:

```
{
   "storageSystemId": "",
   "volumes": [{
      "poolType": "",
      "numberOfVolumes": ,
      "label": "",
      "suffix": ,
      "capacity": "",
      "poolId":,
      "dkcDataSavingType": ""
   }],
   "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 utilized pool of the specified type is selected.

Parameter	Required	Type	Description
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.

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.
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.
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": "410395",
    "volumes": [{
   "poolType": "Platinum",
   "numberOfVolumes": 1,
   "label": "Test",
   "suffix": 0,
   "capacity": "1073741824",
   "poolId": 0
   "dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION",
 }]
 "virtualStorageMachineId":"123456VSPG800"
}
```

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 Storage Advisor.

HTTP request syntax (URI)

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

Request structure

The request body structure is shown below:

```
{
 "storageSystemId": "",
 "intendedImageType": "",
 "hostModeOptions": [
 ],
 "enableZoning": ,
 "enableLunUnification": ,
 "forceOverwriteChapSecret": ,
```

```
 "shareHgByAllServers": ,
 "volumes": [
    {
       "lun": ,
       "volumeId":
    },
    ...
 ],
"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	intendedImage	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 values are as follows: ▪ null - AutoSelect ▪ 2 - VERITAS Database Edition/ Advanced Cluster ▪ 6 - TPRLO ▪ 7 - Automatic recognition function of LUN

Parameter	Required	Type	Description
			▪ 12 - No display for ghost LUN ▪ 13 - SIM report at link failure ▪ 14 - HP TruCluster with TrueCopy function ▪ 15 - HACMP ▪ 22 - VERITAS Cluster Server ▪ 23 - REC command support ▪ 25 - Windows Server Failover Cluster (WSFC), Microsoft Failover Cluster (MSFC), Symantec Cluster Server (old name : Veritas Cluster Server (VCS)), or run the PERSISTENT RESERVE OUT (Service Action = REGISTER AND IGNORE EXISTING KY) command. ▪ 33 - Set/Report Device Identifier enable ▪ 39 - Change the nexus specified in the SCSI Target Reset ▪ 40 - V-Vol expansion

Parameter	Required	Type	Description
			▪ 41 - Prioritized device recognition command ▪ 43 - Returns Queue Full to the host when a command queue USP V or USP VM is full ▪ 49 - BB Credit Set Up Option 1 ▪ 50 - BB Credit Set Up Option 2 ▪ 51 - Round trip Set up Option ▪ 54 - (VAAI) Support Option for the EXTENDED COPY command ▪ 60 - LUNO Change Guard ▪ 63 - (VAAI) Support option for vStorage APIs based on T10 standards ▪ 67 - Change of the ED_TOV value ▪ 68 - Support Page Reclamation for Linux ▪ 71 - Change the Unit Attention for Blocked Pool-VOLs ▪ 72 - AIX GPFS Support

Parameter	Required	Type	Description
			▪ 73 - Support Option for WS2012 ▪ 78 - The non-preferred path option ▪ 80 - Multi Text OFF Mode ▪ 81 - Connect Open Enterprise Server produced by Novell or winBoot/i produced by emBoot ▪ 82 - Discovery CHAP Mode ▪ 83 - Report iSCSI Full Portal List Mode ▪ 88 - Port Consolidation ▪ 96 - Change the nexus specified in the SCSI Logical Unit Reset ▪ 97 - Proprietary ANCHOR command support ▪ 100 - Hitachi HBA (Fabric Emulation Mode) Connection Option ▪ 102 - (GAD) Standard Inquiry Expansion for HCS

Parameter	Required	Type	Description
			▪ 105 - Task Set Full response in the event of IO overload ▪ 114 - The automatic asynchronous reclamation on ESXi6.5 or later
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.
forceOverwriteChapSecret	No	Boolean	Whether or not HSA 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	Boolean	No	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.
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.
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.

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	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 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.
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 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`.

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.

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":
  },
  ...
  ],
 "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 Storage Advisor.

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": ,
 "volumeIds": [],
 "replicationGroup": {
  "replicationType": "",
  "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.
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.
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.
aluaEnabled	No	Boolean	Whether or not 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.
replicationGroupName	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.
secondaryStorageSystemId	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.

Parameter	Required	Type	Description
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.

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	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 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.
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 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`.

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

```
{
    "storageSystemId":"410025",
    "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",
        "replicationGroupName":"test-to-ha-repli-grp",
        "secondaryStorageSystemId":"410011",
        "secondaryPoolId":4,
        "quorumId":11,
        "secondaryPorts":[
            {
                "serverId":12,
                "serverWwns":[
                    "1122442266338844"
                ],
                "portIds":[
                    "CL1-A"
                ],
                "preferredPath":false
            }
        ]
    },
    "volumeIds":[
        84,
        85
    ]
}
```


Creating and attaching volumes

You can create multiple volumes on the storage system and attach them to servers registered in Storage Advisor.

Note: This API is deprecated in Storage Advisor v3.0. If you would like to execute only create and attach, call POST create-attach-protect volumes, but without replicationGroup as the payload.

Prerequisites

- There are valid parity groups, pools, servers, intended image type, port ID, and host WWNs in the storage system.
- The intended image type must match the OS on the server.
- There is sufficient disk capacity for all the volumes to be created in the specified pool or pool type in the storage system.

HTTP request syntax (URI)

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

Request Structure

The request body structure is shown below:

```
   {
   "storageSystemId": "",
   "hostModeOptions": [],
   "intendedImageType":"",
   "ports": [
   {
     "serverId": ,
     "serverWwns": [""],
     "portIds": [""]
   },
   ...
   ]
   "enableZoning": ,
   "enableLunUnification": ,
   "volumes": [{
      "poolType": "",
      "numberOfVolumes": ,
      "label": "",
      "suffix": ,
      "capacity": "",
      "poolId":
      "dkcDataSavingType": ""
   }]
}
```

Parameter	Required	Type	Description
storageSystemId	No	String	ID of the storage system.

Parameter	Required	Type	Description
hostModeOptions	No	intendedImage	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 values are as follows: ▪ null - AutoSelect ▪ 2 - VERITAS Database Edition/Advanced Cluster ▪ 6 - TPRLO ▪ 7 - Automatic recognition function of LUN ▪ 12 - No display for ghost LUN ▪ 13 - SIM report at link failure ▪ 14 - HP TruCluster with TrueCopy function ▪ 15 - HACMP ▪ 22 - VERITAS Cluster Server ▪ 23 - REC command support ▪ 25 - Windows Server Failover Cluster (WSFC), Microsoft Failover Cluster (MSFC), Symantec Cluster Server (old name : Veritas Cluster Server (VCS)), or run the PERSISTENT RESERVE OUT (Service Action = REGISTER AND IGNORE EXISTING KY) command. ▪ 33 - Set/Report Device Identifier enable ▪ 39 - Change the nexus specified in the SCSI Target Reset ▪ 40 - V-Vol expansion ▪ 41 - Prioritized device recognition command ▪ 43 - Returns Queue Full to the host when a command queue USP V or USP VM is full ▪ 49 - BB Credit Set Up Option 1 ▪ 50 - BB Credit Set Up Option 2 ▪ 51 - Round trip Set up Option

Parameter	Required	Type	Description
			▪ 54 - (VAAI) Support Option for the EXTENDED COPY command ▪ 60 - LUNO Change Guard ▪ 63 - (VAAI) Support option for vStorage APIs based on T10 standards ▪ 67 - Change of the ED_TOV value ▪ 68 - Support Page Reclamation for Linux ▪ 71 - Change the Unit Attention for Blocked Pool-VOLs ▪ 72 - AIX GPFS Support ▪ 73 - Support Option for WS2012 ▪ 78 - The non-preferred path option ▪ 80 - Multi Text OFF Mode ▪ 81 - Connect Open Enterprise Server produced by Novell or winBoot/i produced by emBoot ▪ 82 - Discovery CHAP Mode ▪ 83 - Report iSCSI Full Portal List Mode ▪ 88 - Port Consolidation ▪ 96 - Change the nexus specified in the SCSI Logical Unit Reset ▪ 97 - Proprietary ANCHOR command support ▪ 100 - Hitachi HBA (Fabric Emulation Mode) Connection Option ▪ 102 - (GAD) Standard Inquiry Expansion for HCS ▪ 105 - Task Set Full response in the event of IO overload ▪ 114 - The automatic asynchronous reclamation on ESXi6.5 or later

Parameter	Required	Type	Description
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.
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.
enableZoning	No	Boolean	Whether or not zones are created on the SAN fabric. If enableZoning is set to false, then zoning is disabled. Default value false.
enableLunUnification	No	Boolean	Whether or not Lun (logical unit number) assignments for volumes that span multiple servers are consistent.
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	The name of the resource.
suffix	No	Integer	Suffix number appended to the end of the volume name.
capacity	No	Long	Tier capacity
poolId	Yes	String	ID of the storage pool.

Parameter	Required	Type	Description
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.

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	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 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.
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 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`.

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.
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.
410	Gone	This API is no longer supported.

Example 1 (request)

The following JSON example creates four 1-gigabyte volumes in the bronze tier of a non-specified pool for a server (server ID 1). When a pool tier is specified as the pool type without a pool ID, Storage Advisor selects the available pool tiers that match the pool type in the storage system.

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

{
"storageSystemId": "410033",
"hostModeOptions": [],
"intendedImageType": "LINUX",
"ports": [
    {
      "serverId": 4,
      "serverWwns": [
        "20000090FA34B747"
      ],
      "portIds": [
        "CL1-A"
      ]
    },
    {
      "serverId": 4,
      "serverWwns": [
        "20000090FA34B746"
      ],
      "portIds": [
        "CL1-A"
      ]
```

```
    }
]
"enableZoning": true,
"enableLunUnification": false,
"volumes": [
{
"poolType": "Bronze",
"numberOfVolumes": 4,
"label": "TestCreateAttach",
"suffix": 0,
"capacity":1073741824,
"poolId": null
"dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION"
}
]
}
```

Example 2 (request)

The following JSON example creates four 1-gigabyte volumes in a unspecified tiered pool for a server (server ID 1). When you create a tiered pool volume without specifying a pool ID, Storage Advisor selects the least used tiered pool in the storage system.

```
https://172.17.64.111/v1/volume-manager/create-attach

{
"storageSystemId": "410033",
"hostModeOptions": [],
"intendedImageType": "VMWARE",
"ports": [
  {
    "portId" : "CL1-A",
     "serverInfo" : [
      {
      "serverId" : 4,
      "serverWws" : [
         "20000090FA34B747",
         "20000090FA34B746"
         ...
      ]
      }
      ...
     ]
   }
  ...
 ],
"enableZoning": true,
"enableLunUnification": false,
"volumes": [
{
"poolType": "TIERED",
```

```
"numberOfVolumes": 4,
"label": "TestCreateAttach",
"suffix": 0,
"capacity":1073741824,
"poolId": null
"dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION"
}
]
}
```

Example 3 (request)

The following JSON example creates a single 1-gigabyte volume in the specified pool (pool ID 0) for a server (server ID 1).

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

{
    "storageSystemId": "410395",
    "hostModeOptions": [],
    "intendedImageType": "",
 "ports": [
  {
    "portId" : "CL1-A",
     "serverInfo" : [
      {
      "serverId" : 4,
      "serverWws" : [
         "20000090FA34B747",
         "20000090FA34B746"
         ...
      ]
      }
      ...
     ]
   }
  ...
 ],
    "enableZoning": false,
    "enableLunUnification": false,
    "volumes": [{
        "poolType": "Platinum",
        "numberOfVolumes": 1,
        "label": "TEST",
        "suffix": 0,
        "capacity": "1073741824",
        "poolId": 0
  "dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION"
    }]
}
```

Example 4 (request)

The following JSON example creates four 1-gigabyte volumes and attaches them to two servers that use consistent LUN IDs for the volumes.

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

{
"storageSystemId": "410033",
"hostModeOptions": [],
"intendedImageType": "win",
"ports": [
  {
    "portId" : "CL1-A",
     "serverInfo" : [
      {
      "serverId" : 4,
      "serverWws" : [
         "20000090FA34B747",
         "20000090FA34B746"
         ...
      ]
      }
      ...
     ]
   }
  ...
 ],
"enableZoning": true,
"enableLunUnification": true,
"volumes": [
{
"poolType": "Bronze",
"numberOfVolumes": 4,
"label": "TestCreateAttach",
"suffix": 0,
"capacity":1073741824,
"poolId": null
"dkcDataSavingType": "DEDUPLICATION_AND_COMPRESSION"
}
]
}
```

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 operation.

HTTP request syntax (URI)

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

Request Structure

The request body structure is shown below:

```
{
  "storageSystemId": "",
     "hostModeOptions": [],
     "intendedImageType": "",
  "ports": [
    {
      "portId" : "",
       "serverInfo" : [
        {
        "serverId" : ,
        "serverWwns" : [""],
        "iscsiInitiatorNames": [""],
        "preferredPath":
        }
        ...
       ]
    }
    ...
  ],
  "enableZoning": ,
     "enableLunUnification": ,
  "forceOverwriteChapSecret": ,
  "aluaEnabled":,
  "shareHgByAllServers":,
     "volumes": [{
          "poolType": "",
          "numberOfVolumes": ,
          "label": "",
          "suffix": ,
          "capacity": "",
          "poolId":
          "dkcDataSavingType": "",
  }],
     "skipProtection": ,
     "replicationGroup": {
          "replicationType": "",
          "consistencyGroupNeeded": ,
          "replicationGroupName": "",
          "replicationGroupId": ,
          "schedule": {
            "hour": ,
               "minute": ,
```

```
                "recurringUnit": "",
                "recurringUnitInterval": ,
                "dayOfWeek": ,
                "dayOfMonth":
    },
          "numberOfBackups": ,
    "targetPoolId":,
    "secondaryStorageSystemId": "",
    "secondaryPoolId":,
    "quorumId":,
    "secondaryPorts": [
      {
       "serverId":,
       "serverWwns": [""],
       "portIds": [""],
       "preferredPath":
   }]
  }
  "virtualStorageMachineId":
}
```

Parameter	Required	Type	Description
storageSystemId	No	String	ID of the storage system.
hostModeOptions	No	Intended Image	Host mode options set for the volume.
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.
serverInfo	No	List	Information about the server.
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.
forceOverwriteChapSecret	No	Boolean	Whether HSA 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 or not ALUA mode of the volume is enabled.
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 or not Lun (logical unit number) assignments for volumes that span multiple servers are consistent.
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.

