Storage

ONTAP REST API reference

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Storage

Storage overview

Overview

The ONTAP storage APIs can be used to manage physical and logical storage. This includes management of aggregates, volumes, LUNs, qtrees, snapshots, quotas, and storage effeciency.

Retrieve or create a collection of storage aggregates

Storage aggregates endpoint overview

Retrieving storage aggregate information

The Storage Aggregate GET API retrieves all data aggregates in the cluster. System owned root aggregates are not included in the output. This API also supports specific queries, in addition to queries on aggregate body properties, which affect the output of the API. The parameters for these queries are "recommend" and "show_spares". Using the "recommend" query returns the list of aggregates that are recommended for creation in the cluster. The "show_spares" query returns a response outside of the records body, which includes the groups of usable spares in the cluster. The usable count for each class of spares does not include reserved spare capacity recommended by ONTAP best practices.

The collection GET returns the aggregate identifiers, UUID and name, and the node on which the aggregate resides. The instance GET, by default, returns all of the properties defined in the aggregates object, except advanced properties. The properties "space.footprint", "space.block_storage.inactive_user_data", and "space.block_storage.inactive_user_data_percent" are considered advanced properties and only returned when requested using the "fields" query parameter. Performance "metric" and "statistics" for aggregates are also only returned when requested. The "statistics" property accounts for the cumulative raw values collected by ONTAP for an aggregate, while the "metric" property displays the incremental average for latency and incremental changes in IOPs and throughput over the last 15 seconds. Any external application can use the raw statistics to derive its own incremental performance metrics. The collection GET does not support queries in conjunction with the "order_by" parameter.

Creating storage aggregates

When the POST command is issued with no properties, the system evaluates the cluster attached storage, determines the optimal aggregate layout and configures the aggregates. This layout is completely controlled by the system. To view the recommended optimal layout rather than creating it, use the GET endpoint, setting the "recommend" query to 'true'. This response will also include any warnings related to any inefficiencies in the storage configuration. Recommended aggregate creation is not supported on ONTAP Cloud and MetroCluster with Fibre Channel (FC). Alternatively, POST can be used with specific properties to create an aggregate as requested. At a minimum, the aggregate name, disk count, and the node where it should reside are required if any properties are provided.

When using POST with input properties, three properties are required. These are:

- name
- node.name or node.uuid
- block_storage.primary.disk_count

Remaining properties are optional

The following properties can be specified in POST:

- name - Name of the aggregate.
- node.name and node.uuid - Node on which the aggregate will be created.
- block_storage.primary.disk_count - Number of disks to be used to create the aggregate.
- block_storage.mirror.enabled - Specifies whether or not the aggregate should be created using SyncMirror.
- block_storage.primary.checksum_style - Checksum style of the disks to be use for the aggregate.
- block_storage.primary.disk_class - Class of disks to be use to for the aggregate.
- block_storage.primary.raid_size - Desired RAID size of the aggregate.
- block_storage.primary.raid_type - Desired RAID type of the aggregate.
- snaplock_type - SnapLock type to use on the aggregate.
- data_encryption.software_encryption_enabled - Enable or disable NAE (NetApp Aggregate Encryption) on the aggregate.

Examples

Retrieving a list of aggregates from the cluster

The following example shows the response with a list of data aggregates in the cluster:

```
# The API:
/api/storage/aggregates

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates" -H "accept:
application/json"

# The response:
{
"records": [
  {
    "uuid": "19425837-f2fa-4a9f-8f01-712f626c983c",
    "name": "test1",
    "node": {
      "uuid": "caf95bec-f801-11e8-8af9-005056bbe5c1",
      "name": "node-1",
    },
  },
  {
    "uuid": "4a7e4139-ca7a-420b-9a11-3f040d2189fd",
    "name": "test4",
    "node": {
      "uuid": "4046dda8-f802-11e8-8f6d-005056bb2030",
      "name": "node-2",
    },
  }
],
"num_records": 2,
}
```

Retrieving a list of aggregates recommended for creation from the cluster

The following example shows the response with a list of recommended data aggregates in the cluster.

