



STORAGE

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Create and attach a block...



Create a durable block volume via GVP or direct via BSS API

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You can create one or multiple volumes and attach it to a single VSI host instance in the same data center. Creating a volume does not make it available for use. You'll need to attach and/or mount the volume to a filesystem before the block volume can be used.

There are different types of volumes available, hosted on two platforms, with different encryption, performance, available features, and provisioning channels. Before provisioning a volume, [understand the volume types](#) and associated platforms in order to select the type most appropriate for your workload.

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The example below is for a separate (local) host scenario (one or multiple volumes is attached to one host). For creating a volume to be shared with multiple hosts, e.g. to support a cluster setup, you cannot use GVP or BSS 3.0 APIs. Only BSS 2.0 APIs support clustering. Refer to [Share a volume with multiple hosts](#), to create your volume for clustering.

Payload examples

Note: The values assigned to the payloads in the tabs below are examples only, you will need to specify your own values in accordance with your application's requirements.

GVP

BSS 3.0

BSS 2.0

Prerequisites: [Onboarded to BSS 3.0 service.](#)

BSS 3.0 Create volume

- **AD Team consumer:** The calling user must have the Sophia INFRASTRUCTURE_MANAGER role assignment, scoped to the SEAL application ID and environment that the volume is being provisioned in. See [Sophia UFF](#) for more information.
- **Platform/service consumer:** The calling principal must have a service defined AD Group role assignment, e.g. BLOCKSTORAGE-PLATFORM-CONSUMER-XXX-PROD. See [Using IDA Authorization Roles](#) for more information.

URL: URL: POST /api/v3/volumes/

Create volume request payload

```
{
  "metadata": {
    "resourceScope": {
      "seal:applicationId": 101712,
      "controlEnvironment": "DEV",
```

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```
"seal:deploymentId": 101713
},
"labels": {
  "bss:volumeSetId":
"unique_setid_of_your_choice", // Alphanumeric &
max 16 char
  "additionalProp2": "string2",
  "additionalProp3": "string3"
}
},
"spec": {
  "location": {
    "dataCenter": "NA-NE-S01",
    "module": "MODULE1",
    "networkFabric": "FABRIC3",
    "networkZone": "ESF"
  },
  "multiAttach": false,
  "size": "1Gi",
  "storage_system": "display_name" # optional
field
}
}
```

Required inputs:

- **spec location:**
 - **dataCenter:** (string) The data center where the volume will reside, e.g. NA-NE-S01. See [supported block storage data centers](#).
 - **module:** (string): The physical or logical IT module that represents a boundary within a Data Center. See [block supported Network Zones](#). Examples: MODULE1, MODULE3, MODULE4.
 - **networkFabric:** (string) A Network Fabric is a network boundary within a given Module. It should be noted that a Module may contain multiple network fabrics. To attach your Volume with a VSI it is important ensure the Network Fabric is the same. See [block storage supported](#)

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[network fabrics](#). Examples: FABRIC1, FABRIC2, FABRIC3.

- [networkZone](#): (string) The Network Zone the Volume is provisioned in. Examples: ESF, SESF.
- [size](#): (string) The size in bytes of the Volume. Min: 1Gi, Max: 8192Gi, should be in multiples of 8, (Example: 8, 16, 24, 32). You must currently specify the suffix "Gi" to represent this as the number of binary gigabytes (i.e. 2^{30}) of storage being requested. Example: 50Gi.

Optional inputs:

- [seal:applicationID](#): Seal ID of the application
- [controlEnvironment](#): DEV, TEST, or PROD
- [seal:deploymentID](#): Deployment ID to used in Verum data model
- [labels](#): (map of string) Metadata labels assigned to the volume
- [multiAttach](#) (bool): If this volume is part of a group of volumes attached to the same host.
- [storage_system](#):

The creation of a volume is an asynchronous process which takes time. For that reason, a successful submission to create a Volume will return a [202](#) response. The client should then use the [Retry-After](#) and [Location](#) headers from the response by initially waiting for the number of seconds specified in the [Retry-After](#) header before making a [GET](#) request to the URI specified in the [Location](#) header.

This [/operations/{operationId}](#) URI from the [Location](#) header contains details of the operation which was submitted to create the Volume. Performing a GET on it should return a [202](#) if the operation is still running. A [202](#) response will also contain a [Retry-After](#) header containing the number of seconds the client should wait before polling the endpoint again.

Once the operation completes successfully, the GET request will return a [303 \(See Other\)](#) response with a [Location](#)

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header that the client can follow to retrieve details of the created Volume.

Create volume request accepted - 202