Parameter	Required	Type	Description
suffix	No	Integer	Suffix number appended to the end of the volume name.
capacity	Yes	String	The file system size limit, in bytes. Min = 1, max = 1099511627776.
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 or not skip data protection. When skipProtection is true, all listed replication parameters are ignored.
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 needs 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.

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	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 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.
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 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`.

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 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.
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": "410395",
     "hostModeOptions": [],
     "intendedImageType":"LINUX",
  "ports": [
     {
      "portId" : "CL1-A",
      "serverInfo" : [
       {
         "serverId" : 4,
         "serverWws" : [
            "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":"123456VSPG800"

}
```

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		String	Host mode set for the volume.
hostModeOptions	No	intendedImage	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

Parameter	Required	Type	Description
			values are as follows: ▪ null - AutoSelect ▪ 2 - VERITAS Database Edition/ Advanced Cluster ▪ 6 - TPRLO ▪ 7 - Automatic recognition function of LUN ▪ 12 - No display for ghost LUN ▪ 13 - SIM report at link failure ▪ 14 - HP TruCluster with TrueCopy function ▪ 15 - HACMP ▪ 22 - VERITAS Cluster Server ▪ 23 - REC command support

Parameter	Required	Type	Description
			▪ 25 - Windows Server Failover Cluster (WSFC), Microsoft Failover Cluster (MSFC), Symantec Cluster Server (old name : Veritas Cluster Server (VCS)), or run the PERSISTENT RESERVE OUT (Service Action = REGISTER AND IGNORE EXISTING KY) command. ▪ 33 - Set/Report Device Identifier enable ▪ 39 - Change the nexus specified in the SCSI Target Reset ▪ 40 - V-Vol expansion ▪ 41 - Prioritized device recognition command ▪ 43 - Returns Queue Full to the host when a command queue USP V or USP VM is full ▪ 49 - BB Credit Set Up Option 1 ▪ 50 - BB Credit Set Up Option 2 ▪ 51 - Round trip Set up Option

Parameter	Required	Type	Description
			▪ 54 - (VAAI) Support Option for the EXTENDED COPY command ▪ 60 - LUNO Change Guard ▪ 63 - (VAAI) Support option for vStorage APIs based on T10 standards ▪ 67 - Change of the ED_TOV value ▪ 68 - Support Page Reclamation for Linux ▪ 71 - Change the Unit Attention for Blocked Pool-VOLs ▪ 72 - AIX GPFS Support ▪ 73 - Support Option for WS2012 ▪ 78 - The non-preferred path option ▪ 80 - Multi Text OFF Mode ▪ 81 - Connect Open Enterprise Server produced by Novell or winBoot/i produced by emBoot ▪ 82 - Discovery CHAP Mode

Parameter	Required	Type	Description
			▪ 83 - Report iSCSI Full Portal List Mode ▪ 88 - Port Consolidation ▪ 96 - Change the nexus specified in the SCSI Logical Unit Reset ▪ 97 - Proprietary ANCHOR command support ▪ 100 - Hitachi HBA (Fabric Emulation Mode) Connection Option ▪ 102 - (GAD) Standard Inquiry Expansion for HCS ▪ 105 - Task Set Full response in the event of IO overload ▪ 114 - The automatic asynchronous reclamation on ESXi6.5 or later
updates	No	List	List of updates.
storageSystemId	No	String	ID of the storage system.
volumeId	No	Integer	ID of the volume.

Parameter	Required	Type	Description
forceOverwriteChapSecret	No	Boolean	Whether HSA overwrites the CHAP user secret when there is any port with the same CHAP user name. The default is FALSE.
currentPath	No	Object	There are three objects: ▪ 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	There are three objects: ▪ serverWwn (String): If the target server has FC ports, specify the new serverWwn. ▪ iscsiInitiatorNam e (String): If the target server has iSCS ports, specify the new iscsiInitatorNam e. ▪ storagePort (String): Specify the new storage port that connects to the target server port.

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	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 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.
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 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`.

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 Storage Advisor 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.

Parameter	Required	Type	Description
hostMode		String	Host mode set for the volume.
hostModeOptions	No	intendedImage	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 values are as follows: ▪ null - AutoSelect ▪ 2 - VERITAS Database Edition/ Advanced Cluster ▪ 6 - TPRLO ▪ 7 - Automatic recognition function of LUN ▪ 12 - No display for ghost LUN ▪ 13 - SIM report at link failure ▪ 14 - HP TruCluster with TrueCopy function ▪ 15 - HACMP ▪ 22 - VERITAS Cluster Server ▪ 23 - REC command support

Parameter	Required	Type	Description
			▪ 25 - Windows Server Failover Cluster (WSFC), Microsoft Failover Cluster (MSFC), Symantec Cluster Server (old name : Veritas Cluster Server (VCS)), or run the PERSISTENT RESERVE OUT (Service Action = REGISTER AND IGNORE EXISTING KY) command. ▪ 33 - Set/Report Device Identifier enable ▪ 39 - Change the nexus specified in the SCSI Target Reset ▪ 40 - V-Vol expansion ▪ 41 - Prioritized device recognition command ▪ 43 - Returns Queue Full to the host when a command queue USP V or USP VM is full ▪ 49 - BB Credit Set Up Option 1 ▪ 50 - BB Credit Set Up Option 2 ▪ 51 - Round trip Set up Option

Parameter	Required	Type	Description
			▪ 54 - (VAAI) Support Option for the EXTENDED COPY command ▪ 60 - LUNO Change Guard ▪ 63 - (VAAI) Support option for vStorage APIs based on T10 standards ▪ 67 - Change of the ED_TOV value ▪ 68 - Support Page Reclamation for Linux ▪ 71 - Change the Unit Attention for Blocked Pool-VOLs ▪ 72 - AIX GPFS Support ▪ 73 - Support Option for WS2012 ▪ 78 - The non-preferred path option ▪ 80 - Multi Text OFF Mode ▪ 81 - Connect Open Enterprise Server produced by Novell or winBoot/i produced by emBoot ▪ 82 - Discovery CHAP Mode

Parameter	Required	Type	Description
			▪ 83 - Report iSCSI Full Portal List Mode ▪ 88 - Port Consolidation ▪ 96 - Change the nexus specified in the SCSI Logical Unit Reset ▪ 97 - Proprietary ANCHOR command support ▪ 100 - Hitachi HBA (Fabric Emulation Mode) Connection Option ▪ 102 - (GAD) Standard Inquiry Expansion for HCS ▪ 105 - Task Set Full response in the event of IO overload ▪ 114 - The automatic asynchronous reclamation on ESXi6.5 or later

Parameter	Required	Type	Description
virtualStorageMachineId	No	String	If existing volumes are being attached, specify the volume's virtualStorageMachineId. The VSM is checked 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.

Parameter	Type	Description
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	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": "123456"
   "hostMode": "LINUX",
   "hostModeOptions": [
     4,
     2
   ],
   "serverIds": [
     6,
     34
   ],
   "virtualStorageMachineId":"123456VSPG800"
}
```

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

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 shown below:

```
{
  "resources": [
      // For FC Host Group
      {
          "protocol": "",
```

```
            "hostGroupId": "",
            "name": "",
            "storagePortId": "",
            "storageSystemId": "",
            "hostMode": "",
            "hbaWwns": [],
            "hostModeOptions": [],
            "luns": [],
            "iscsiTargetInformation": {},
            "preferredPath":
        },
        // For iSCSI Target
        {
            "protocol": "",
            "hostGroupId": "",
            "name": "",
            "storagePortId": "",
            "storageSystemId": "",
            "hostMode": "",
            "hbaWwns": [],
            "hostModeOptions": [],
            "luns": [],
            "iscsiTargetInformation": {
              "iscsiTargetName": "",
              "iscsiInitiatorNames": [
                  "",
              ],
              "mutualChapUser": "",
              "chapUsers": [
                  "",
              ],
              "authenticationMode": "",
              "authenticationDirection": ""
            },
            "preferredPath":
        },
        ...
    "total": ,
    "nextToken": ""
  }
```

Parameter	Type	Description
hostGroupId	Long	ID of the host group.
name	String	Name of the host group.
storagePortId	Long	ID of the storage port.

Parameter	Type	Description
storageSystemId	String	ID of the storage system.
hostMode	String	Host mode set for the volume.
hbaWwns	List	List of WWNs for the HBA.
hostModeOptions	List of Integers	Host mode options for the volume.
luns	List	List of LUNs and volumes.
lun	Long	LUN ID.
volumeId	Long	ID number of the volume within the parent storage system.
protocol	Enum	Protocol type of this port. FIBRE or ISCSI.
iscsiTargetInformation	Object	Displays the iSCSI target information. NULL for FC host groups.
preferredPath	Boolean	Whether LU paths for the host group are preferred or not.
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

Parameter	Type	Description
		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 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

```
https://172.17.64.111/v1/storageSystems/100100100101/host-groups
```

Example response

```
{
  "resources": [
      // For FC Host Group
      {
          "protocol": "FIBRE",
          "hostGroupId": "CL4-G-174",
          "name": "hsa_host_grp173",
          "storagePortId": "CL4-G",
          "storageSystemId": "410013",
          "hostMode": "LINUX",
          "hbaWwns": [],
          "hostModeOptions": [],
          "luns": [],
          "iscsiTargetInformation": null,
          "preferredPath":true
      },
      // For iSCSI Target
      {
          "protocol": "ISCSI",
          "hostGroupId": "CL4-G-166",
          "name": "hsa_host_grp165",
          "storagePortId": "CL4-G",
          "storageSystemId": "410013",
          "hostMode": "LINUX",
          "hbaWwns": null,
          "hostModeOptions": [],
          "luns": [],
          "iscsiTargetInformation": {
              "iscsiTargetName": "iqn.1991-05.com.example",
              "iscsiInitiatorNames": [
                   "iqn.1991-05.com.example:example",
              ],
              "mutualChapUser": "mutualchapuser",
              "chapUsers": [
                   "iqn.1991-05.com.example:example",
              ],
              "authenticationMode": "CHAP",
              "authenticationDirection": "MUTUAL"
          },
          "preferredPath":true
         }
      },
      ...
  "total": ,
  "nextToken": ""
}
```

Getting host group information

You can retrieve information regarding a host group when you specify a host group ID in Storage Advisor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage_systems/storageSystemId/hostgroups/
hostGroupId
```

Note: The format for the host ID is <portId>-<id>. For example, CL4-G-0.

Request structure

Not applicable.

Response structure

The response body structure is shown below.

For Fibre Channel host group:

```
{
 "protocol": "fibre",
 "hostgroupid": "",
 "name": "",
 "storageportid": "",
 "storagesystemid": "",
 "hostmode": "",
 "hbawwns": [],
 "hostmodeoptions": [],
 "luns": [],
 "iscsitargetinformation": null,
 "preferredPath":
}
```

For iSCSI target:

```
{
    "protocol": "ISCSI",
    "hostGroupId": "",
    "name": "",
    "storagePortId": "",
    "storageSystemId": "",
    "hostMode": "",
    "hbaWwns": null,
    "hostModeOptions": [],
    "luns": [],
    "iscsiTargetInformation": {
      "iscsiTargetName": "",
```

```
      "iscsiInitiatorNames": [
          "",
      ],
      "chapUsers": [
          "",
      ],
      "mutualChapUser": "",
      "authenticationMode": "",
      "authenticationDirection": "",
    }
    "preferredPath":
}
```

Parameter	Type	Description
protocol	enum	Protocol type of this port. FIBRE or ISCSI.
hostGroupId	Long	ID of the host group.
name	String	Name of the host group.
storagePortId	Long	ID of the storage port.
storageSystemId	String	ID of the storage system.
hostMode	String	Host mode set for the volume.
hbaWwns	List	List of WWNs for the HBA.
hostModeOptions	List of Integers	Host mode options for the volume.
luns	List	List of LUNs and volumes.
lun	Long	LUN ID.
volumeId	Long	ID number of the volume within the parent storage system.
iscsiTargetInformation	Object	Displays iSCSI target information. NULL for FC host groups.
preferredPath	Boolean	Whether LU paths for the host group are preferred or not.

Parameter	Type	Description
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. ▪ 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:

```
{
 "protocol": "fibre",
 "hostgroupid": "cl4-g-174",
 "name": "hsa_host_grp173",
 "storageportid": "cl4-g",
 "storagesystemid": "410013",
 "hostmode": "linux",
 "hbawwns": [],
 "hostmodeoptions": [],
 "luns": [],
 "iscsitargetinformation": null,
 "preferredPath":true
}
```

For iSCSI target:

```
{
    "protocol": "ISCSI",
    "hostGroupId": "CL4-G-166",
    "name": "hsa_host_grp165",
    "storagePortId": "CL4-G",
    "storageSystemId": "410013",
    "hostMode": "LINUX",
    "hbaWwns": null,
    "hostModeOptions": [],
    "luns": [],
    "iscsiTargetInformation": {
      "iscsiTargetName": "iqn.1994-04.com.example:rsd.h8s.t.30002.1b002",
      "iscsiInitiatorNames": [
          "iqn.1991-05.com.example:ed800b",
      ],
      "chapUsers": [
          "iqn.1991-05.com.example:ed800b",
      ],
      "mutualChapUser": "mutualchapuser",
      "authenticationMode": "CHAP",
      "authenticationDirection": "MUTUAL"
    },
    "preferredPath":true
}
```

Adding a mutual CHAP user of a host group

You can add a mutual CHAP user of a host group in Storage Advisor. 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/hostgroups/
hostGroupId
```

Request structure

The request body structure is shown below:

```
  {
    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.
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.
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

```
{
   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 Storage Advisor. 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/hostgroups/
hostGroupId
```

Request structure

The request body structure is shown below:

```
 {
    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.

Parameter	Required	Type	Description
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.