> Each aggregate UUID provided in this response is not guaranteed to be the same UUID for the aggregate if it is created.

```
# The API:
/api/storage/aggregates

# The call:
curl -X GET "https://<mgmt-
ip>/api/storage/aggregates?recommend=true&fields=*" -H "accept:
application/json"
```

```
# The response:
{
"records": [
  {
    "uuid": "795bf7c2-fa4b-11e8-ba65-005056bbe5c1",
    "name": "node_2_SSD_1",
    "node": {
      "uuid": "4046dda8-f802-11e8-8f6d-005056bb2030",
      "name": "node-2",
    },
    "space": {
      "block_storage": {
        "size": 1116180480
      }
    },
    "block_storage": {
      "primary": {
        "disk_count": 24,
        "disk_class": "solid_state",
        "raid_type": "raid_dp",
        "disk_type": "ssd",
        "raid_size": 24,
        "simulated_raid_groups": [
           {
             "name": "rg0",
             "raid_type": "raid_dp",
             "parity_disk_count": 2,
             "data_disk_count": 10,
             "usable_size": 12309487,
             "is_partition": true
           },
           {
             "name": "rg1",
             "raid_type": "raid_dp",
             "parity_disk_count": 2,
             "data_disk_count": 9,
             "usable_size": 12309487,
             "is_partition": false
           }
        ]
      },
      "hybrid_cache": {
        "enabled": false
      },
      "mirror": {
        "enabled": true
```

```
      }
    },
  },
  {
    "uuid": "795c0a15-fa4b-11e8-ba65-005056bbe5c1",
    "name": "node_1_SSD_1",
    "node": {
      "uuid": "caf95bec-f801-11e8-8af9-005056bbe5c1",
      "name": "node-1",
    },
    "space": {
      "block_storage": {
        "size": 352477184
      }
    },
    "block_storage": {
      "primary": {
        "disk_count": 10,
        "disk_class": "solid_state",
        "raid_type": "raid_dp",
        "disk_type": "ssd",
        "raid_size": 24,
        "simulated_raid_groups": [
           {
             "name": "rg0",
             "raid_type": "raid_dp",
             "parity_disk_count": 2,
             "data_disk_count": 10,
             "usable_size": 12309487,
             "is_partition": true
           },
           {
             "name": "rg1",
             "raid_type": "raid_dp",
             "parity_disk_count": 2,
             "data_disk_count": 9,
             "usable_size": 12309487,
             "is_partition": false
           }
         ]
      },
      "hybrid_cache": {
        "enabled": false
      },
      "mirror": {
        "enabled": true
```

```
      }
    },
  }
],
"recommendation_spares" [
  {
    "node": {
      "uuid": "795bf7c2-fa4b-11e8-ba65-005056bbe5cl",
      "name": "node-2",
      "_links": {
        "self" {
          "href": "/api/cluster/nodes/795bf7c2-fa4b-11e8-ba65-
005056bbe5c1"
        }
      }
    },
    "disk_class": "solid-state",
    "size": "2856845312",
    "is_partition": true,
    "disk_type": "ssd",
    "syncmirror_pool": "pool10",
    "usable": 1
  }
],
"num_records": 2,
"warnings": [
  {
    "name": "node_1_SSD_1",
    "warning": {
      "code": 19726347,
      "message": "Unable to use all attached capacity on node \"node_1\".
3 local/remote pool disks not usable for mirroring.",
      "arguments": [
        "node_1",
        "3"
      ]
    },
    "action": {
      "code": 19726348,
      "message": "Contact technical support."
    }
  },
  {
    "name": "node_2_SSD_1",
    "warning": {
      "code": 19726347,
```

```
      "message": "Unable to use all attached capacity on node \"node_2\".
3 local/remote pool disks not usable for mirroring.",
      "arguments": [
        "node_2",
        "3"
      ]
    },
    "action": {
      "code": 19726348,
      "message": "Contact technical support."
    }
  }
],
"_links": {
  "self": {
    "href": "/api/storage/aggregates?recommend=true&fields=*"
  }
}
}
```

Retrieve a collection of aggregates for an entire cluster

GET `/storage/aggregates`

Introduced In: 9.6

Retrieves the collection of aggregates for the entire cluster.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `metric.*`
- `space.block_storage.inactive_user_data`
- `space.block_storage.inactive_user_data_percent`
- `space.footprint`
- `statistics.*`

Related ONTAP commands

- `storage aggregate show`

Parameters

Name	Type	In	Required	Description
recommend	boolean	query	False	If set to 'true', it queries the system for the recommended optimal layout for creating new aggregates. The default setting is 'false'.
show_spares	boolean	query	False	If set to 'true', the spares object is returned instead of records to show the spare groups in the cluster. The default setting is 'false'.
metric.iops.total	integer	query	False	Filter by metric.iops.total • Introduced in: 9.7
metric.iops.write	integer	query	False	Filter by metric.iops.write • Introduced in: 9.7
metric.iops.other	integer	query	False	Filter by metric.iops.other • Introduced in: 9.7
metric.iops.read	integer	query	False	Filter by metric.iops.read • Introduced in: 9.7
metric.status	string	query	False	Filter by metric.status • Introduced in: 9.7

Name	Type	In	Required	Description
metric.throughput.total	integer	query	False	Filter by metric.throughput.total • Introduced in: 9.7
metric.throughput.write	integer	query	False	Filter by metric.throughput.write • Introduced in: 9.7
metric.throughput.other	integer	query	False	Filter by metric.throughput.other • Introduced in: 9.7
metric.throughput.read	integer	query	False	Filter by metric.throughput.read • Introduced in: 9.7
metric.duration	string	query	False	Filter by metric.duration • Introduced in: 9.7
metric.latency.total	integer	query	False	Filter by metric.latency.total • Introduced in: 9.7
metric.latency.write	integer	query	False	Filter by metric.latency.write • Introduced in: 9.7

Name	Type	In	Required	Description
metric.latency.other	integer	query	False	Filter by metric.latency.other • Introduced in: 9.7
metric.latency.read	integer	query	False	Filter by metric.latency.read • Introduced in: 9.7
metric.timestamp	string	query	False	Filter by metric.timestamp • Introduced in: 9.7
statistics.throughput_raw.total	integer	query	False	Filter by statistics.throughput_raw.total • Introduced in: 9.7
statistics.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write • Introduced in: 9.7
statistics.throughput_raw.other	integer	query	False	Filter by statistics.throughput_raw.other • Introduced in: 9.7
statistics.throughput_raw.read	integer	query	False	Filter by statistics.throughput_raw.read • Introduced in: 9.7