```
{
  "location":
    "http://localhost:8080/api/v3/task/3b9aadd2-4544-4d90-a4a7-13b36a034eef/",
  "operation_id": "3b9aadd2-4544-4d90-a4a7-13b36a034eef",
  "resource_id": "",
  "apiVersion": "3.0.0-alpha.202205130839",
  "metadata": {
    "resourceId": "21400c8d-49e8-446e-a847-eff4ef65a68a",
    "resourceType": "VOLUME",
    "createdBy": "pytest",
    "createdTimestamp": "2022-09-28T10:30:45Z",
    "lastModifiedBy": "pytest",
    "lastModifiedTimestamp": "2022-09-28T10:32:23Z",
    "resourceScope": {
      "seal:applicationId": 101712,
      "seal:deploymentId": 101713,
      "controlEnvironment": "DEV"
    },
    "labels": {
      "additionalProp1": "string1",
      "additionalProp2": "string2",
      "additionalProp3": "string3",
      "name": "updated-volume"
    },
    "annotations": {}
  },
  "spec": {
    "location": {
      "dataCenter": "NA-NE-C01",
      "module": "MODULE1",
      "networkFabric": "FABRIC3",
```

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    "networkZone": "ESF"
  },
  "multiAttach": false,
  "size": "1Gi"
},
"status": {
  "lastOperationId": "3b9aadd2-4544-4d90-
a4a7-13b36a034eef",
  "provisioningState": "PROVISIONED",
  "operationalState": "READY",
  "serialNumber":
"6f47acc10000000636834710000f927",
  "iqn": "iqn.2010-
01.com.solidfire:ch4q.i-wmxshdsf.63783",
  "qos": {
    "floorIOPS": 3000,
    "ceilingIOPS": 100000,
    "burstIOPS": 200000
  }
},
"_links": {
  "self": {
    "href":
"http://127.0.0.1:8000/api/v3/volumes/21400c8d-
49e8-446e-a847-eff4ef65a68a"
  },
  "get last operation": {
    "href":
"http://127.0.0.1:8000/api/v3/operations/3b9aadd
2-4544-4d90-a4a7-13b36a034eef"
  },
  "list attachments": {
    "href":
"http://127.0.0.1:8000/api/v3/volumes/21400c8d-
49e8-446e-a847-eff4ef65a68a/attachments"
  }
}
}
```

Read only attribute reference:

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- The `location` header in the response can be used to GET/operations/{operationId}
- `lastOperationId`: Details of the last known operation to be performed against the Volume. Note that this operation may have completed, or it may still be in flight. Example: 00000000-1111-2222-3333-444444444444
- `operationalState`: Once a Volume has been provisioned, it will then typically be used to write files extended period of time. This is the "operational" period of the Volume's lifecycle. Examples: READY, ACTIVE, UPDATING, UNKNOWN
- `provisioningState`: The provisioning states cover the provisioning process of the Volume to bring it into a working state and then the process to later destroy that Volume. Examples: PROVISIONING, PROVISIONED, DESTROYING, FATAL, DESTROYED
- `iqn`: The Volume's iSCSI Qualified Name (IQN). Example: iqn.2010-01.com.solidfire:w1xo.gie2piaas142134-1.495
- `qos`: The Quality of Service (QoS) values assigned to the Volume. Refer to [block storage specifications](#) for information on QoS.
- `serialNumber`: The globally unique SCSI device identifier for the associated volume in NAA IEEE Registered Extended format. Example: 6f47acc1000000007731786f000001ef
- `QoS`: Floor, ceiling, and bursting IOPs are automatically assigned based on your `size` input.

BSS 3.0 Attach the volume to a host

Note: With BSS 3.0 APIs, mounting happens automatically when attaching the volume to the host.

- **URL:** `POST /v3/volumes//attachments/`

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- **Example:** POST /volumes/a456e263-b9f6-4b6c-af00-9666bd538094/attachments/
- **Entitlements:** This operation requires that the calling user has the Sophia INFRASTRUCTURE_MANAGER role assignment, scoped to the SEAL application ID and environment that the Volume is being provisioned for. See [Sophia UEF](#).
- **Platform:** This operation requires that the calling principal has a service defined AD Group role assignment. e.g. BLOCKSTORAGE-PLATFORM-CONSUMER-XXX-PROD. See [Using IDA Authorization Roles](#).