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 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

```
{
   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 Storage Advisor. 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/hostgroups/
hostGroupId
```

Request structure

The request body structure is shown below:

```
{
   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.
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

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

Shredding volumes

You can shred volumes in Storage Advisor.

HTTP request syntax (URI)

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

Request structure

The request body structure is shown below:

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

Parameter	Required	Type	Description
storageSystemId	String	Yes	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 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	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 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.
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 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`.

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 required HTTP header was not specified.
401	Unauthorized	The operation is not authorized.
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 Storage Advisor.

HTTP request syntax (URI)

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

Request structure

The request body structure is shown below:

```
{
  "storageSystemId": ""
}
```

Parameter	Required	Type	Description
storageSystemId	Yes	String	ID of the storage system.

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	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 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.
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 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`.

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 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.

Updating preferred path setting of a hostgroup

You can update a preferred path setting of a hostgroup in Storage Advisor.

HTTP request syntax (URI)

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

Request structure

```
{
  "preferredPath":
}
```

Parameter	Required	Type	Description
preferredPath	Yes	Boolean	Whether the LU path (host group) is preferred or not.

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.

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.

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 an invalid payload 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 request

```
{
  "preferredPath": false
}
```

Port management resources

Request	Method	URI	Role
Getting a list of ports (on page 289)	GET	/v1/storage-systems/*storageSystemId*/storage-ports/	Storage administrator System administrator Security administrator
Getting information about a specific port (on page 297)	GET	/v1/storage-systems/*storageSystemId*/storage-ports/*storagePortId*	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Updating a port (on page 305)	POST	/v1/storage-systems/*storageSystemId*/storage-ports/*storagePortId*	Storage 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": "",
            "wwn": "",
            "attributes":
            [
                "",
                "",
                "",
                ""
            ],
            "speed": "",
            "type": "",
            "loopId": "",
            "topology": "",
            "securitySwitchEnabled": ,
            "vsmPort": ,
            "iscsiPortInformation":
       },
       // For iSCSI port
       {
```

```
            "storagePortId": "",
            "storageSystemId": "",
            "wwn": null,
            "attributes":
            [
                "",
                "",
                "",
                ""
            ],
            "speed": "",
            "type": "",
            "loopId": "",
            "topology": "",
            "securitySwitchEnabled": ,
            "isVsmPort": ,
            "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.
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 ▪ 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.

Parameter	Type	Description
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.
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.
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

Parameter	Type	Description
		a question mark (?) and "nextToken= ", and then the token. Example: `https://hsa_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/440084/storage-ports
```

Example response

```
{
    "resources":
    [
        // For Fibre port
        {
            "storagePortId": "CL1-D",
            "storageSystemId": "410031",
            "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
        },
        // For iSCSI port
        {
            "storagePortId": "CL4-B",
            "storageSystemId": "424439",
            "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,
            "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
}
```

Listing 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:

```
{
    "resources":
    [
         // For Fibre port
         {
            "storagePortId": "",
            "storageSystemId": "",
            "wwn": "",
            "attributes":
            [
                "",
                "",
                "",
                ""
            ],
            "speed": "",
            "type": "",
            "loopId": "",
```

```
            "topology": "",
            "securitySwitchEnabled": ,
            "vsmPort":
            "iscsiPortInformation": null
        },
        // For iSCSI port
        {
            "storagePortId": "",
            "storageSystemId": "",
            "wwn": null,
            "attributes":
            [
                "",
                "",
                "",
                ""
            ],
            "speed": "",
            "type": "",
            "loopId": "",
            "topology": "",
            "securitySwitchEnabled": ,
            "isVsmPort": ,
            "iscsiPortInformation": {
                "portIscsiName: "",
                "macAddress": "",
                "vlanUse": true,
                "vlanId": ,
                "ipv4Information": {
                  "address": "",
                  "subnetMask": "",
                  "defaultGateway": ""
                },
                "ipv6Enabled": true,
                "ipv6Information": {
                  "linklocalAddressingMode": "",
                  "linklocalAddress": "",
                  "globalAddressingMode": "",
                  "globalAddress": "",
                  "defaultGateway": ""
                },
                "tcpPort": 0,
                "selectiveAck": true,
                "delayedAck": true,
                "windowSizeInKBytes": ,
                "mtuSizeInBytes": ,
                "keepAliveTimerInSec": ,
                "isnsInformation": {
                  "isnsServerIpAddress": "",
                  "isnsServerPort": 0,
                }
```

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

Parameter	Type	Description
storagePortId	String	ID of the storage port.
storageSystemId	String	ID 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 ▪ FABRIC_OFF_ARB_LOOP ▪ FABRIC_OFF_POINT_TO_POINT

Parameter	Type	Description
		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.

Parameter	Type	Description
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.
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.

Parameter	Type	Description
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.
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://hsa_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/440084/storage-ports/CL1-D
```

Example response

```
{
    "resources":
    [
        // For Fibre port
        {
            "storagePortId": "CL1-D",
            "storageSystemId": "410031",
            "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
        },
        // For iSCSI port
        {
            "storagePortId": "CL4-B",
            "storageSystemId": "424439",
            "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,
            "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
}
```

Updating ports

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, or VSP F1500 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 a 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.

Parameter	Required	Type	Description
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.
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. You cannot specify 32G for a VSP G1000, VSP G1500, or VSP F1500 storage system.
attribute	No	String	Port attribute. Valid values: TARGET_PORT, RCU_TARGET_PORT,EXTERNAL_INITAITOR_PORT, MCU_INITIATOR_PORT. For VSP Gx00 and Fx00, you cannot specify this parameter. It must be NULL for these models.
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.

Parameter	Required	Type	Description
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.
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 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	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 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.

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 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`.

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 a 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": "::"
      }
    }
 }
```

Tier management resources

Request	Method	URI	Role
Listing tiers (on page 312)	GET	/v1/templates/tiers	Storage administrator System administrator Security administrator
Updating a tier (on page 314)	POST	/v1/templates/tiers/*tierId*	System administrator

Listing tiers

You can display a list of all the tiers that are defined in Storage Advisor. 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 NAS tiers that belong to the pool. This applies only to GET file pools and a file pool APIs.
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, FDM DC2, FMD HDE, SSD, or SAS.
speed	Integer	Speed of the disk, measured in revolutions per minute.

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": "FMD",
                    "speed": 0
                },
                {
                    "diskType": "SSD",
                    "speed": 0
                },
                {
                    "diskType": "FMD DC2",
                    "speed": 0
                }
            ]
       },
      ....
    ]
}
```

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 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	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 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.
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 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`.

Return codes

Status code	HTTP name	Description
200	OK	Success.
201	Created	The server has started the operation.
400	Bad request	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/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
Listing all virtual file servers from all storage systems (on page 318)	GET	/v1/file/vfs	Storage administrator System administrator Security administrator
Listing virtual file servers for a storage system (on page 321)	GET	/v1/file/storage-systems/*storagaSystemId*/vfs	Storage administrator System administrator Security administrator
Getting a virtual file server (on page 325)	GET	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	Storage administrator System administrator Security administrator
Creating a virtual file server (on page 329)	POST	/v1/file/storage-systems/*storageSystemId*/vfs	System administrator
Enabling a virtual file server (on page 334)	PATCH	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator
Disabling a virtual file server (on page 338)	PATCH	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator
Renaming a virtual file server (on page 341)	PATCH	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator

Request	Method	URI	Role
Deleting a virtual file server (on page 345)	DELETE	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*	System administrator

Getting virtual file servers from all storage systems

You can display a list of all virtual file servers from all storage systems.

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 or not 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.

Parameter	Type	Description
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://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:

```
{
  "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.

Parameter	Type	Description
evs	Boolean	Whether or not 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.
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.

```
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 or not 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.
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.
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.
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
200	OK	Success.
400	Bad request	Required HTTP header was not specified.
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 is currently unable to receive requests. Retry your request.

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 set to 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.

Parameter	Type	Description
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.
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 set to 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.

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":"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.
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.

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.
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 (on page 351)	GET	/v1/file/storage-systems/*storageSystemId*/file-pools	Storage administrator System administrator Security administrator
Getting a file pool (on page 354)	GET	/v1/file/storage-systems/*storageSystemId*/file-pools/*poolId*	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Getting file systems for a file pool (on page 394)	GET	/v1/file/storage-systems/*storageSystemId*/file-pools/*poolId*/file-systems	Storage administrator System administrator Security administrator
Getting a file pool creation template (on page 357)	GET	/v1/file/storage-systems/*storageSystemId*/templates/file-pools	Storage administrator System administrator Security administrator
Creating a file pool (on page 361)	POST	/v1/file/storage-systems/*storageSystemd*/templates/file-pools	Storage administrator
Getting a file pool expansion template (on page 367)	GET	/v1/file/storage-systems/*storageSystemd*/templates/file-pools/*poolId*	Storage administrator System administrator Security administrator
Expanding a file pool (on page 370)	POST	/v1/file/storage-systems/*storageSystemd*/file-pools/*poolId*/expand	Storage administrator
Modifying a file pool (on page 375)	POST	/v1/file/storage-systems/*storageSystemd*/file-pools/*poolId*	Storage administrator
Deleting a file pool (on page 381)	DELETE	/v1/file/storage-systems/*storageSystemd*/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 Storage Advisor supports file pool creation on HDP pools.
physicalCapacity	String	Physical capacity of the file pool, in bytes.
tierNames	List	Collection of tiers, such as Platinum, Gold, Silver, and Bronze of the underlying HDP pool. This applies only to GET file pools and a 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 a file pool APIs.
fileSystemAutoExpansionAllowed	Boolean	Whether or not file system auto expansion is allowed.
assignedToLocalCluster	Boolean	Whether the file pool is assigned to a local cluster.
tiers	List	Collection of NAS tiers that belong to the pool. This applies only to GET file pools and a file pool APIs.

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.

Parameter	Type	Description
onHDP	String	Whether the file pool is on HDP. Default value is set to true, since Storage Advisor supports file pool creation on HDP pools.
physicalCapacity	String	Physical capacity of the file pool, in bytes.
tierNames	List	Collection of tiers, such as Platinum, Gold, Silver, and Bronze of the underlying HDP pool. This applies only to GET file pools and a 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 a file pool APIs.
fileSystemAutoExpansionAllowed	Boolean	Whether or not file system auto expansion is allowed.
assignedToLocalCluster	Boolean	Whether the file pool is assigned to a local cluster.
tiers	List	Collection of NAS tiers that belong to the pool. This applies only to GET file pools and a file pool APIs.

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.
utilizationThreshold1	Integer	The pool capacity utilization threshold at which first warning is issued.
utilizationThreshold2	Integer	The pool capacity utilization threshold at which second warning is issued.
filePoolTemplateItems	String	Collection of the file pool template items.

Parameter	Type	Description
tiers	List	Collection of NAS tiers that belong to the pool. This applies only to GET file pools and a file pool APIs.
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, or SSD.
speed	Integer	Speed of the disk, measured in revolutions per minute.
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 Gx00: ▪ RAID1+0 - (2D+2D) ▪ RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P) ▪ RAID6 – (6D+2P),(14D+2P),(12D+2P) For VSP G1000, G1500, F1500: ▪ RAID5- (3D+1P),(7D+1P) ▪ RAID6 –(6D+2P),(14D+2P) ▪ RAID1+0 – (2D+2D), (2D+2D)x2
availiableSizesInBytes	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, raidlLevel, 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	No	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, Storage Advisor sets it to 70%.

Parameter	Required	Type	Description
utilizationThreshold2	No	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, Storage Advisor sets it to 80%.
templateTiers	No	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, or SSD.
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, or FMD DC2, the speed is 0.
capacity	No	Long	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 Gx00: RAID1+0 - (2D+2D), RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P), RAID6 - (6D+2P),(14D+2P),(12D+2P). For VSP G1000, VSP G1500, VSP F1500: 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.

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.
400	Bad request	Required HTTP header was not specified.

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 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 is currently unable to receive requests. Retry your request.

Example request

```
https://172.17.64.122/v1/file/storage-systems/410209/templates/file-
pools/6190571495709419190
```

Example request

```
{
  "label":"",
  "utilizationThreshold1":70,
  "utilizationThreshold2":80,
  "templateTiers":[
    {
      "name":"",
      "diskType":"",
      "speed":,
      "capacity":"",
      "raidLevel":"",
      "raidLayout":"",
      "sizeToUse":""
    }
  ]
}
```

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.

HTTP request syntax (URI)

```
GET 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

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	The pool capacity utilization threshold at which first warning is issued.
utilizationThreshold2	Integer	The pool capacity utilization threshold at which second warning is issued.
filePoolTemplateItems	String	Collection of the file pool template items.
tiers	List	Collection of NAS tiers that belong to the pool. This applies only to GET file pools and a file pool APIs.
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, or SSD.
speed	Integer	Speed of the disk, measured in revolutions per minute.
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 Gx00: ▪ RAID1+0 - (2D+2D) ▪ RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P) ▪ RAID6 – (6D+2P),(14D+2P),(12D+2P) For VSP G1000, G1500, F1500: ▪ RAID5- (3D+1P),(7D+1P) ▪ RAID6 –(6D+2P),(14D+2P) ▪ RAID1+0 – (2D+2D), (2D+2D)x2

Parameter	Type	Description
availiableSizesInBytes	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	No	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, Storage Advisor sets it to 70%.
utilizationThreshold2	No	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, Storage Advisor sets it to 80%.
templateTiers	No	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, or SSD.
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, or FMD DC2, the speed is 0.
capacity	No	Long	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 Gx00: RAID1+0 - (2D+2D), RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P), RAID6 - (6D+2P),(14D+2P),(12D+2P). For VSP G1000, VSP G1500, VSP F1500: RAID5- (3D+1P),(7D+1P) RAID6 -(6D+2P),(14D+2P) RAID1+0 - (2D+2D), (2D+2D)x2

Parameter	Required	Type	Description
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.
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.
400	Bad request	Required HTTP header was not specified.
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 is currently unable to receive requests. Retry your request.

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	No	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, Storage Advisor sets it to 70%.
utilizationThreshold2	No	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, Storage Advisor sets it to 80%.
templateTiers	No	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, or SSD.

Parameter	Required	Type	Description
speed	Yes	Integer	The speed of the disk, measured in revolutions per minute. For FMD, SSD, or FMD DC2, the speed is 0.
capacity	No	Long	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 Gx00: RAID1+0 - (2D+2D), RAID5 - (3D+1P),(4D+1P),(6D+1P)& (7D +1P), RAID6 - (6D+2P),(14D+2P),(12D+2P). For VSP G1000, VSP G1500, VSP F1500: 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.

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
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 is currently unable to receive requests. Retry your request.

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.

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
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 386)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems	Storage administrator System administrator Security administrator
Getting a file system (on page 390)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator System administrator Security administrator
Getting file systems for a file pool (on page 394)	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 399)	GET	/v1/file/storage-systems/*storageSystemId*/vfs/*vfsuuId*/file-systems	Storage administrator System administrator Security administrator
Creating a file system (on page 402)	POST	/v1/file/file-systems/*storageSystemId*/file-systems	Storage administrator

Request	Method	URI	Role
Deleting a file system (on page 419)	DELETE	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator
Mounting a file system (on page 407)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator
Unmounting a file system (on page 411)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*	Storage administrator
Updating a file system (on page 415)	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.