Name	Type	In	Required	Description
statistics.timestamp	string	query	False	Filter by statistics.timestamp • Introduced in: 9.7
statistics.status	string	query	False	Filter by statistics.status • Introduced in: 9.7
statistics.iops_raw.total	integer	query	False	Filter by statistics.iops_raw.total • Introduced in: 9.7
statistics.iops_raw.write	integer	query	False	Filter by statistics.iops_raw.write • Introduced in: 9.7
statistics.iops_raw.other	integer	query	False	Filter by statistics.iops_raw.other • Introduced in: 9.7
statistics.iops_raw.read	integer	query	False	Filter by statistics.iops_raw.read • Introduced in: 9.7
statistics.latency_raw.total	integer	query	False	Filter by statistics.latency_raw.total • Introduced in: 9.7

Name	Type	In	Required	Description
statistics.latency_raw.write	integer	query	False	Filter by statistics.latency_raw.write • Introduced in: 9.7
statistics.latency_raw.other	integer	query	False	Filter by statistics.latency_raw.other • Introduced in: 9.7
statistics.latency_raw.read	integer	query	False	Filter by statistics.latency_raw.read • Introduced in: 9.7
inactive_data_reporting.enabled	boolean	query	False	Filter by inactive_data_reporting.enabled • Introduced in: 9.8
inactive_data_reporting.start_time	string	query	False	Filter by inactive_data_reporting.start_time • Introduced in: 9.8
recommendation_spares.size	integer	query	False	Filter by recommendation_spares.size • Introduced in: 9.10
recommendation_spares.disk_class	string	query	False	Filter by recommendation_spares.disk_class • Introduced in: 9.10

Name	Type	In	Required	Description
recommendation_spares.is_partition	boolean	query	False	Filter by recommendation_spares.is_partition • Introduced in: 9.10
recommendation_spares.checksum_style	string	query	False	Filter by recommendation_spares.checksum_style • Introduced in: 9.10
recommendation_spares.usable	integer	query	False	Filter by recommendation_spares.usable • Introduced in: 9.10
recommendation_spares.layout_requirements.aggregate_min_disks	integer	query	False	Filter by recommendation_spares.layout_requirements.aggregate_min_disks • Introduced in: 9.10
recommendation_spares.layout_requirements.raid_type	string	query	False	Filter by recommendation_spares.layout_requirements.raid_type • Introduced in: 9.10
recommendation_spares.layout_requirements.default	boolean	query	False	Filter by recommendation_spares.layout_requirements.default • Introduced in: 9.10

Name	Type	In	Required	Description
recommendation_spares.layout_requirements.raid_group.min	integer	query	False	Filter by recommendation_spares.layout_requirements.raid_group.min • Introduced in: 9.10
recommendation_spares.layout_requirements.raid_group.max	integer	query	False	Filter by recommendation_spares.layout_requirements.raid_group.max • Introduced in: 9.10
recommendation_spares.layout_requirements.raid_group.default	integer	query	False	Filter by recommendation_spares.layout_requirements.raid_group.default • Introduced in: 9.10
recommendation_spares.node.uuid	string	query	False	Filter by recommendation_spares.node.uuid • Introduced in: 9.10
recommendation_spares.node.name	string	query	False	Filter by recommendation_spares.node.name • Introduced in: 9.10
recommendation_spares.syncmirror_pool	string	query	False	Filter by recommendation_spares.syncmirror_pool • Introduced in: 9.10

Name	Type	In	Required	Description
recommendation_spares.disk_type	string	query	False	Filter by recommendation_spares.disk_type • Introduced in: 9.10
block_storage.hybrid_cache.used	integer	query	False	Filter by block_storage.hybrid_cache.used
block_storage.hybrid_cache.raid_type	string	query	False	Filter by block_storage.hybrid_cache.raid_type
block_storage.hybrid_cache.enabled	boolean	query	False	Filter by block_storage.hybrid_cache.enabled
block_storage.hybrid_cache.disk_count	integer	query	False	Filter by block_storage.hybrid_cache.disk_count
block_storage.hybrid_cache.size	integer	query	False	Filter by block_storage.hybrid_cache.size
block_storage.primary.raid_type	string	query	False	Filter by block_storage.primary.raid_type
block_storage.primary.disk_class	string	query	False	Filter by block_storage.primary.disk_class
block_storage.primary.simulated_raid_groups.data_disk_count	integer	query	False	Filter by block_storage.primary.simulated_raid_groups.data_disk_count • Introduced in: 9.10

Name	Type	In	Required	Description
block_storage.primary.simulated_raid_groups.usable_size	integer	query	False	Filter by block_storage.primary.simulated_raid_groups.usable_size • Introduced in: 9.10
block_storage.primary.simulated_raid_groups.name	string	query	False	Filter by block_storage.primary.simulated_raid_groups.name • Introduced in: 9.10
block_storage.primary.simulated_raid_groups.is_partition	boolean	query	False	Filter by block_storage.primary.simulated_raid_groups.is_partition • Introduced in: 9.10
block_storage.primary.simulated_raid_groups.raid_type	string	query	False	Filter by block_storage.primary.simulated_raid_groups.raid_type • Introduced in: 9.10
block_storage.primary.simulated_raid_groups.parity_disk_count	integer	query	False	Filter by block_storage.primary.simulated_raid_groups.parity_disk_count • Introduced in: 9.10
block_storage.primary.raid_size	integer	query	False	Filter by block_storage.primary.raid_size