Payload

```
{"spec": {"deviceName": "/dev/xvdy", "fqdn": "iaasn00344939.svr.us.lorumipsum.net"}}
```

Required Inputs

- **devicename**: (string) The device name assigned to the attached volume on the compute instance. Example: "/dev/xdbf"
- **fqdn**: (string) The fully qualified device name of the compute instance. Example: "iaasn00000000.svr.us.lorumipsum.net."

Response

```
{  "apiVersion": "3.0.0-alpha.202205130839",  "metadata": {    "resourceId": "8d93f07a-77ca-408d-9cb9-dbd74d65711c",    "resourceType": "VOLUME_ATTACHMENT",    "createdBy": "",    "createdTimestamp": "2022-09-07T18:27:27Z",    "lastModifiedBy": "",    "lastModifiedTimestamp": "2022-09-07T18:27:27Z"  },  "spec": {    "fqdn": "iaasn00344939.svr.us.lorumipsum.net",
```

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```
"deviceName": "/dev/xvdy"
},
"status": {
  "lastOperationId": "60299181-8e24-427f-a3eb-271973961491",
  "provisioningState": "PROVISIONING",
  "operationalState": "PENDING",
  "volumeId": "a456e263-b9f6-4b6c-af00-9666bd538094"
},
"_links": {
  "self": {
    "href": "https://sds-bss-api.apps.dev.na-3y.gap.lorumipsum.net/api/v3/volumes/a456e263-b9f6-4b6c-af00-9666bd538094/attachments/"
  },
  "get volume": {
    "href": "https://sds-bss-api.apps.dev.na-3y.gap.lorumipsum.net/api/v3/volumes/a456e263-b9f6-4b6c-af00-9666bd538094"
  },
  "get last operation": {
    "href": "https://sds-bss-api.apps.dev.na-3y.gap.lorumipsum.net/api/v3/operations/60299181-8e24-427f-a3eb-271973961491"
  }
}
}
```

Note: With BSS 3.0 APIs, mounting happens automatically when attaching the volume to the host.

BSS 3.0 Attach multiple volumes to one host

- **URL:** POST /api/v3/multi-attachments
- **Volume limit:** 16
- **Device format:** xvdk-xvdz[a-z]

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Payload

```
{
  "spec": {
    "fqdn":
      "iaasn00344942.svr.us.lorumipsum.net",
    "volumes": [
      {
        "volumeId": "4a610bfe-cbac-4122-8d62-3661af470970",
        "deviceName": "/dev/xvdo"
      },
      {
        "volumeId": "96310ac5-2311-4441-bcb1-05cfa219a78f",
        "deviceName": "/dev/xvdza"
      }
    ]
  }
}
```

Required inputs

- **devicename**: (string) The device name assigned to the attached volume on the compute instance. Example: "/dev/xdbf"
- **fqdn**: (string) The fully qualified device name of the compute instance. Example: "iaasn00000000.svr.us.lorumipsum.net."

Payload response

202 for success and for failures, errorStack in eagle eye format

```
{
  "status": {
    "lastOperationId": "28f91f97-947b-4ed2-8348-432d577deb98"
  },
  "_links": {
    "self": {
```

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Support

```
        "href":
"http://127.0.0.1:5000/api/v3/multi-
attachments/"
    },
    "get last operation": {
        "href":
"http://127.0.0.1:5000/api/v3/operations/28f91f9
7-947b-4ed2-8348-432d577deb98"
    }
}
}
```

Response 200: operations output

Note: In the output response below, externalOperationalDetails are dynamic, you will get the final correct ID after completion of task.