Parameter	Type	Description
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.
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 or not 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.

Parameter	Type	Description
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 or not 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/
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.
readOnly	Boolean	Whether the cache is read.
sysLocked	Boolean	Whether or not 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.

Parameter	Type	Description
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 or not 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.

Parameter	Type	Description
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/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.
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

Parameter	Type	Description
		• 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	Required HTTP header was not specified.
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.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.

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 Storage Advisor even if a file system already created outside of Storage Advisor. 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

```
{
  "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
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.
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

```
{
  "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 *storageSystemd.*

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.
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.
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.

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
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 424)	GET	/v1/file/storage-systems/*storageSystemId*/shares	Storage administrator System administrator Security administrator
Listing shares in the file system (on page 429)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/shares	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Getting a share (on page 434)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/shares/*shareId*	Storage administrator System administrator Security administrator
Creating a share (on page 441)	POST	/v1/file/storage-systems/*storageSystemId*/shares	Storage administrator
Modifying a share (on page 445)	PATCH	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/shares/*shareId*	Storage administrator Security administrator
Deleting a share (on page 449)	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.

Parameter	Type	Description
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. 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.

Parameter	Type	Description
		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.
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.

Parameter	Type	Description
		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. 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
```

JSON response:


```
        {
        "shares":
        [
            {
                "id": "f391dfe4-67df-11d1-96c9-040100020009",
                "label": "NewExportMD",
                "fileSystemPath": "\HSA",
                "fileSystemId": "020344B00E161D570000000000000000",
                "evsId": 1,
                "permissions":
                [
                ],
                "accessConfiguration": "",
                "maxConcurrentUsers": -1,
                "snapshotOptions": "HIDE_AND_DISABLE_ACCESS",
                "cacheOptions": "MANUAL_CACHING_DOCS",
                "transferToReplicationTarget": "UseFSDefault",
                "userHomeDirectoryMode": "Off",
                "userHomeDirectoryPath": "",
                "followSymplicLinks": true,
                "followGlobalSymplicLinks": 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"
                    }
                ]
            }
        ]
    }
```


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": "",
        "followSymplicLinks": ,
        "followGlobalSymplicLinks": ,
        "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 type 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.
denyFullControll	Boolean	Restricts reading, writing, changing, and deleting of files and folders.
denyChange	Boolean	Restricts reading and writing of files and folders.
denyRead	Boolean	Restricts viewing and listing of files and subfolders.

Parameter	Type	Description
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.

Parameter	Type	Description
		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.
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": "",
        "followSymplicLinks": true,
        "followGlobalSymplicLinks": 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.
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.

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	Required HTTP header was not specified.
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 is currently unable to receive requests. Retry your request.

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 *storageSystemd*.

Use the ID of the file system as the *fileSystemd*.

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.
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
200	OK	Success.
400	Bad request	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

```
{
  "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.
links	List	Displays related resources.

Parameter	Type	Description
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 (on page 454)	GET	/v1/file/storage-systems/*storageSystemId*/exports	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Listing exports in a file system (on page 457)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/exports	Storage administrator System administrator Security administrator
Getting specific information about a specific export (on page 461)	GET	/v1/file/storage-systems/*storageSystemId*/file-systems/*fileSystemId*/exports/*exportId*	Storage administrator System administrator Security administrator
Creating an export (on page 464)	POST	/v1/file/storage-systems/*storageSystemId*/exports	Storage administrator
Modifying an export (on page 469)	PATCH	/v1/file/storage-systems/*storageSystemId*/exports/*exportId*	Storage administrator
Deleting an export (on page 473)	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.

Parameter	Type	Description
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.
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": "/HSA",
            "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.
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": "/HSA",
            "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.

Parameter	Type	Description
		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.
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.

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
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	Required HTTP header was not specified.
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.

Status code	HTTP name	Description
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 is currently unable to receive requests. Retry your request.

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.

Parameter	Type	Description
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

```
{
   "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

Parameter	Type	Description
		• 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
Getting a list of servers (on page 478)	GET	/v1/compute/servers	Storage administrator System administrator Security administrator
Getting information about a specific server (on page 484)	GET	/v1/compute/servers/*serverId*	Storage administrator System administrator Security administrator
Creating a server (on page 490)	POST	/v1/compute/servers	System administrator
Updating a server (on page 495)	POST	/v1/compute/servers/*serverId*	System administrator
Deleting a server (on page 498)	DELETE	/v1/compute/servers/*serverId*	System administrator
Adding world wide port names (on page 501)	POST	/v1/compute/servers/*serverId*/add-wpn	System administrator

Request	Method	URI	Role
Removing world wide port names (on page 504)	POST	/v1/compute/servers/*serverId*/remove-wwpn	System administrator
Getting a list of attached volumes for a specific server on the storage system (on page 509)	GET	/v1/compute/servers/attached volumes/?q=serverId:*serverId* AND storageSystemId:*storageSystemId*	Storage administrator System administrator Security administrator
Updating iSCSI settings (on page 518)	POST	/v1/compute/servers/*serverId*/update-iscsi-settings	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":
        [
        ""
        ],
        "iscsiNames": ,
        "osType": "",
        "chapUser: "",
        "attachedVolumeCount": ,
        "dataProtectionSummary":
        {
          "replicationType":
          [
          ],
          "protection": "",
          "hasFailures":
        },
      "dpStatus": ""
      },
      // For iSCSI Server
      {
        "serverId": ,
        "protocol": ,
        "serverName": "",
        "description": "",
        "ipAddress": "",
        "wwpns": ,
        "iscsiNames":
        [
        ""
        ],
        "osType": "",
        "chapUser: "",
        "attachedVolumeCount": ,
        "dataProtectionSummary":
        {
          "replicationType":
          [
          ],
          "protection": "",
          "hasFailures":
        },
      "dpStatus": ""
      },
      ...
    ],
    "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.
description	String	Description of the resource.
ipAddress	String	IP address of the resource.
wwpns	List	List of World Wide Port Numbers formatted as a 16-digit hexadecimal number.
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)

Parameter	Type	Description
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. ▪ 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. NULL for FC servers.
chapUser	String	Displays the CHAP user name of the iSCSI initiaitor (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

Parameter	Type	Description
		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://hsa_server/v1/storage-systems/serial/disks?nextToken=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

```
http://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"
        ],
        "iscsiNames": null,
        "osType": "VMWARE_EX",
        "chapUser: null,
        "attachedVolumeCount": 0,
        "dataProtectionSummary":
        {
          "replicationType":
          [
          ],
          "protection": "UNPROTECTED",
          "hasFailures": false
        },
      "dpStatus": "Success"
      },
      // For iSCSI Server
      {
        "serverId": ,
        "protocol": ISCSI,
        "serverName": "",
        "description": "",
        "ipAddress": "",
        "wwpns": null,
        "iscsiNames":
        [
        ""
        ],
        "osType": "",
        "chapUser: "user1",
        "attachedVolumeCount": ,
        "dataProtectionSummary":
        {
          "replicationType":
          [
          ],
          "protection": "",
          "hasFailures":
        },
      "dpStatus": ""
      },
      ...
    ],
    "total":
    "nextToken":
  }
```

Getting a server

You can display details on a specific server.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/compute/servers/serverId
```

User the ID of the server as the *serverId*.

Request structure

Not applicable.

Response structure

```
{
  "resources":
  [
    // For FC Server
    {
      "serverId": ,
      "protocol": ,
      "serverName": "",
      "description": "",
      "ipAddress": "",
      "wwpns":
      [
      ""
      ],
      "iscsiNames": ,
      "osType": "",
      "chapUser: ,
      "attachedVolumeCount": ,
      "dataProtectionSummary":
      {
        "replicationType":
        [
        ],
        "protection": "",
        "hasFailures":
      },
    "dpStatus": ""
    },
    // For iSCSI Server
    {
      "serverId": ,
      "protocol": ,
      "serverName": "",
      "description": "",
```

```
        "ipAddress": "",
        "wwpns": ,
        "iscsiNames":
        [
        ""
        ],
        "osType": "",
        "chapUser: "",
        "attachedVolumeCount": ,
        "dataProtectionSummary":
        {
          "replicationType":
          [
          ],
          "protection": "",
          "hasFailures":
        },
      "dpStatus": ""
      },
      ...
    ],
    "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.
description	String	Brief description of the server.
ipAddress	String	IP address of the resource.
wwpns	List	List of World Wide Port Numbers formatted as a 16-digit hexadecimal number.
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.

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)
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.
iscsiNames	List	List of iSCSI names formatted as iSCSI qualified name (IQN) or extended unique identified (EUI) format. NULL for FC servers.
chapUser	String	Displays the CHAP user name of the iSCSI initiaitor (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

```
http://172.17.64.115/v1/compute/servers/2
```

Example response

```
{
  "resources":
  [
    // For FC Server
    {
      "serverId": 2,
      "protocol": FIBRE,
      "serverName": "ESX-6425",
      "description": "ESX-6425",
      "ipAddress": "172.17.64.25",
      "wwpns":
      [
      "5000087000536424"
      ],
      "iscsiNames": null,
      "osType": "VMWARE_EX",
      "chapUser: null,
      "attachedVolumeCount": 0,
      "dataProtectionSummary":
      {
        "replicationType":
        [
        ],
```

```
          "protection": "UNPROTECTED",
          "hasFailures": false
        },
      "dpStatus": "Success"
      },
      // For iSCSI Server
      {
        "serverId": ,
        "protocol": ISCSI,
        "serverName": "",
        "description": "",
        "ipAddress": "",
        "wwpns": null,
        "iscsiNames":
        [
        ""
        ],
        "osType": "",
        "chapUser: "user1",
        "attachedVolumeCount": ,
        "dataProtectionSummary":
        {
          "replicationType":
          [
          ],
          "protection": "",
          "hasFailures":
        },
      "dpStatus": ""
      },
      ...
    ],
    "total":
    "nextToken":
  }
```

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

```
http://172.17.64.111/v1/compute/servers/summary
```

Example response

```
{
  "osTypeCount":
    {
     "WIN": 1
    },
```

```
        "totalHost": 1
}
```

Adding a server

You can add a server 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": [
         ""
         ],
       "description": ""
   }
   // For iSCSI servers
   {
       "protocol": "ISCSI",
       "serverName": "",
       "ipAddress": "",
       "osType": "",
       "iscsiNames": [
         ""
         ],
       "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 Numbers formatted as a 16 digit hexadecimal number. iscsiNames is required if ISCSI is specified as the protocol.
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. No limit for the number of iSCSI names for each server other than the limit of DB. Same as current wwns. NULL for FC servers. 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.

Parameter	Required	Type	Description
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 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	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 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.
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 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`.

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

```
http://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",
      "wwpns": [
        "100000053326f721"
        ],
      "description": ""
  }
  // For iSCSI servers
  {
      "protocol": "ISCSI",
      "serverName": "",
      "ipAddress": "",
      "osType": "",
      "iscsiNames": [
        ""
        ],
      "description": "",
      "chapUser": {
        "userName": "",
        "secret": ""
      }
  }
]
}
```

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 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	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 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.

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 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`.

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 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.
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.

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
    }
```

Adding world wide port names

You can add world wide port names to a storage system.

HTTP request syntax (URI)

Note: This API will be usable in Storage Advisor v2.1, but will be deprecated in the following version.

```
POST https://ipAddress/v1/compute/servers/serverId/add-wwpn
```

Use the ID of the server as the *serverId*.

Request structure

The request body structure is shown below:

```
{
  "wwpns": [
    ""
  ]
}
```

Parameter	Required	Type	Description
wwpns	Yes	List	List of World Wide Port Numbers formatted as a 16 digit hexadecimal number.

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	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 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.

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 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`.

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	Error	The executing APIs are not for a Fibre server.
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

```
{
    "wwpns": [
            "1000001234567890",
            "394AC9283EE92A22"
```

```
    ]
}
```

Removing world wide port names

You can remove a list of world wide port numbers from a server if there are no volumes attached to the server. Verify that there are no volumes attached to the server via the WWN before you remove the WWN.

Note: This API will be usable in Storage Advisor v2.1, but will be deprecated in the following version.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/compute/servers/serverId/remove-wwpn
```

Use the ID of the server as the *serverId*.

Request structure

The request body structure is shown below:

```
{
  "wwpns": [
    ""
  ]
}
```

Parameter	Required	Type	Description
wwpns	Yes	List	List of World Wide Port Numbers formatted as a 16 digit hexadecimal number.

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	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 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.

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 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`.

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	Error	The executing APIs are not for a Fibre server.
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 WWPNs

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": "",
        "reference": ""
      }
   ],
}
```

Parameter	Required	Type	Description
updateAttachedVolumes	Yes	Boolean	Use the value "true" to update the WWN
updateZones	Yes	Boolean	Use the value "true" to update the WWN
currentValue	Yes	String	The current value of the WWN.
newValue	Yes	String	The desired value of the WWN. Note that the new WWN must not be in use.

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.

Response structure

```
{
  "description" : "",
  "ip" : "",
  "wwns" : ["", ""]
}
```

Parameter	Type	Description
description	String	Name of the target server
ip	String	IP address of the target server
wwns	List	List of World Wide Names.