Name	Type	In	Required	Description
block_storage.primary.disk_type	string	query	False	Filter by block_storage.primary.disk_type • Introduced in: 9.7
block_storage.primary.disk_count	integer	query	False	Filter by block_storage.primary.disk_count
block_storage.primary.checksum_style	string	query	False	Filter by block_storage.primary.checksum_style
block_storage.plexes.name	string	query	False	Filter by block_storage.plexes.name
block_storage.mirror.enabled	boolean	query	False	Filter by block_storage.mirror.enabled
block_storage.mirror.state	string	query	False	Filter by block_storage.mirror.state
name	string	query	False	Filter by name
home_node.uuid	string	query	False	Filter by home_node.uuid
home_node.name	string	query	False	Filter by home_node.name
uuid	string	query	False	Filter by uuid
node.uuid	string	query	False	Filter by node.uuid
node.name	string	query	False	Filter by node.name
snapshot.files_total	integer	query	False	Filter by snapshot.files_total • Introduced in: 9.10

Name	Type	In	Required	Description
snapshot.max_files_available	integer	query	False	Filter by snapshot.max_files_available • Introduced in: 9.10
snapshot.files_used	integer	query	False	Filter by snapshot.files_used • Introduced in: 9.10
snapshot.max_files_used	integer	query	False	Filter by snapshot.max_files_used • Introduced in: 9.10
snaplock_type	string	query	False	Filter by snaplock_type
space.efficiency_without_snapshots_flexclones.ratio	number	query	False	Filter by space.efficiency_without_snapshots_flexclones.ratio • Introduced in: 9.9
space.efficiency_without_snapshots_flexclones.savings	integer	query	False	Filter by space.efficiency_without_snapshots_flexclones.savings • Introduced in: 9.9
space.efficiency_without_snapshots_flexclones.logical_used	integer	query	False	Filter by space.efficiency_without_snapshots_flexclones.logical_used • Introduced in: 9.9
space.footprint	integer	query	False	Filter by space.footprint

Name	Type	In	Required	Description
space.snapshot.available	integer	query	False	Filter by space.snapshot.available • Introduced in: 9.10
space.snapshot.used	integer	query	False	Filter by space.snapshot.used • Introduced in: 9.10
space.snapshot.used_percent	integer	query	False	Filter by space.snapshot.used_percent • Introduced in: 9.10
space.snapshot.reserve_percent	integer	query	False	Filter by space.snapshot.reserve_percent • Introduced in: 9.10
space.snapshot.total	integer	query	False	Filter by space.snapshot.total • Introduced in: 9.10
space.efficiency_without_snapshots.ratio	number	query	False	Filter by space.efficiency_without_snapshots.ratio
space.efficiency_without_snapshots.savings	integer	query	False	Filter by space.efficiency_without_snapshots.savings
space.efficiency_without_snapshots.logical_used	integer	query	False	Filter by space.efficiency_without_snapshots.logical_used

Name	Type	In	Required	Description
space.cloud_storage.used	integer	query	False	Filter by space.cloud_storage.used
space.efficiency.ratio	number	query	False	Filter by space.efficiency.ratio
space.efficiency.savings	integer	query	False	Filter by space.efficiency.savings
space.efficiency.logical_used	integer	query	False	Filter by space.efficiency.logical_used
space.block_storage.data_compaction_space_saved	integer	query	False	Filter by space.block_storage.data_compaction_space_saved • Introduced in: 9.10
space.block_storage.full_threshold_percent	integer	query	False	Filter by space.block_storage.full_threshold_percent
space.block_storage.volume_deduplication_space_saved_percent	integer	query	False	Filter by space.block_storage.volume_deduplication_space_saved_percent • Introduced in: 9.10
space.block_storage.used	integer	query	False	Filter by space.block_storage.used

Name	Type	In	Required	Description
space.block_storage.data_compaction_space_saved_percent	integer	query	False	Filter by space.block_storage.data_compaction_space_saved_percent • Introduced in: 9.10
space.block_storage.used_including_snapshot_reserve	integer	query	False	Filter by space.block_storage.used_including_snapshot_reserve • Introduced in: 9.10
space.block_storage.aggregate_metadata_percent	integer	query	False	Filter by space.block_storage.aggregate_metadata_percent • Introduced in: 9.10
space.block_storage.physical_used	integer	query	False	Filter by space.block_storage.physical_used • Introduced in: 9.9
space.block_storage.inactive_user_data	integer	query	False	Filter by space.block_storage.inactive_user_data
space.block_storage.used_including_snapshot_reserve_percent	integer	query	False	Filter by space.block_storage.used_including_snapshot_reserve_percent • Introduced in: 9.10

Name	Type	In	Required	Description
space.block_storage.volume_deduplication_space_saved	integer	query	False	Filter by space.block_storage.volume_deduplication_space_saved • Introduced in: 9.10
space.block_storage.volume_deduplication_shared_count	integer	query	False	Filter by space.block_storage.volume_deduplication_shared_count • Introduced in: 9.10
space.block_storage.data_compacted_count	integer	query	False	Filter by space.block_storage.data_compacted_count • Introduced in: 9.10
space.block_storage.inactive_user_data_percent	integer	query	False	Filter by space.block_storage.inactive_user_data_percent • Introduced in: 9.10
space.block_storage.volume_footprints_percent	integer	query	False	Filter by space.block_storage.volume_footprints_percent • Introduced in: 9.10
space.block_storage.available	integer	query	False	Filter by space.block_storage.available
space.block_storage.size	integer	query	False	Filter by space.block_storage.size