```
{
  "apiVersion": "3.0.0-alpha.202205130839",
  "metadata": {
    "resourceId": "28f91f97-947b-4ed2-8348-
432d577deb98",
    "resourceType": "OPERATION",
    "createdBy": "pytest",
    "createdTimestamp": "2023-03-
13T05:54:19.370000",
    "lastModifiedBy": "pytest",
    "lastModifiedTimestamp": "2023-03-
13T06:02:41.729000"
  },
  "status": {
    "volumes": [
      {
        "volumeId": "4a610bfe-cbac-4122-
8d62-3661af470970",
        "deviceName": "xvdo"
      },
      {
        "volumeId": "96310ac5-2311-4441-
bcb1-05cfa219a78f",
```

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```
        "deviceName": "xvdza"
      }
    ],
    "operationType": "MULTI_ATTACH_VOLUME",
    "operationState": "SUCCEEDED",
    "progressInformation": "Multi Attach
Completed",
    "completedTimestamp": "2023-03-
13T06:02:40.029000",
    "externalOperationDetails": {
      "list_external_operations": [
        {
          "volumeId": "4a610bfe-cbac-
4122-8d62-3661af470970",
          "executionId":
"F6B515D7F747ACB1E05344F618A9FE2D",
          "attachmentId": "52de1733-
5c4c-442b-af3e-11608304f746"
        },
        {
          "volumeId": "96310ac5-2311-
4441-bcb1-05cfa219a78f",
          "executionId":
"F6BDCAEDA7D7CCCCE05344F618A9D09A",
          "attachmentId": "6afe5a38-
3b21-4815-81d8-113682b81488"
        }
      ]
    }
  },
  "_links": {
    "self": {
      "href":
"http://127.0.0.1:5000/api/v3/operations/28f91f9
7-947b-4ed2-8348-432d577deb98"
    }
  }
}
```

BSS 3.0 Set ID

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If you'll be attaching multiple volumes to the same host, it's important to attach a SetId to those volumes. A SetId is a way to uniquely assign a storage_system id to the group of volumes attached to that host so that they will all be assigned the same storage_system. If volumes attached to the same host are created in different storage systems in the same datacenter, you may run into issues.

BSS 3.0 POST SetId payload request

```
{
  "metadata": {
    "resourceScope": {
      "seal:applicationId": 101712,
      "controlEnvironment": "DEV",
      "seal:deploymentId": 101713
    },
    "labels": {
      "bss:volumeSetId":
"unique_setid_of_your_choice", // Alphanumeric &
max 16 char
      "additionalProp2": "string2",
      "additionalProp3": "string3"
    }
  },
  "spec": {
    "location": {
      "dataCenter": "NA-NE-S01",
      "module": "MODULE1",
      "networkFabric": "FABRIC3",
      "networkZone": "ESF"
    },
    "multiAttach": false,
    "size": "1Gi",
    "storage_system": "display_name" # optional
  }
}
```

Post SetId response

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```
{
  "location":
    "http://localhost:8080/api/v3/task/3b9aadd2-4544-4d90-a4a7-13b36a034eef/",
  "operation_id": "3b9aadd2-4544-4d90-a4a7-13b36a034eef",
  "resource_id": "",
  "apiVersion": "3.0.0-alpha.202205130839",
  "metadata": {
    "resourceId": "21400c8d-49e8-446e-a847-eff4ef65a68a",
    "resourceType": "VOLUME",
    "createdBy": "pytest",
    "createdTimestamp": "2022-09-28T10:30:45Z",
    "lastModifiedBy": "pytest",
    "lastModifiedTimestamp": "2022-09-28T10:32:23Z",
    "resourceScope": {
      "seal:applicationId": 101712,
      "seal:deploymentId": 101713,
      "controlEnvironment": "DEV"
    },
    "labels": {
      "additionalProp1": "string1",
      "additionalProp2": "string2",
      "additionalProp3": "string3",
      "name": "updated-volume"
    },
    "annotations": {}
  },
  "spec": {
    "location": {
      "dataCenter": "NA-NE-C01",
      "module": "MODULE1",
      "networkFabric": "FABRIC3",
      "networkZone": "ESF"
    },
    "multiAttach": false,
    "size": "1Gi"
  },
}
```

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```
"status": {
  "lastOperationId": "3b9aadd2-4544-4d90-a4a7-13b36a034eef",
  "provisioningState": "PROVISIONED",
  "operationalState": "READY",
  "serialNumber":
"6f47acc100000000636834710000f927",
  "iqn": "iqn.2010-01.com.solidfire:ch4q.i-wmxshdsf.63783",
  "qos": {
    "floorIOPS": 3000,
    "ceilingIOPS": 100000,
    "burstIOPS": 200000
  }
},
"_links": {
  "self": {
    "href":
"http://127.0.0.1:8000/api/v3/volumes/21400c8d-49e8-446e-a847-eff4ef65a68a"
  },
  "get last operation": {
    "href":
"http://127.0.0.1:8000/api/v3/operations/3b9aadd2-4544-4d90-a4a7-13b36a034eef"
  },
  "list attachments": {
    "href":
"http://127.0.0.1:8000/api/v3/volumes/21400c8d-49e8-446e-a847-eff4ef65a68a/attachments"
  }
}
}
```

Note: With BSS 3.0 APIs, mounting happens automatically when attaching the volume to the host.