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" : true,
```

```
  "updateZones" : true,
  "updates" : [
      {
        "currentValue": "wwn1",
        "newValue": null
      },
      {
        "currentValue": "wwn2",
        "newValue": "wwn5"
      },
      {
        "currentValue": "wwn3",
        "newValue": "wwn6"
      },
      {
        "currentValue": "wwn4",
        "newValue": null
      },
      {
        "currentValue": null,
        "newValue": "wwn7",
        "reference": null
      },
   ],
}
```

Example response

```
{
  "description" : "server1",
  "ip" : "10.20.30.14",
  "wwns" : ["wwn5", "wwn6", "wwn7"]
}
```

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*.

Response structure

```
{
    "resources": [
        {
            "volumeId": ,
            "storageSystemId": "",
            "poolId": "",
            "label": "",
            "size":,
            "usedCapacity": ,
            "availableCapacity": ,
            "utilization": ,
            "status": "",
            "type": "",
            "dkcDataSavingType": "",
            "aluaEnabled":,
            "migrationSummary": {
                "ownerTaskId": ,
                "migrationType": ""
            }
            "virtualStorageMachineInformation": {
                "virtualStorageMachineId":""
                "storageSystemId":"",
                "model":"",
                "virtualVolumeId":
            }
            "dataProtectionSummary": {
                "replicationType": [
                    ""
                ],
                "volumeType": [
                    ""
                ],
                "replicationGroupIdMap": {
                    "": ""
                },
                "hasFailures": ,
                "secondaryVolumeCount": ,
                "secondaryVolumeFailures":
            },
            "serverId": ,
            "paths": [
                {
                    "storagePortId": "",
                    "storageSystemId": "",
                    "lun": ,
                    "name": "",
                    "hostMode": "",
                    "wwns": ,
```

```
                    "preferredPath":,
                    "iscsiTargetInformation": {
                       "iscsiTargetName": "",
                       "iscsiInitiatorNames": [
                          "",
                       ],
                       "mutualChapUser": "",
                       "chapUsers": [
                          "",
                       ],
                       "authenticationMode": "",
                       "authenticationDirection": ""
                    },
                    "hostModeOptions": []
                 },
             ]
         }
    ],
    "total": ,
    "nextToken":
}
```

Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
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, SHREDDING, UNKNOWN, or NONE.

Parameter	Type	Description
type	String	Type of pool from which the volume is allocated. Valid values: ▪ THIN ▪ TIERED ▪ SNAP ▪ EXTERNAL
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_COMPRESSION, 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
virtualStorageMachineInformation	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 a S-VOL.
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.

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.

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":"410500",
            "poolId":"11",
            "label":"LDS",
            "size":1073741824,
            "usedCapacity":308281344,
            "availableCapacity":765460480,
            "utilization":28,
            "status":"NORMAL",
            "type":"TIERED",
            "provisioningStatus":"ATTACHED",
            "attachedVolumeServerSummary":[
                {
                    "serverId":4,
                    "paths":[
                        {
                            "storagePortId":"CL1-E",
                            "storageSystemId":"410500",
                            "lun":20,
```

```
                        "hostGroupId":"CL1-E-2",
                        "name":"win-9121",
                        "hostMode":"WIN",
                        "wwns":["100000051EF972A9"
                        ],
                        "hostModeOptions":[
                        ],
                        "iscsiTargetInformation":null,
                        "preferredPath":true
                    },
                    {
                        "storagePortId":"CL4-F",
                        "storageSystemId":"410500",
                        "lun":20,
                        "hostGroupId":"CL4-F-2",
                        "name":"win-9121",
                        "hostMode":"WIN",
                        "wwns":["100000051EF972A9"
                        ],
                        "hostModeOptions":[
                        ],
                        "iscsiTargetInformation":null,
                        "preferredPath":true
                    }
                ]
            }
        ],
        "dataProtectionSummary":
        {
            "replicationType":[
            ],
            "volumeType":["UNPROTECTED"
            ],
            "replicationGroupIdMap":
            {
            },
            "hasFailures":false,
            "secondaryVolumeCount":0,
            "secondaryVolumeFailures":0
        },
        "gadSummary":
        {
            "vsmId":null,
            "virtualLdevId":null,
            "volumeType":"NOT_AVAILABLE"
        },
        "dkcDataSavingType":"NONE",
        "virtualStorageMachineInformation":
        {
            "virtualStorageMachineId":"410500-VSPF800andVSPG800",
            "storageSystemId":"410500",
```

```
                "model":"VSP F800 and VSP
G800",
                "virtualVolumeId":10
            },
            "migrationSummary":
            {
                "ownerTaskId":null,
                "migrationType":"NONE"
            },
            "aluaEnabled":false,
            "serverId":4,
            "paths":[
                {
                    "storagePortId":"CL1-E",
                    "storageSystemId":"410500",
                    "lun":20,
                    "hostGroupId":"CL1-E-2",
                    "name":"win-9121",
                    "hostMode":"WIN",
                    "wwns":["100000051EF972A9"
                    ],
                    "hostModeOptions":[
                    ],
                    "iscsiTargetInformation":null,
                    "preferredPath":true
                },
                {
                    "storagePortId":"CL4-F",
                    "storageSystemId":"410500",
                    "lun":20,
                    "hostGroupId":"CL4-F-2",
                    "name":"win-9121",
                    "hostMode":"WIN",
                    "wwns":["100000051EF972A9"
                    ],
                    "hostModeOptions":[
                    ],
                    "iscsiTargetInformation":null,
                    "preferredPath":true
                }
            ]
        },
     ...
    ],
    "total":31,
    "nextToken":null
}
```

Updating iSCSI settings

You can update server iSCSI names and CHAP user settings in Storage Advisor.

HTTP request syntax (URI)

```
POST https://ipAddress/v1
/compute/servers/serverId/update-iscsi-settings
```

Request structure

The request body structure is shown below:

```
{
  "updateAttachedVolumes": true,
  "iscsiNameUpdates": [
    {
      "currentValue": "",
      "newValue": "",
      "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, just delete oldValue.
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

Parameter	Required	Type	Description
			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 specified CHAP user already exists on the storage port, HSA posts a job report regarding overwriting the CHAP secret.
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

Not applicable.

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": true,
  "iscsiNameUpdates": [
    {
      "currentValue": "",
      "newValue": "",
    },
    ...
  ],
  "chapUser": {
    "userName": "",
    "secret": ""
  }
}
```

Chapter 5: Volume migration resources

This module describes the volume migration operations.

Request	Method	URI
Attaching volumes to storage (on page 523)	POST	/v1/volume-manager/attach-to-storage
Virtualizing volumes (on page 529)	POST	/v1/volume-manager/virtualize
Creating external volumes (on page 534)	POST	/v1/external-volume-manager/create
Unvirtualizing volumes (on page 546)	POST	/v1/storage-systems/volume-manager/unvirtualize
Deleting external volumes (on page 549)	POST	/v1/external-volume-manager/delete
Discovering external LUNs on target port (on page 553)	POST	/v1/storage-systems/*storageSystemId*/storage-ports/storagePortId/discover-groups
Discovering external devices (on page 556)	POST	/v1/storage-systems/*storageSystemId*/external-devices/discover
Listing external devices (on page 559)	GET	/v1/storage-systems/*storageSystemId*/external-devices
Listing external volumes (on page 562)	GET	/v1/storage-systems/*storageSystemId*/externalVolumes
Getting a specific external volume (on page 568)	GET	/v1/storage-systems/*storageSystemId*/externalVolumes/volumeId
Detaching volumes from storage (on page 574)	POST	/v1/volume-manager/detach-from-storage

Request	Method	URI
Listing migration tasks (on page 576)	GET	/v1/storage-systems/*storageSystemId*/migration-tasks
Getting a specific migration task (on page 578)	GET	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*
Creating a migration task (on page 580)	POST	/v1/storage-systems/*storageSystemId*/migration-tasks
Interrupting a running migration (on page 584)	POST	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*/interrupt
Updating a migration task (on page 586)	POST	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*
Deleting a migration task (on page 589)	DELETE	/v1/storage-systems/*storageSystemId*/migration-tasks/*migrationTaskId*
Getting migration pairs (on page 592)	GET	/v1/storage-systems/*storageSystemId*/migration-pairs/*migrationTaskId*

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 Storage Advisor 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		String	ID of the source storage system.
targetStorageSystemId		String	ID of the target storage system.
chapUser		Object	Information about the CHAP user.
userName		String	User name.
secret		String	Secret of the user.
mutualUser		Object	Information about the mutual user.
portsInfo		List	Information about the ports.

Parameter	Required	Type	Description
srcPort		String	Source port.
targetPort		String	Target port.
volumes		List	List of logical units.
lun		Integer	Logical unit.
volumeId		Integer	Volume ID.

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	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 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.
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 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`.

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
400	Bad request	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 URI is not valid or the resource does not exist.

Example request

```
{
  "sourceStorageSystemId": "410031",
  "targetStorageSystemId": "410304",
  "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 410031. Attaching volumes with IDs: [113]
to servers with IDs: [13].",
        "messageCode": "AttachVolumesToServersPreStepMessage",
        "parameters": {
          "servers": [
            13
          ],
          "storageSystemId": "410031",
          "volumes": [
            113
          ]
        }
      },
      "severity": "INFORMATION",
      "creationDate": 1527037563355
    },
    {
      "reportMessage": {
        "text": "Storage System 410031. Completed attaching volumes with
IDs: [113] to servers with IDs: [13].",
        "messageCode": "AttachVolumesToServersPostStepMessage",
        "parameters": {
          "servers": [
            13
          ],
          "storageSystemId": "410031",
          "volumes": [
            113
          ]
        }
      },
      "severity": "INFORMATION",
      "creationDate": 1527037838345
    }
  ],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/660f1c51-2e0b-4fef-8b25-e68486ce419f"
    }
  ],
  "tags": [
```

```
    {
      "tag": "rainier"
    }
  ],
  "isSystem": false
}
```

Virtualizing volumes

You can create a single path for all given LUNs, create external parity groups per LUN, add LDEVs to each external parity group, and attach the server to the given LUNs in Storage Advisor for the virtualization phase of volume migration.

Note: This method is deprecated in HSA 3.1. Use Creating external volumes (on page 534) instead.

HTTP request syntax (URI)

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

Request structure

The request body structure is shown below:

```
{
 "targetPortInfo" :
       [
            {
               "portId": "",
               "external_wwn": "",
               "external_iscsiName": "",
               "protocol":""
            }
       ]
  "serverInfos":
       [
            {
               "targetPortForHost" : "",
               "serverWwn": "",
               "iscsiInitiatorNames" : ["",""],
            },
...
       ],
  "luns":[ , ]
  "storageSystemId": "",
  "hostMode" : "",
  "hostModeOptions": ["", ""],
```

```
  "enableZoning": ,
  "forceOverwriteChapSecret":
}
```

Parameter	Required	Type	Description
targetPortInfo		List	Information about the target port.
portId		String	Port ID.
external_wwn		String	External World Wide Name.
external_iscsiName		String	Name of the iSCSI external port.
protocol		String	Type of protocol. Can be `FIBRE` or `ISCSI`.
serverInfos		List	Information about the server such as the target port for the host and a list of iSCSI initiator names.
targetPortForHost		String	Target port for the host.
serverWwn		String	World Wide Name of the server.
iscsInitiatorNames		List	List of iSCSI initiator names.
luns		List	Information about the logical units (LUNs).
StorageSystemId		String	ID of the storage system.
hostMode		String	Host mode set for the volume.
hostModeOptions		List	Host mode options for the volume.
enableZoning			Whether to enable zoning.

Parameter	Required	Type	Description
forceOverwriteChapSecret			Whether to force overwriting the CHAP secret.

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	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 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.
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 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`.

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
400	Bad request	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 URI is not valid or the resource does not exist.

Example request

```
{
  "targetPorts": [
    "CL6-B"
  ],
  "serverInfos": [
    {
      "targetPortForHost": "CL3-A",
      "serverId": 7,
      "serverWwns": [
        "5000087000536422"
      ]
    }
  ],
  "externalLuns": [
    {
      "portId": "CL6-B",
      "wwn": "50060e8012272f21",
      "lunId": 0
    },
    {
      "portId": "CL6-B",
      "wwn": "50060e8012272f21",
      "lunId": 5
    }
  ],
  "storageSystemId": "50101",
  "enableZoning": true,
  "hostMode": "VMWARE_EX",
  "hostModeOptions": [
    54,
```

```
    63
  ]
}
```

Example response

```
{
  "jobId": "d704f1a6-8116-47fc-8dc3-ba1c20c72e25",
  "title": {
    "text": "Create external Volume on Storage System 50101",
    "messageCode": "CreateExternalVolumeJobTitleMessage",
    "parameters": {
      "storageSystemId": "50101"
    }
  },
  "user": "sysadmin",
  "status": "IN_PROGRESS",
  "startDate": 1527805000127,
  "endDate": null,
  "parentJobId": null,
  "reports": [],
  "links": [
    {
      "rel": "_self",
      "href": "/v1/jobs/d704f1a6-8116-47fc-8dc3-ba1c20c72e25"
    }
  ],
  "tags": [
    {
      "tag": "rainier"
    }
  ],
  "isSystem": false
}
```

Creating external volumes

You can create external volumes in Storage Advisor.

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	Type	Required	Description
externalDeviceId	String	Yes	ID of the external device.

Parameter	Type	Required	Description
externalPaths	Object	No	List of the available external paths. If you do not specify a path, the method automatically selects an available path.
PortId	String	Yes	ID of the storage port of the internal storage system.
externalWwn	String	Yes	WWN of the storage port of the external storage system.
externalIscsiInformation	Object	Yes	iSCSI information of the storage port of the external storage system.
iscsiName	String	Yes	iSCSI target name of the storage port of the external storage system.
ipAddress	String	Yes	IP address of the storage port of the external storage system.
externalLun	Integer	Yes	ID of the LUN.
attachExternalVolumeToServer	Object	Yes	Information about the external volumes attached to the server.
intendedImageType	No	String	Host mode set for the volume.
hostModeOptions	No	intendedImage	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

Parameter	Type	Required	Description
			values are as follows: ▪ null - AutoSelect ▪ 2 - VERITAS Database Edition/ Advanced Cluster ▪ 6 - TPRLO ▪ 7 - Automatic recognition function of LUN ▪ 12 - No display for ghost LUN ▪ 13 - SIM report at link failure ▪ 14 - HP TruCluster with TrueCopy function ▪ 15 - HACMP ▪ 22 - VERITAS Cluster Server ▪ 23 - REC command support

Parameter	Type	Required	Description
			▪ 25 - Windows Server Failover Cluster (WSFC), Microsoft Failover Cluster (MSFC), Symantec Cluster Server (old name : Veritas Cluster Server (VCS)), or run the PERSISTENT RESERVE OUT (Service Action = REGISTER AND IGNORE EXISTING KY) command. ▪ 33 - Set/Report Device Identifier enable ▪ 39 - Change the nexus specified in the SCSI Target Reset ▪ 40 - V-Vol expansion ▪ 41 - Prioritized device recognition command ▪ 43 - Returns Queue Full to the host when a command queue USP V or USP VM is full ▪ 49 - BB Credit Set Up Option 1 ▪ 50 - BB Credit Set Up Option 2 ▪ 51 - Round trip Set up Option

Parameter	Type	Required	Description
			▪ 54 - (VAAI) Support Option for the EXTENDED COPY command ▪ 60 - LUNO Change Guard ▪ 63 - (VAAI) Support option for vStorage APIs based on T10 standards ▪ 67 - Change of the ED_TOV value ▪ 68 - Support Page Reclamation for Linux ▪ 71 - Change the Unit Attention for Blocked Pool-VOLs ▪ 72 - AIX GPFS Support ▪ 73 - Support Option for WS2012 ▪ 78 - The non-preferred path option ▪ 80 - Multi Text OFF Mode ▪ 81 - Connect Open Enterprise Server produced by Novell or winBoot/i produced by emBoot ▪ 82 - Discovery CHAP Mode

Parameter	Type	Required	Description
			▪ 83 - Report iSCSI Full Portal List Mode ▪ 88 - Port Consolidation ▪ 96 - Change the nexus specified in the SCSI Logical Unit Reset ▪ 97 - Proprietary ANCHOR command support ▪ 100 - Hitachi HBA (Fabric Emulation Mode) Connection Option ▪ 102 - (GAD) Standard Inquiry Expansion for HCS ▪ 105 - Task Set Full response in the event of IO overload ▪ 114 - The automatic asynchronous reclamation on ESXi6.5 or later

Parameter	Type	Required	Description
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.
forceOverwriteChapSecret	No	Boolean	Whether or not HSA overwrites the CHAP user secret when there is any port that exists with the same CHAP user name. The default value is FALSE.
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.