Name	Type	In	Required	Description
space.block_storage.aggregate_metadata	integer	query	False	Filter by space.block_storage.aggregate_metadata • Introduced in: 9.10
space.block_storage.physical_used_percent	integer	query	False	Filter by space.block_storage.physical_used_percent • Introduced in: 9.10
create_time	string	query	False	Filter by create_time
dr_home_node.name	string	query	False	Filter by dr_home_node.name
dr_home_node.uuid	string	query	False	Filter by dr_home_node.uuid
data_encryption.drive_protection_enabled	boolean	query	False	Filter by data_encryption.drive_protection_enabled
data_encryption.software_encryption_enabled	boolean	query	False	Filter by data_encryption.software_encryption_enabled
state	string	query	False	Filter by state
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
error	error	
num_records	integer	Number of records
records	array[aggregate]	
spares	array[aggregate_spare]	

Name	Type	Description
warnings	array[aggregate_warning]	List of warnings and remediation advice for the aggregate recommendation.

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "block_storage": {
        "hybrid_cache": {
          "disk_count": 6,
          "raid_type": "string",
          "size": 1612709888,
          "used": 26501122
        },
        "mirror": {
          "enabled": "",
          "state": "string"
        },
        "plexes": [
          {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
```

```
        },
        "name": "plex0"
      }
    ],
    "primary": {
      "checksum_style": "string",
      "disk_class": "performance",
      "disk_count": 8,
      "disk_type": "string",
      "raid_size": 16,
      "raid_type": "string",
      "simulated_raid_groups": [
        {
          "name": "string",
          "raid_type": "string"
        }
      ]
    }
  },
  "cloud_storage": {
    "stores": [
      {
        "cloud_store": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "store1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "used": 0
      }
    ]
  },
  "create_time": "2018-01-01T12:00:00-04:00",
  "dr_home_node": {
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
```

```
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "inactive_data_reporting": {
      "start_time": "2019-12-12T12:00:00-04:00"
    },
    "metric": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "throughput": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "name": "node1_aggr_1",
    "node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "recommendation_spares": [
      {
        "checksum_style": "string",
        "disk_class": "solid_state",
        "disk_type": "string",
```

```
        "is_partition": 1,
        "layout_requirements": [
          {
            "aggregate_min_disks": 6,
            "raid_group": {
              "default": 16,
              "max": 28,
              "min": 5
            },
            "raid_type": "string"
          }
        ],
        "node": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "size": 10156769280,
        "syncmirror_pool": "string",
        "usable": 9
      }
    ],
    "snaplock_type": "string",
    "snapshot": {
      "files_total": 10,
      "files_used": 3,
      "max_files_available": 5,
      "max_files_used": 50
    },
    "space": {
      "block_storage": {
        "aggregate_metadata": 2655,
        "aggregate_metadata_percent": 8,
        "available": 10156560384,
        "data_compacted_count": 1990000,
        "data_compaction_space_saved": 1996000,
        "data_compaction_space_saved_percent": 27,
        "full_threshold_percent": 0,
        "inactive_user_data": 304448,
        "inactive_user_data_percent": 0,
        "physical_used": 2461696,
        "physical_used_percent": 50,
```

```
      "size": 10156769280,
      "used": 2088960,
      "used_including_snapshot_reserve": 674685,
      "used_including_snapshot_reserve_percent": 35,
      "volume_deduplication_shared_count": 1990000,
      "volume_deduplication_space_saved": 1996000,
      "volume_deduplication_space_saved_percent": 27,
      "volume_footprints_percent": 14
    },
    "cloud_storage": {
      "used": 402743264
    },
    "efficiency": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "efficiency_without_snapshots": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "efficiency_without_snapshots_flexclones": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "footprint": 608896,
    "snapshot": {
      "available": 2000,
      "reserve_percent": 20,
      "total": 5000,
      "used": 3000,
      "used_percent": 45
    }
  },
  "state": "string",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
      "total": 1000,
```

```
          "write": 100
        },
        "status": "ok",
        "throughput_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "uuid": "string"
    }
  ],
  "spares": [
    {
      "checksum_style": "string",
      "disk_class": "solid_state",
      "disk_type": "string",
      "is_partition": 1,
      "layout_requirements": [
        {
          "aggregate_min_disks": 6,
          "raid_group": {
            "default": 16,
            "max": 28,
            "min": 5
          },
          "raid_type": "string"
        }
      ],
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "size": 10156769280,
      "syncmirror_pool": "string",
      "usable": 9
    }
  ],
  "warnings": [
    {
```

```
      "action": {
        "arguments": [
          "string"
        ],
        "message": "string"
      },
      "name": "string",
      "warning": {
        "arguments": [
          "string"
        ],
        "message": "string"
      }
    }
  ]
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
787092	The target field cannot be specified for this operation.
918138	Internal error. Failed to get encryption operation status.
8586225	Encountered unexpected error in retrieving metrics and statistics for an aggregate.
19726341	Not enough eligible spare disks are available on the node.
19726344	No recommendation can be made for this cluster.
19726357	Aggregate recommendations are not supported on MetroCluster with Fibre Channel (FC).
19726358	Aggregate recommendations are not supported on ONTAP Cloud.
19726382	Another provisioning operation is in progress on this cluster. Wait a few minutes, and try the operation again.
19726386	Encountered an error when retrieving licensing information on this cluster.