Parameter	Type	Required	Description
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 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	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 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.
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 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`.

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 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": "410013",
"externalDevices": [
  {
          "externalDeviceId": "HITACHI 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": "410013",
"externalDevices": [
  {
    "externalDeviceId": "HITACHI 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"]
  }]
```

```
}
}
```

Unvirtualizing volumes

You can delete external paths and logical devices that are created during the virtualization phase of volume migration in Storage Advisor.

Note: This method is deprecated in HSA 3.1. Use Deleting external volumes (on page 549) instead.

HTTP request syntax (URI)

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

Request structure

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

Parameter	Required	Type	Description
storageSystemId		String	ID of the storage system.
volumeIds			Volume IDs.
cleanupZones	No	Boolean	Remove zone for the Fibre Channel, if 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/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 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.

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 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`.

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 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 URI is not valid or the resource does not exist.

Example request

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

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
}
```

Deleting external volumes

You can delete external volumes in Storage Advisor.

HTTP request syntax (URI)

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

Request structure

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

Parameter	Required	Type	Description
storageSystemId		String	ID of the storage system.
volumeIds			Volume IDs.
cleanupZones	No	Boolean	Remove zone for the Fibre Channel, if 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/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 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.
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 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`.

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
400	Bad request	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 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 LUNs on target port

You can query all external volumes on a target storage system for volume migration in Storage Advisor. This should be called after attaching volumes to storage in order to choose LUNs and then proceed with volume virtualization.

Note: This method is deprecated in HSA 3.1. Use Discovering external devices (on page 556) and Listing external devices (on page 559) instead.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/storage-systems/storageSystemId/storage-ports/
storagePortId/discover-groups
```

Request structure

To show all external LUNs:

```
      {
          "wwn": null,
          "iscsiInfo": null
      }
```

To show all external LUNs on one specific source port. Port protocol is FC:

```
      {
          "wwn": "ff00000000000000",
          "iscsiInfo": null
      }
```

To show all external LUNs on one specific source port. Port protocol is iSCSI:

```
      {
          "wwn": null,
          "iscsiInfo":
              {
                  "ip" : 172.17.91.xx,
                  "iscsiName" : "iqn.1994-
04.com.example:rsd.h8h.t.10011.1d097"
              }
      }
```

Parameter	Required	Type	Description
wwn		String	World wide name.
iscsiInfo		Object	iSCSI information.

Parameter	Required	Type	Description
ip		String	IP address.
iscsiName		String	iSCSI name.

Response structure

The response body structure is shown below:

```
[

   {
       "portId": "",
       "wwn": "",
       "lunId": ,
       "capacity": ,
       "productId": "",
       "eVolIdC": ""
       "externalIscsiInformation": {
            "ipAddress" : "",
            "iscsiName" : "",
            "amd" : "CHAP",
            "direction" : "MUTUAL",
            "chapUser" : {
               "userName": "-",
               "secret": "-"
            }
            "iscsiVirtualPortId" : "-"
       },
       "isDDM": false

]
```

Parameter	Type	Description
portId	String	ID of the port.
wwn	String	World Wide Name.
lunId	Integer	ID of the logical unit.
capacity	Integer	Capacity of the volume.
productId	String	ID of the product.
eVolIdC	String	

Parameter	Type	Description
externalIscsiInformation	Object	Information about the external iSCSI port.
ipAddress	String	IP address of the port.
iscsiName	String	Name of the iSCSI port.
amd	String	
direction	String	
chapUser	Object	Information about the CHAP user.
userName	String	Name of the user.
secret	String	Secret of the user.
iscsiVirtualPortId	String	iSCSI virtual port ID.
isDDM	Boolean	Whether there is Direct Data Mapping.

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 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 URI is not valid or the resource does not exist.

Example response

```
[
  {
    "portId": "CL6-B",
    "wwn": "50060e8012284012",
    "lunId": 0,
    "capacity": 2593929560064,
    "serialNumber": "410304",
    "productId": "VSP Gx00",
    "vendorId": "HITACHI",
    "eVolIdC": "HITACHI 50402840000C",
    "externalIscsiInformation": null,
    "isDDM": false
  },
  {
    "portId": "CL6-B",
    "wwn": "50060e8012284012",
    "lunId": 1,
    "capacity": 2593929560064,
    "serialNumber": "410304",
    "productId": "VSP Gx00",
    "vendorId": "HITACHI",
    "eVolIdC": "HITACHI 50402840000B",
    "externalIscsiInformation": null,
    "isDDM": false
  }
]
```

Discovering external devices

You can update the external device cache of the specified port in Storage Advisor. 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	Type	Required	Description
storagePortIds	List	Yes	The IDs of the storage port.

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.

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
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 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

Listing external devices

You can retrieve external devices in Storage Advisor.

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.

Parameter	Type	Description
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": "410013",
           "externalDeviceId": "HITACHI 50405F7702BC",
           "size": 1073741824,
           "productId": "OPEN-V",
           "externalStorageSystemInformation": {
               "serialNumber": "424439",
               "vendorId": "HITACHI",
               "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 Storage Advisor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-system/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": ""
            }
        }
    ],
    "total": ,
    "nextToken":
}
```


Parameter	Type	Description
volumeId	Long	ID number of the volume within the parent storage system.
mappedVolumeId	Long	ID of the mapped volume.

Parameter	Type	Description
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` ▪ `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.

Parameter	Type	Description
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.
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

Parameter	Type	Description
		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.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ NONE

Return codes

Status Code	HTTP Name	Description
200	OK	The server has started the operation.
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 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":"HITACHI 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"
            }
        },
        ...
    "total":11,
    "nextToken":null
}
```

Getting a specific external volume

You can retrieve a specific external volume for volume migration in Storage Advisor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-system/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": ""
            }
        }
```

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.

Parameter	Type	Description
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` ▪ `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.

Parameter	Type	Description
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.
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.

Parameter	Type	Description
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.
migrationType	String	Migration type. Valid values: ▪ MIGRATION ▪ 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

```
    {
        "volumeId":87,
        "mappedVolumeId":70,
        "externalDeviceId":"HITACHI 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"
        }

    }
```

Detaching volumes from storage

This operation deletes the paths from source storage system to target storage system in Storage Advisor.

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 : ""
}
```

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	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 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.
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 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`.

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 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 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 Storage Advisor.

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":
   },
...
 ],
"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.

Return codes

Status Code	HTTP name	Description
200	OK	The server has started the operation.
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 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
        }
    ],
    "total": 1,
    "nextToken": null
}
```

Getting a specific migration task

You can retrieve a specific migration task for volume migration in Storage Advisor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/storage-systems/storageSystemId/migration-tasks/
migrationTaskId
```

Request structure

N/A

Response structure

The response body structure is shown below:

```
 {
```

```
  "migrationTaskId": "",
  "migrationTaskName": "",
  "comments": "",
  "jobId": "",
  "schedule": {
    "datetime": ""
  },
  "migrationPairCount":
}
```

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.

Return codes

Status Code	HTTP name	Description
200	OK	The server has started the operation.
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 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
        }
    ],
    "total": 1,
    "nextToken": null
}
```

Creating a migration task

You can create a migration task for volume migration in Storage Advisor.

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": ""
   },
   "targetPoolId":,
```

```
  "sourceVolumeIds": []
}
```

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.
targetPoolId	Yes	Integer	ID of the storage pool to be migrated.
sourceVolumeIds	Yes	List	List of up to 300 migration source volume IDs.

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	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 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.

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 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`.

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": "test-migration",
    "comments": "",
    "schedule": {
        "datetime": "2018-01-01T00:00:00.000Z"
    },
    "targetPoolId": 0,
    "sourceVolumeIds": [
        684
```

```
    ]
}
```

Interrupting a running migration job

You can interrupt a running migration job in Storage Advisor.

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 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	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 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.
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 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`.

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 Storage Advisor.

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": ""
  },
  "targetPoolId":
}
```

Parameter	Required	Type	Description
migrationTaskName	No	String	Name of the migration task. Min=1, max=32 characters.

Parameter	Required	Type	Description
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.
targetPoolId	No	Integer	ID of the target pool.

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	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 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.
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 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`.

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": "MigrationTest",
    "comments": null,
    "schedule": {
        "datetime": "2018-01-01T00:00:00.000Z"
    }
}
```

Deleting a migration task

You can delete a migration task in Storage Advisor. There are 2 use cases for this method. 1) After the job for the migration task is finished, you should delete the migration task in order to clean up the resource in Storage Advisor. 2) 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 Storage Advisor.

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 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	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 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.
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 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`.

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.

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 the resource does not exist.

Getting migration pairs

You can retrieve a list of migration pairs for volume migration in Storage Advisor.

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": ""
}
```

Parameter	Type	Description
migrationPairId	Integer	ID of the migration pair.
migrationTaskId	Integer	ID of the migration task.

Parameter	Type	Description
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. ▪ 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.

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
        }
    ],
    "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 595)	GET	/v1/san-fabrics	Storage administrator System administrator Security administrator
Getting information about a specific fabric switch (on page 597)	GET	/v1/san-fabrics/*sanFabricId*	Storage administrator System administrator Security administrator
Creating a fabric switch (on page 599)	POST	/v1/san-fabrics	System administrator
Editing a fabric switch (on page 602)	POST	/v1/san-fabrics/*sanFabricId*	System administrator
Deleting a fabric switch (on page 605)	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":
}
```

Attribute	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 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":
}
```

Attribute	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.

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 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
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 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	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 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.
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 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`.

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 identifer 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 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	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 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.
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 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`.

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 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	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 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.
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 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`.

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
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.

All GET APIs can be accessed by all roles.

APIs using POST, PATCH, or DELETE methods require the Storage Administrator role.

Request	Method	URI	Role
Listing virtual storage machines (on page 611)	GET	/v1/virtual-storage-machines	Storage administrator System administrator Security administrator
Getting virtual storage machine details (on page 613)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*	Storage administrator System administrator Security administrator
Getting a physical storage system summary in a virtual storage machine (on page 615)	GET	/v1/virtual-storage-machines/*virtualStorageMachineId*/physical-storage-systems/*physicalStorageSystemId*/summary	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Creating a virtual storage machine (on page 616)	POST	/v1/virtual-storage-machines	Storage administrator System administrator Security administrator
Adding resources to a virtual storage machine (on page 621)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/add-undefined-resources	Storage administrator System administrator Security administrator
Moving volumes to a virtual storage machine (on page 624)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/physical-storage-systems/*physicalStorageSystemId*/add-existing-volumes	Storage administrator System administrator Security administrator
Removing resources from a virtual storage machine (on page 627)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/remove-undefined-resources	Storage administrator System administrator Security administrator
Removing defined volumes from a virtual storage machine (on page 631)	POST	/v1/virtual-storage-machines/*virtualStorageMachineId*/physical-storage-systems/	Storage administrator

Request	Method	URI	Role
		physicalStorageSystemId/ defined-volumes	System administrator Security administrator
Deleting a physical storage system from a virtual storage machine (on page 634)	POST	/v1/virtual-storage-machine/ *virtualStorageSystemId*/ physical-storage-systems/ *physicalStorageSystemId*	Storage administrator System administrator Security administrator
Deleting a virtual storage machine (on page 637)	DELETE	/v1/virtual-storage-machines/ *virtualStorageMachineId*	Storage administrator System administrator Security administrator

Listing virtual storage machines

You can display a list of all virtual storage machines in Storage Advisor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/virtual-storage-machines
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources": [
        {
            "virtualStorageMachineId": "",
            "storageSystemId": "",
            "model": "",
            "physicalStorageSystemIds": ["",""]
        },
        {
            "virtualStorageMachineId": "",
            "storageSystemId": "",
            "model": "",
            "physicalStorageSystemIds": ["",""]
        },
    ],
    "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 the physical storage system IDs.
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://hsa_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": "410501VSPG400-600",
            "storageSystemId": "410501",
            "model": "VSP F400, F600 and VSP G400, G600",
            "physicalStorageSystemIds": ["410500","410209"]
        },
        {
            "virtualStorageMachineId": "444444VSPG800",
            "storageSystemId": "444444",
            "model": "VSP G800",
            "physicalStorageSystemIds": ["410500","410209"]
        },
    ],
    "total": 2,
    "nextToken": null
}
```

Getting virtual storage machine details

You can get information about a specific virtual storage machine in Storage Advisor.

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

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.

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/410501VSPG400-600
```

Response example

JSON response:

```
{
      "virtualStorageMachineId": "410501VSPG400-600",
      "storageSystemId": "410501",
      "model": "VSP F400, F600 and VSP G400, G600",
      "physicalStorageSystemIds": ["410500","410209"]
}
```

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 Storage Advisor.

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": ,
  "hostGroups": [
    {
      "storagePortId": "",
      "definedCount": ,
      "undefinedCount":
    },    ...
  ]
}
```

Parameter	Type	Description
undefinedVolumeCount	Long	Undefined volume count.
definedVolumeCount	Long	Defined volume count.
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.

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

Creating a virtual storage machine

You can create a new virtual storage machine in Storage Advisor.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/virtual-storage-machines
```

Request structure

The request body structure is shown below:

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

```
  "physicalStorageSystems": [
    {
      "storageSystemId": "",
      "numberOfVolumes": ,
      "hostGroups": [
        {
          "portId": "",
          "number":
        },
        ...
      ]
    },
    ...
  ]
}
```

Parameter	Type	Required	Description
storageSystemId	String	Yes	ID of the virtual storage system.
model	String	Yes	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 ▪ VSP_G200 ▪ HUS_VM

Parameter	Type	Required	Description
			▪ VSP_F1500_AND_VSP_G1000_G1500 ▪ VSP ▪ USP_VM ▪ USP_V ▪ USP ▪ NSC
physicalStorageSystems	List	Yes	List of the physical storage systems.
storageSystemId	String	Yes	ID of the physical storage system.
numberOfVolumes	Integer	No	Number of volumes.
hostGroups	List	No	List of the host groups or iSCSI targets.
portId	String	No	ID of the storage port.
number	Integer	No	Number of host groups or iSCSI targets.

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.

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
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

Adding resources to a virtual storage machine

You can add resources to a virtual storage machine in Storage Advisor.

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": "",
      "numberOfVolumes": ,
      "hostGroups": [
        {
          "portId": "",
          "number":
        },
        ...
      ]
    },
    ...
  ]
}
```

Parameter	Type	Required	Description
physicalStorageSystemId	String	Yes	ID of the physical storage system.
numberOfVolumes	Integer	No	Number of volumes. Either resource (volume or hostgroup) must be specified.

Parameter	Type	Required	Description
hostGroups	List	No	List of the host group or iSCSI target IDs. Either resource (volume or hostgroup) must be specified.
portId	String	No	Port ID (becomes required if HostGroup is specified)
number	Integer	No	Number of host groups (becomes required if HostGroup is specified).

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.
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 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

Moving volumes to a virtual storage machine

You can move volumes to a virtual storage machine in Storage Advisor.

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:

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

Parameter	Type	Required	Description
volumeIds	List	Yes	List of volume 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.
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

Removing resources from a virtual storage machine

You can remove resources from a virtual storage machine in Storage Advisor.

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": "",
            "numberOfVolumes": ,
            "hostGroups": [
             {
```

```
                    "portId": "",
                    "number":
                },        ...
                ]
        },
        ...
    ]
}
```

Parameter	Type	Required	Description
physicalStorageSystemId	String	Yes	ID of the physical storage system.
numberOfVolumes	Integer	No	Number of volumes. Either resource (volume or hostgroup) must be specified.
hostGroups	List	No	List of the host group or iSCSI target IDs. Either resource (volume or hostgroup) must be specified.
portId	String	No	Port ID (becomes required if HostGroup is specified).
number	Integer	No	Number of host groups (becomes required if HostGroup is specified.

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.

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
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

Removing defined volumes from a virtual storage machine

You can remove defined volumes from a virtual storage machine in Storage Advisor.

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	Type	Required	Description
volumeIds	List	Yes	List of volume IDs. Volume ID type is long.

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.

Parameter	Type	Description
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 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 Storage Advisor.

HTTP request syntax (URI)

```
POST https://ipAddress/v1/virtual-storage-machines/virtualStorageSystemId/
physical-storage-systems/physicalStorageSystemId
```

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": "",
            "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.

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
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 Storage Advisor.

HTTP request syntax (URI)

```
DELETE https://ipAddress/v1/virtual-storage-machines/
virtualStorageMachineId
```

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": "",
                "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

Parameter	Type	Description
		• 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 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 Storage Advisor 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 645)	GET	/v1/data-protection/summary	Storage administrator System administrator Security administrator
Getting a data protection summary for a storage system (on page 646)	GET	/v1/data-protection/storage-systems/*storageSystemId*/summary	Storage administrator System administrator Security administrator
Listing replication groups (on page 648)	GET	/v1/storage-systems/*storageSystemId*/replication-groups	Storage administrator System administrator Security administrator
Getting a replication group by ID (on page 654)	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 657)	GET	/v1/storage-systems/*storageSystemId*/replication-groups/summary	Storage administrator System administrator Security administrator
Creating a replication group (on page 659)	POST	/v1/storage-systems/*storageSystemId*/replication-groups	Storage administrator
Adding volumes to a replication group (on page 664)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/add-volumes	Storage administrator
Removing volumes from a replication group (on page 667)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/remove-volumes	Storage administrator
Restoring volumes on a storage system (on page 670)	POST	/v1/storage-systems/*storageSystemId*/volumes/restore	Storage administrator
Updating clone replication groups on a storage system (on page 672)	PATCH	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Updating a snapshot replication group on a storage system (on page 675)	PATCH	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Updating high availability replication groups on a storage system (on page 680)	PATCH	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Suspending replication (on page 683)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/suspend	Storage administrator

Request	Method	URI	Role
Resuming replication (on page 685)	POST	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/restore	Storage administrator
Deleting replication groups (on page 688)	DELETE	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*	Storage administrator
Listing volume pairs (on page 690)	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 695)	GET	/v1/storage-systems/*storageSystemId*/replication-groups/*replicationGroupId*/affected-volume-pairs	Storage administrator System administrator Security administrator
Getting primary volume pairs (on page 699)	GET	/v1/storage-systems/*storageSystemId*/volume-pairs?q=primaryVolume.id:*primaryVolumeId*	Storage administrator System administrator Security administrator
Getting secondary volume pairs (on page 703)	GET	/v1/storage-systems/*storageSystemId*/volume-pairs?q=secondaryVolume.id:*secondaryVolumeId*	Storage administrator System administrator Security administrator
Getting secondary volumes (on page 707)	GET	/v1/storage-systems/*storageSystemId*/volumes/*volumeID*/secondaryVolumes	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Listing failed volume pairs (on page 715)	GET	/v1/storage-systems/*storageSystemId*/volume-pairs?state=ERROR	Storage administrator System administrator Security administrator
Getting GAD pairs (on page 718)	GET	/v1/gad-pairs	Storage administrator System administrator Security administrator
Getting the Data Instance Director manager (on page 722)	GET	/v1/dp-manager	Storage administrator System administrator Security administrator
Registering/Deleting the Data Instance Director manager (on page 723)	PATCH	/v1/dp-manager	System administrator
Testing the connection to Data Instance Director (on page 728)	POST	/v1/dp-manager/test-connection	Storage administrator System administrator Security administrator
Listing quorum disks (on page 731)	GET	/v1/storage-systems/*storageSystemId*/quorum-disks	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.
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":
            }],
    "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.
type	String	Replication type. Valid values: ▪ CLONE ▪ SNAP: Snapshot ▪ SNAP_ON_SNAP ▪ HA: High Availability (global-active device)
consistent	Boolean	Whether copy operations run 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

Parameter	Type	Description
		▪ 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.
targetPoolId	Integer	If the user sets a target pool for the snapshot, returns an integer value as the target pool ID. If the user does not set a target pool, returns NULL. In this case, Storage Advisor 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.

Parameter	Type	Description
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://hsa_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": "10139",
              "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": "10139",
            "name": "testRg2",
            "comments": "test comments2",
            "type": "CLONE",
            "consistent": false,
            "numberOfCopies": null,
            "schedule": null,
            "scheduleEnabled": null,
            "primaryVolumeIds": [
                  369
            ],
            "failures": 0,
      "targetPoolId":,
      "secondaryStorageSystemId": "",
      "quorumId":,
      "secondaryPoolId":,
      "dataFlowName":
      }],
    "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":"410011",
            "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":"410011",
            "secondaryPoolId":4,
            "quorumId":13,
            "dataFlowName":"test-to-ha-rg-multi",
            "id":2
        }
    ],
    "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":
},
```

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 ▪ SNAP_ON_SNAP ▪ HA: High Availability (global-active device)
consistent	Boolean	Whether copy operations run 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)

Parameter	Type	Description
		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.
targetPoolId	Integer	If the user sets a target pool for the snapshot, returns an integer value as the target pool ID. If the user does not set a target pool, returns NULL. In this case, Storage Advisor 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.

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 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": "10139",
              "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
},
```

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 or not copy operations run 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')

Parameter	Required	Type	Description
			▪ 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.
targetPoolId	No	Integer	If the user specifies `poolId`, the snapshot is taken from the specified pool.

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	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 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.
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 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`.

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.

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 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	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 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.
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 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`.

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
```

Example Request

```
{
"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":
}
```

Parameter	Required	Type	Description
primaryVolumeIds	Yes	List	List of the primary volume IDs.
deleteSecondaryVolume	Yes	Boolean	Whether or not to delete the secondary volume.

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	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 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.
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 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`.

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 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	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 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.
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 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`.

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 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	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 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.
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 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`.

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

Parameter	Required	Type	Description
			▪ 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 or not 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`, Storage Advisor automatically selects the target pool when taking a snapshot. If the user would like to keep the target pool, the user must specify the current `poolId`.

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	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 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.

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 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`.

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

```
{
"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 Storage Advisor.

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 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	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 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).

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 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`.

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 SNAPHOT 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 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	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 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.
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 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`.

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/
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 SNAPHOT 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 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	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 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.
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 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`.

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*.

Note: If the specified replication group is associated with Data Instance Director and has pair(s), the group cannot be deleted.

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/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 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.
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 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`.

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://hsa_server/v1/storage-systems/serial/disks?nextToken=cXVlcnlBbmRGZXRjaDsxOzEyMTM6Q08yc2ZIRlhTTUNoSXVYNlFPUS1jZzswOw==`

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.
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. ▪ SSUS: a vlume 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.

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 copy operations run 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.

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+type:HA
```

Example response


```
{
    "resources":[
        {
            "replicationGroup":"gad-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 Storage Advisor to Storage Advisor-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.
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 vlume 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.

Parameter	Type	Description
		▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume.
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 copy operations run 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.

Parameter	Type	Description
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.
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/
affected-volume-pairs
```

Example response


```
{
    "volumePairs":[
        {
            "replicationGroup":"gad-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
        }
    ]
}
```

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.
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 vlume 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.

Parameter	Type	Description
		▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume.
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 copy operations run 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.

Parameter	Type	Description
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.
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":"gad-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 vlume 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.

Parameter	Type	Description
		▪ PSUE: a volume pair is in suspended status with error. ▪ SSWS: a volume pair is in suspended status for swapping the secondary volume.
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 copy operations run 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.

Parameter	Type	Description
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.
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": "",
                "poolId": "",
                "label": "",
                "size": ,
                "usedCapacity": ,
                "availableCapacity": ,
                "utilization": ,
                "status": "",
                "type": "",
                "provisioningStatus": "",
```

```
"attachedVolumeServerSummary":  {
     [
       {
         "serverId": ,
         "paths":
           [
             {
               "storagePortId": "",
               "storageSystemId": "",
               "lun": ,
               "name": "",
               "hostmode": "",
               "wwns": null,
               "iscsiTargetInformation": {
                  "iscsiTargetName": "",
                  "iscsiInitiatorNames": [
                    "",
                  ],
                  "mutualChapUser": "",
                  "chapUsers": [
                    "",
                  ],
                  "authenticationMode": "",
                  "authenticationDirection": ""
               },
               "hostModeOptions": [],
               "preferredPath":
              }
            ]
       }
"dataProtectionSummary":
{
    "replicationType":
    [
        ""
    ],
    "volumeType":
    [
        ""
    ],
    "replicationGroupIdMap":
    {
    },
    "hasFailures": ,
    "secondaryVolumeCount": ,
    "secondaryVolumeFailures":
}
"gadSummary": {
   "vsmId": ,
   "virtualLdevId": ,
   "volumeType": ""
```

```
                },
                "dkcDataSavingType": "",
                "aluaEnabled":
            }
        ]
    }
}
```

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.
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, SHREDDING, UNKNOWN, or NONE.
type	String	Type of pool from which the volume is allocated. Valid values: THIN, TIERED, or SNAP.

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.

Parameter	Type	Description
		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.
dkcDataSavingType	String	Type of controller-based capacity saving. Valid values are COMPRESSION, DEDUPLICATION_AND_CO MPRESSION, and NONE.
aluaEnabled	Boolean	Whether or not ALUA mode of the volume is enabled.
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.

Parameter	Type	Description
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 a S-VOL.
gadSummary	String	The status of GAD. Values are: **1.** Incomplete **2.** Not Available **3.** Complete
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

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.

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://172.17.92.44v1/storage-systems/410209/volumes/694/
secondaryVolumes
```

Example response


```
{
    "volumeResourceCollection":
    {
        "volumes":
        [
            {
                "volumeId": 66,
                "storageSystemId": "410031",
                "poolId": "2",
                "label": "4-6TB-compressed-vol",
                "size": 5057753488384,
                "usedCapacity": 0,
                "availableCapacity": 5057753488384,
                "utilization": 0,
                "status": "SHREDDING",
                "type": "SNAP",
                "provisioningStatus": "ATTACHED"
                "attachedVolumeServerSummary":  {
                     [
                       {
                         "serverId": ,
                         "paths":
                           [
                             {
                               "storagePortId": "CL1-A",
                               "storageSystemId": "440084",
                               "lun": 42,
                               "name": "HID_CL1-A_61edd112-d3eb-405d-8a16",
                               "hostmode": "",
```

```
                                "wwns": null,
                                "iscsiTargetInformation": {
                                  "iscsiTargetName": "",
                                  "iscsiInitiatorNames": [
                                    "",
                                  ],
                                  "mutualChapUser": "",
                                  "chapUsers": [
                                     "",
                                  ],
                                  "authenticationMode": "BOTH",
                                  "authenticationDirection": "Mutual"
                                },
                                "hostModeOptions": [],
                                "preferredPath": true
                               }
                             ]
                         }
                 "dataProtectionSummary":
                 {
                     "replicationType":
                     [
                         "SNAP"
                     ],
                     "volumeType":
                     [
                         "S-VOL"
                     ],
                     "replicationGroupIdMap":
                     {
                     },
                     "hasFailures": false,
                     "secondaryVolumeCount": 0,
                     "secondaryVolumeFailures":
                 }
                 "gadSummary": {
                    "vsmId": null,
                    "virtualLdevId": null,
                    "volumeType": ""
                 },
                 "dkcDataSavingType": "",
                 "aluaEnabled": true
             }
      ]
   }
}
```

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. ▪ SSUS: a vlume 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.
mirrorId	Integer	When multiple S-VOLs are created for one P-VOL, a mirror ID is assigned to each volume pair.

Parameter	Type	Description
splitTime	Long	The time pair split is performed in Epoch time format.
consistent	Boolean	Whether copy operations run 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.

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/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":4
        }
  ]
}
```

Listing global-active device pairs

You can display a list of all global-active device pairs.

HTTP request syntax (URI)

Note: This operation is deprecated in Storage Advisor v3.2. The alternative operation is Listing volume pairs (on page 690).