Error Code	Description
19726387	No recommendation can be provided for this cluster within the license capacity.
19726401	Aggregate recommendations are not supported when the DR group is not in the "normal" state.
19726402	Internal error. Unable to determine the MetroCluster configuration state.
19726403	Aggregate recommendation is not supported when there are no healthy target connections to remote storage.
19726404	The recommended mirrored aggregate couldn’t use all the attached capacity in one of the SyncMirror pools. Make sure that the remote and local storage is symmetrically wired.
19726405	Not all local and remote disks attached to the node have been auto-partitioned.
19726406	Aggregate recommendations are not supported on this node because remote and local storage is not symmetrically wired.
19726540	The next tag is not supported for recommended aggregates. Retry the operation with a higher "return_timeout" value.
196608055	Aggregate recommendation is not supported on this node because it does not support NetApp Aggregate Encryption (NAE).
196608206	Internal error. Failed to get encryption operation status.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

_links

Name	Type	Description
self	href	

hybrid_cache

Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.

Name	Type	Description
disk_count	integer	Number of disks used in the cache tier of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
enabled	boolean	Specifies whether the aggregate uses HDDs with SSDs as a cache.
raid_type	string	RAID type for SSD cache of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
size	integer	Total usable space in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.
used	integer	Space used in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.

mirror

Name	Type	Description
enabled	boolean	Aggregate is SyncMirror protected
state	string	

plex_reference

Plex

Name	Type	Description
_links	_links	
name	string	

simulated_raid_groups

Name	Type	Description
data_disk_count	integer	Number of data disks in RAID group.
is_partition	boolean	Indicates whether the disk is partitioned (true) or whole (false).

Name	Type	Description
name	string	Name of the raid group.
parity_disk_count	integer	Number of parity disks in RAID group.
raid_type	string	RAID type of the aggregate.
usable_size	integer	Usable size of each disk, in bytes.

primary

Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

Name	Type	Description
checksum_style	string	The checksum style used by the aggregate.
disk_class	string	The class of disks being used by the aggregate.
disk_count	integer	Number of disks used in the aggregate. This includes parity disks, but excludes disks in the hybrid cache.
disk_type	string	The type of disk being used by the aggregate.
raid_size	integer	Option to specify the maximum number of disks that can be included in a RAID group.
raid_type	string	RAID type of the aggregate.
simulated_raid_groups	array[simulated_raid_groups]	

block_storage

Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.

Name	Type	Description
hybrid_cache	hybrid_cache	Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.
mirror	mirror	
plexes	array[plex_reference]	Plex reference for each plex in the aggregate.
primary	primary	Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

cloud_store

Cloud store

Name	Type	Description
_links	_links	
name	string	
uuid	string	

cloud_storage_tier

Name	Type	Description
cloud_store	cloud_store	Cloud store
used	integer	Capacity used in bytes in the cloud store by this aggregate. This is a cached value calculated every 5 minutes.

cloud_storage

Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.

Name	Type	Description
attach_eligible	boolean	Specifies whether the aggregate is eligible for a cloud store to be attached.

Name	Type	Description
stores	array[cloud_storage_tier]	Configuration information for each cloud storage portion of the aggregate.
tiering_fullness_threshold	integer	The percentage of space in the performance tier that must be used before data is tiered out to the cloud store. Only valid for PATCH operations.

data_encryption

Name	Type	Description
drive_protection_enabled	boolean	Specifies whether the aggregate uses self-encrypting drives with data protection enabled.
software_encryption_enabled	boolean	Specifies whether NetApp aggregate encryption is enabled. All data in the aggregate is encrypted.

dr_home_node

Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.

Name	Type	Description
name	string	
uuid	string	

home_node

Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

inactive_data_reporting

Name	Type	Description
enabled	boolean	Specifes whether or not inactive data reporting is enabled on the aggregate.
start_time	string	Timestamp at which inactive data reporting was enabled on the aggregate.

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.

Name	Type	Description
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

metric

The most recent sample of I/O metrics for the aggregate.

Name	Type	Description
_links	_links	
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.

Name	Type	Description
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

node

Node where the aggregate currently resides.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

raid_group

Name	Type	Description
default	integer	Default number of disks in a RAID group.

Name	Type	Description
max	integer	Maximum number of disks allowed in a RAID group.
min	integer	Minimum number of disks allowed in a RAID group.

layout_requirement

Name	Type	Description
aggregate_min_disks	integer	Minimum number of disks to create an aggregate.
default	boolean	Indicates if this RAID type is the default.
raid_group	raid_group	
raid_type	string	RAID type.

node

Node where the spares are assigned.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

aggregate_spare

Name	Type	Description
checksum_style	string	The checksum type that has been assigned to the spares.
disk_class	string	Disk class of spares.
disk_type	string	Type of disk.
is_partition	boolean	Indicates whether a disk is partitioned (true) or whole (false)
layout_requirements	array[layout_requirement]	Available RAID protections and their restrictions.