```
GET https://ipAddress/v1/gad-pairs
```

Request structure

Not applicable.

Response structure

The response body structure is shown below:

```
{
    "resources": [
        {
            primary: {
                gadDeviceId: "",
                volumeId: "",
                storageSystemId:"",
                ioMode:"",
                state:"",
                pairSuspendStatus:"",
                targetStorageSystemId:"",
                targetVolumeId:"",
                targetLunNumber:"",
                type:"",
                status:"",
                pairCreationTime:"",
                quorumId:""
            }
            secondary: {
                gadDeviceId: "",
                volumeId: "",
                storageSystemId:"",
                ioMode:"",
                state:"",
                pairSuspendStatus:"",
                targetStorageSystemId:"",
                targetVolumeId:"",
                targetLunNumber:"",
                type:"",
                status:"",
                pairCreationTime:"",
                quorumId:""
            }
        }
    ],
    ...
```

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

Parameter	Type	Description
gadDeviceID	String	ID of the GAD device.
volumeId	String	ID number of the volume.
storageSystemId	String	ID of the storage system.
ioMode	String	For storage systems with an SVP, returns the IO mode of the GAD device. For storage systems without an SVP, returns null.
state	String	The GAD device state.
targetStorageSystemId	Integer	The ID of the target system.
targetModel	String	The model of the target system.
targetVolumeId	Integer	The volume ID of the target.
targetLunNumber	Integer	For storage systems with an SVP, returns the LUN number of the target system. For storage systems without an SVP, returns null.
type	String	LUN type.
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.
pairCreationTime	String	The pair creation time.
quorumId	String	The ID of the Quorum Device.
secondary	GadDevice	The secondary device.

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/gad-pairs
```

JSON response:


```
{
    "resources":
    [
        {
            primary: {
                gadDeviceId: "4105002209/09/2016 00:55:43",
                volumeId: "22",
                storageSystemId:"410500",
                ioMode:"3",
                state:"PAIR",
                pairSuspendStatus:"1",
                targetStorageSystemId:"410209",
                targetVolumeId:"7",
                targetLunNumber:"0",
                type:"PRIMARY",
                status:"PAIR",
                pairCreationTime:"09/09/2016 00:55:43",
                quorumId:"3"
            }
            secondary: {
                gadDeviceId: "410209709/09/2016 00:55:19",
                volumeId: "7",
                storageSystemId:"410209",
                ioMode:"3",
                state:"PAIR",
                pairSuspendStatus:"1",
                targetStorageSystemId:"410500",
```

```
                targetVolumeId:"22",
                targetLunNumber:"2",
                type:"SECONDARY",
                status:"PAIR",
                pairCreationTime:"09/09/2016 00:55:19",
                quorumId:"3"
            }
        }
    ],
    ...
    "total": 4
    "nextToken": null
}
```

Getting the Data Instance Director manager

You can retrieve information about the Data Instance Director manager, such as its IP address or login user name, in Storage Advisor.

HTTP request syntax (URI)

```
GET https://ipAddress/v1/dp-manager
```

Request structure

Not applicable.

Response structure

```
{
   "ipAddress":"",
   "tcpPort":,
   "namespace":"",
   "username":""
}
```

Parameter	Required	Type	Description
ipAddress	Yes	String	The IP address of the Data Instance Director manager.

Parameter	Required	Type	Description
tcpPort	Yes	Integer	The TCP port number of the Data Instance Director manager (API).
namespace	Yes	String	Space name to which the user belongs
username	Yes	String	Login user name.

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"
}
```

Registering/Deleting the Data Instance Director manager

You can use this operation to register or delete information about Data Instance Director manager in Storage Advisor.

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 Data Instance Director alive. Specify this as false if you want to delete the Data Instance Director manager.
connectionProfile	No	Object	Necessary information for connecting the Data Instance Director manager. It is required if you want to register the Data Instance Director manager. It is optional if you want to delete the Data Instance Director manager.
ipAddress	Yes*	String	The IP address of the Data Instance Director manager.
tcpPort	Yes*	Integer	The TCP port number of the Data Instance Director manager (API).

Parameter	Required	Type	Description
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

```
{
  "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.

Parameter	Type	Description
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
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 Data Instance Director",
                                "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 Data Instance Director

You can test the connection to the Data Instance Director in Storage Advisor

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 Data Instance Director manager.
tcpPort	Yes	Integer	The TCP port number of the Data Instance Director manager (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

```
{
  "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.
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"}
```

Listing quorum disks

You can retrieve a list of quorum disks in Storage Advisor.

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
}
```

Chapter 9: Monitoring resources

You can use Storage Advisor APIs for capacity, hardware, and SNMP monitoring operations.

Capacity monitoring resources

Request	Method	URI	Role
Getting the total number of capacity alerts for the storage system (on page 736)	GET	/v1/monitoring/status/capacity	Storage administrator System administrator Security administrator
Getting detailed information for capacity alerts for the storage system (on page 740)	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 739)	GET	/v1/monitoring/status/*storageSystemId* /capacity	Storage administrator System administrator Security administrator

Request	Method	URI	Role
Getting detailed information for capacity alerts for a specific storage system (on page 740)	GET	/v1/monitoring/status/*storageSystemId* /capacity/*resourceType*	Storage administrator System administrator Security administrator
Getting a capacity savings summary (on page 742)	GET	/v1/capacity-savings/summary	Storage administrator System administrator Security administrator
Getting a capacity savings summary for a specific storage system (on page 743)	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.
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.

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://172.17.64.115/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.

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

Example request

```
https://172.17.64.113/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.
capacityEfficiencyRate	Float	The ratio of Thin Free plus Thin Used to the physical used capacity. Capacity efficiency is only calculated for volumes on THIN and TIERED pools.

Parameter	Type	Description
		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 and TIERED 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 hardware alerts for all storage system (on page 747)	GET	/v1/monitoring/status/hardware	Storage administrator System administrator Security administrator
Displaying resource-specific hardware alerts for all storage systems (on page 749)	GET	/v1/monitoring/status/hardware/*resourceType*	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Listing hardware alert for a storage system (on page 750)	GET	/v1/monitoring/status/ *storageSystemId* /hardware	Storage administrator System administrator Security administrator
Displaying resource-specific hardware alerts for a storage system (on page 752)	GET	/v1/monitoring/status/ *storageSystemd* /hardware / *resourceType*	Storage administrator System administrator Security administrator
Getting disk information for the storage system (on page 755)	GET	/v1/monitoring/status/ hardware/disk	Storage administrator System administrator Security administrator
Getting disk information for a specific storage system (on page 757)	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.

Parameter	Type	Description
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.

Parameter	Type	Description
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.

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.

Parameter	Type	Description
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.

Parameter	Type	Description
description	String	Description of the alert.
alertLevel	String	Alert level: Warning or Critical.
resourceId	String	Resource ID.
diskType	String	Disk Type.
speed	Integer	Disk speed.
bytes	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": "",
      "storageNickname": "",
      "refCode": "",
      "resourceType": "",
      "timestamp": "",
      "description": "",
      "alertLevel": "",
      "resourceLocation": "",
```

```
      "diskSpec": {
        "diskType": "",
        "speed": ,
        "capacity": {
          "bytes":
        }
      }
    }
  ]
}
```

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	DiskSpec	Disk type, speed, and capacity of the disk.
diskType	String	Disk Type. Valid values: SATA, SSD, FMD, SAS, FMD DC2.
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": "",
      "storageNickname": "",
      "refCode": "",
      "resourceType": "",
      "timestamp": "",
      "description": "",
      "alertLevel": "",
      "resourceLocation": "",
      "diskSpec": {
        "diskType": "",
        "speed": ,
        "capacity": {
          "bytes":
        }
      }
    }
  ]
}
```

SNMP resources

Request	Method	URI	Role
Getting a list of SNMP managers (on page 760)	GET	/v1/snmp-managers	Storage administrator System administrator Security administrator
Adding SNMP managers (on page 762)	POST	/v1/snmp-managers	System administrator
Updating SNMP managers (on page 765)	POST	/v1/snmp-managers/*snmpMgrName*	System administrator

Request	Method	URI	Role
Deleting SNMP managers (on page 768)	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":
    }
  ]
}
```

Pararmeter	Type	Description
name	String	The name of the virtual file server. Min = 1, max = 15.
ipAddress	String	IP address of the resource.
username	String	User name of the SNMP manager.

Pararmeter	Type	Description
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.
port	String	The ethernet port to which the IP address for the virtual file server is assigned. Min = 1, max = 65535.

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.

Parameter	Required	Type	Description
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 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	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 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.
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 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`.

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.

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.
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 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	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 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.
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 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`.

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 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	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 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.
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 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`.

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 Storage Advisor APIs to perform system administration operations.

Account domain resources

Request	Method	URI	Role
Getting a list of account domains (on page 772)	GET	/v1/security/account-domains	Storage administrator System administrator Security administrator
Getting information for a specific account domain (on page 773)	GET	/v1/security/account-domains/*id*	Storage administrator System administrator Security administrator
Adding an account domain (on page 775)	POST	/v1/security/account-domains/*id*	Security administrator
Updating an account domain (on page 778)	POST	/v1/security/account-domains/*id*	Security administrator
Deleting an account domain (on page 780)	DELETE	/v1/security/account-domains/*id*	Security administrator

Listing account domains

You can display account domains that have been added to Storage Advisor.

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	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.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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	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	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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": "hds.com",
 "username": "jdoe",
 "type": "ACTIVE_DIRECTORY"
}
```

Adding an account domain

You can add an account domain to Storage Advisor.

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

```
{
 "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 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	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.
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 is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor is not able to connect to the node.

Example request

```
POST https: //172.17.64.116/v1//security/account-domains
{
  "domain": "hds.com",
  "username": "jdoe",
  "password": "test123"
}
```

Example response

```
{
 "id": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
 "domain": "hds.com",
 "username": "jdoe",
 "type": "ACTIVE_DIRECTORY"
}
```

Updating an account domain

You can update the credentials that are used to access an account domain that has been added to Storage Advisor.

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

```
{
 "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 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	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.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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"
}
```

Example response

```
{
 "id": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
 "domain": "example.com",
 "username": "jwei",
 "type": "ACTIVE_DIRECTORY"
}
```

Deleting an account domain

You can remove an account domain from Storage Advisor.

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

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	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.

Status code	HTTP name	Description
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 is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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
Getting a list of user groups in the account domain (on page 783)	GET	/v1/security/account-domains/*id*/groups	Storage administrator System administrator Security administrator
Getting a list of user group mappings in the account domain (on page 784)	GET	/v1/security/account-domains/*id*/group-mapping	Storage administrator System administrator

Request	Method	URI	Role
			Security administrator
Getting a list of group mappings for a specific user group (on page 786)	GET	/v1/security/account-domains/*id*/group-mapping/*mappingId*	Storage administrator System administrator Security administrator
Creating role mapping (on page 788)	POST	/v1/security/account-domains/*id*/group-mapping	Security administrator
Deleting role mapping (on page 790)	DELETE	/v1/security/account-domains/*id*/group-mapping/*mappingId*	Security administrator
Getting a list of users in an account domain (on page 792)	GET	/v1/security/account-domains/*id*/users	Storage administrator System administrator Security administrator
Getting detailed information for specific users in an account domain (on page 794)	GET	/v1/security/account-domains/*id*/users/*userid*	Storage administrator System administrator Security administrator
Updating user information in an account domain (on page 795)	POST	/v1/security/account-domains/*id*/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.

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.
400	Bad request	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.

Status code	HTTP name	Description
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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
```

Example response

```
[
   "admin": ""
]
```

Listing group mappings

You can display a list of all the user group mappings in Storage Advisor.

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": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
```

```
      "groupName": "admin",
      "userRole": "SECURITY_ADMIN"
    }
  ]
}
```

Parameter	Type	Description
id	Integer	ID
accountDomainId	Integer	ID of the domain.
groupName	String	Name of the domain.
userRole	String	Role to be assigned to the user group. Values include the System Administrator, Storage Administrator, and Security Administrator.

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	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.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.

Status code	HTTP name	Description
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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": "SECURITY_ADMIN"
    }
  ]
}
```

Getting a group mappings

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.
userRole	String	Role to be assigned to the user group. Values include the System Administrator, Storage Administrator, and Security Administrator.

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	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.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.

Status code	HTTP name	Description
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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": "SECURITY_ADMIN"
}
```

Creating role mappings

You can create an 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.

Parameter	Required	Type	Description
userRole	Yes	String	Role to be assigned to the user group. Values include the System Administrator, Storage Administrator, and Security Administrator.

Response structure

```
{
  "id": "",
  "accountDomainId": "",
  "groupName": "",
  "userRole": ""
}
```

Parameter	Type	Description
id	Integer	ID of the mapping group.
accountDomainId	Integer	ID of the domain.
groupName	String	Name of the domain.
userRole	String	Role to be assigned to the user group. Values include the System Administrator, Storage Administrator, and Security Administrator.

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	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.
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 is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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": "SECURITY_ADMIN"
}
```

Example response

```
{
  "id": "44c08be3-ba36-49eb-a104-48911a2815cb",
  "accountDomainId": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
  "groupName": "admin",
  "userRole": "SECURITY_ADMIN"
}
```

Deleting group 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

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	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.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.

Status code	HTTP name	Description
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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.
204	No content	The request was successful, but the response does not exist.
400	Bad request	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.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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	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.
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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

```
{
  "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	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.
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 is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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"
}
```

Example response

```
{
  "id": "b5d15f7f-3e2e-43c1-9734-c447cfb260f7",
  "accountDomainId": "20ee96fe-fb69-4f68-994f-a2fbffcea9fd",
  "loginName": "jdoe"
}
```

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 Storage Advisor.

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 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	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 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.
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 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`.

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 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 Storage Advisor. 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 Storage Advisor 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": "",
      "startDate": ,
      "endDate": ,
      "parentJobId": "",
      "reports": [
        {
          "reportMessage": {
            "text": "",
            "messageCode": "",
            "parameters": {
            }
```

```
          },
          "severity": "",
          "creationDate":
        },
      ]
    },
  ],
  "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 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.
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 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`.

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	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.
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.

Status code	HTTP name	Description
412	Precondition failed	The server does not meet one of the preconditions that the requester put in the request.
503	Service unavailable	The server is currently unable to receive requests. Retry your request.
504	Gateway timeout	The request timed out waiting for a response. The Storage Advisor 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
}
```

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