Name	Type	Description
node	node	Node where the spares are assigned.
size	integer	Usable size of each spare, in bytes.
syncmirror_pool	string	SyncMirror spare pool.
usable	integer	Total number of usable spares in the bucket. The usable count for each class of spares does not include reserved spare capacity recommended by ONTAP best practices. • example: 9 • readOnly: 1 • Introduced in: 9.6

snapshot

Name	Type	Description
files_total	integer	Total files allowed in Snapshot copies
files_used	integer	Total files created in Snapshot copies
max_files_available	integer	Maximum files available for Snapshot copies
max_files_used	integer	Files in use by Snapshot copies

block_storage

Name	Type	Description
aggregate_metadata	integer	Space used by different metafiles and internal operations inside the aggregate, in bytes.
aggregate_metadata_percent	integer	Aggregate metadata as a percentage.
available	integer	Space available in bytes.

Name	Type	Description
data_compacted_count	integer	Amount of compacted data in bytes.
data_compaction_space_saved	integer	Space saved in bytes by compacting the data.
data_compaction_space_saved_percent	integer	Percentage saved by compacting the data.
full_threshold_percent	integer	The aggregate used percentage at which 'monitor.volume.full' EMS is generated.
inactive_user_data	integer	The size that is physically used in the block storage and has a cold temperature, in bytes. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data or **.
inactive_user_data_percent	integer	The percentage of inactive user data in the block storage. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data_percent or **.

Name	Type	Description
physical_used	integer	Total physical used size of an aggregate in bytes.
physical_used_percent	integer	Physical used percentage.
size	integer	Total usable space in bytes, not including WAFL reserve and aggregate Snapshot copy reserve.
used	integer	Space used or reserved in bytes. Includes volume guarantees and aggregate metadata.
used_including_snapshot_reserve	integer	Total used including the Snapshot copy reserve, in bytes.
used_including_snapshot_reserve_percent	integer	Total used including the Snapshot reserve as a percentage.
volume_deduplication_shared_count	integer	Amount of shared bytes counted by storage efficiency.
volume_deduplication_space_saved	integer	Amount of space saved in bytes by storage efficiency.
volume_deduplication_space_saved_percent	integer	Percentage of space saved by storage efficiency.
volume_footprints_percent	integer	A summation of volume footprints inside the aggregate, as a percentage. A volume's footprint is the amount of space being used for the volume in the aggregate.

cloud_storage

Name	Type	Description
used	integer	Used space in bytes in the cloud store. Only applicable for aggregates with a cloud store tier.

efficiency

Storage efficiency.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots

Storage efficiency that does not include the savings provided by Snapshot copies.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots_flexclones

Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

snapshot

Name	Type	Description
available	integer	Available space for Snapshot copies in bytes
reserve_percent	integer	Percentage of space reserved for Snapshot copies

Name	Type	Description
total	integer	Total space for Snapshot copies in bytes
used	integer	Space used by Snapshot copies in bytes
used_percent	integer	Percentage of disk space used by Snapshot copies

space

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	efficiency	Storage efficiency.
efficiency_without_snapshots	efficiency_without_snapshots	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flexclones	efficiency_without_snapshots_flexclones	Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.
footprint	integer	A summation of volume footprints (including volume guarantees), in bytes. This includes all of the volume footprints in the block_storage tier and the cloud_storage tier. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either footprint or **.
snapshot	snapshot	

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

The real time I/O statistics for the aggregate.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

aggregate

Name	Type	Description
_links	_links	
block_storage	block_storage	Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.

Name	Type	Description
cloud_storage	cloud_storage	Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.
create_time	string	Timestamp of aggregate creation.
data_encryption	data_encryption	
dr_home_node	dr_home_node	Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.
home_node	home_node	Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.
inactive_data_reporting	inactive_data_reporting	
metric	metric	The most recent sample of I/O metrics for the aggregate.
name	string	Aggregate name.
node	node	Node where the aggregate currently resides.
recommendation_spares	array[aggregate_spare]	Information on the aggregate's remaining hot spare disks.
snaplock_type	string	SnapLock type.
snapshot	snapshot	
space	space	
state	string	Operational state of the aggregate.
statistics	statistics	The real time I/O statistics for the aggregate.
uuid	string	Aggregate UUID.

action

Name	Type	Description
arguments	array[string]	Arguments present in the specified action message.
code	integer	Corrective action code of the specified action.
message	string	Specifies the corrective action to be taken to resolve the issue.

warning

Name	Type	Description
arguments	array[string]	Arguments present in the warning message encountered.
code	integer	Warning code of the warning encountered.
message	string	Details of the warning encountered by the aggregate simulate query.

aggregate_warning

Name	Type	Description
action	action	
name	string	Name of the entity that returns the warning.
warning	warning	

Create a collection of aggregates for an entire cluster

POST `/storage/aggregates`

Introduced In: 9.6

Automatically creates aggregates based on an optimal layout recommended by the system. Alternatively, properties can be provided to create an aggregate according to the requested specification. This request starts a job and returns a link to that job. POST operations will be blocked while one or more nodes in the cluster are simulating or implementing automatic aggregate creation.

Required properties

Properties are not required for this API. The following properties are only required if you want to specify properties for aggregate creation:

- `name` - Name of the aggregate.
- `node.name` or `node.uuid` - Node on which the aggregate will be created.
- `block_storage.primary.disk_count` - Number of disks to be used to create the aggregate.

Default values

If not specified in POST, the following default values are assigned. The remaining unspecified properties will receive system dependent default values.

- `block_storage.mirror.enabled` - *false*
- `snaplock_type` - *non_snaplock*

Related ONTAP commands

- `storage aggregate auto-provision`
- `storage aggregate create`

Example:

```
POST /api/storage/aggregates {"node": {"name": "node1"}, "name": "test",
"block_storage": {"primary": {"disk_count": "10"}}}
```

Parameters

Name	Type	In	Required	Description
disk_size	integer	query	False	If set, POST only selects disks of the specified size.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	

Name	Type	Description
block_storage	block_storage	Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.
cloud_storage	cloud_storage	Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.
create_time	string	Timestamp of aggregate creation.
data_encryption	data_encryption	
dr_home_node	dr_home_node	Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.
home_node	home_node	Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.
inactive_data_reporting	inactive_data_reporting	
metric	metric	The most recent sample of I/O metrics for the aggregate.
name	string	Aggregate name.
node	node	Node where the aggregate currently resides.
recommendation_spares	array[aggregate_spare]	Information on the aggregate's remaining hot spare disks.
snaplock_type	string	SnapLock type.
snapshot	snapshot	
space	space	
state	string	Operational state of the aggregate.
statistics	statistics	The real time I/O statistics for the aggregate.

Name	Type	Description
uuid	string	Aggregate UUID.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "block_storage": {
    "hybrid_cache": {
      "disk_count": 6,
      "raid_type": "string",
      "size": 1612709888,
      "used": 26501122
    },
    "mirror": {
      "enabled": "",
      "state": "string"
    },
    "plexes": [
      {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "plex0"
      }
    ],
    "primary": {
      "checksum_style": "string",
      "disk_class": "performance",
      "disk_count": 8,
      "disk_type": "string",
      "raid_size": 16,
      "raid_type": "string",
      "simulated_raid_groups": [
        {
          "name": "string",
          "raid_type": "string"
        }
      ]
    }
  },
  "cloud_storage": {
    "stores": [
```

```
      {
        "cloud_store": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "store1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "used": 0
      }
    ]
  },
  "create_time": "2018-01-01T12:00:00-04:00",
  "dr_home_node": {
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "inactive_data_reporting": {
    "start_time": "2019-12-12T12:00:00-04:00"
  },
  "metric": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "duration": "PT15S",
    "iops": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency": {
      "read": 200,
      "total": 1000,
```

```
      "write": 100
    },
    "status": "ok",
    "throughput": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "name": "node1_aggr_1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "recommendation_spares": [
    {
      "checksum_style": "string",
      "disk_class": "solid_state",
      "disk_type": "string",
      "is_partition": 1,
      "layout_requirements": [
        {
          "aggregate_min_disks": 6,
          "raid_group": {
            "default": 16,
            "max": 28,
            "min": 5
          },
          "raid_type": "string"
        }
      ],
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
```

```
      "size": 10156769280,
      "syncmirror_pool": "string",
      "usable": 9
    }
  ],
  "snaplock_type": "string",
  "snapshot": {
    "files_total": 10,
    "files_used": 3,
    "max_files_available": 5,
    "max_files_used": 50
  },
  "space": {
    "block_storage": {
      "aggregate_metadata": 2655,
      "aggregate_metadata_percent": 8,
      "available": 10156560384,
      "data_compacted_count": 1990000,
      "data_compaction_space_saved": 1996000,
      "data_compaction_space_saved_percent": 27,
      "full_threshold_percent": 0,
      "inactive_user_data": 304448,
      "inactive_user_data_percent": 0,
      "physical_used": 2461696,
      "physical_used_percent": 50,
      "size": 10156769280,
      "used": 2088960,
      "used_including_snapshot_reserve": 674685,
      "used_including_snapshot_reserve_percent": 35,
      "volume_deduplication_shared_count": 1990000,
      "volume_deduplication_space_saved": 1996000,
      "volume_deduplication_space_saved_percent": 27,
      "volume_footprints_percent": 14
    },
    "cloud_storage": {
      "used": 402743264
    },
    "efficiency": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "efficiency_without_snapshots": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
```

```
    },
    "efficiency_without_snapshots_flexclones": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "footprint": 608896,
    "snapshot": {
      "available": 2000,
      "reserve_percent": 20,
      "total": 5000,
      "used": 3000,
      "used_percent": 45
    }
  },
  "state": "string",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "uuid": "string"
}
```


Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
460770	The aggregate create job failed to create the aggregate.
786438	Failed to create an aggregate on the node.
786439	An aggregate already uses the specified name.
786446	The node is not in cluster.
786468	VLDB is offline.
786819	The value is invalid for the specified option at the current privilege level.
786902	RAID-TEC aggregate is not fully supported.
786911	Not every node in the cluster has the Data ONTAP version required for the feature.
787069	Node is setup for MetroCluster over IP configuration; creating an unmirrored aggregate is not supported in this configuration.
787092	The target field cannot be specified for this operation.
918138	Internal error. Failed to get encryption operation status.

Error Code	Description
1114292	The required SnapLock license is not installed.
2425736	No matching node found for the target UUID.
19726341	Not enough eligible spare disks are available on the node.
19726344	No recommendation can be made for this cluster.
19726357	Automatic aggregate creation is not supported on MetroCluster with Fibre Channel (FC).
19726358	Automatic aggregate creation is not supported on ONTAP Cloud.
19726373	Recommendation specified for creating aggregates is not current.
19726378	Failed to create recommended aggregates on one or more nodes.
19726382	Another provisioning operation is in progress on this cluster. Wait a few minutes, and try the operation again.
19726386	Encountered an error when retrieving licensing information on this cluster.
19726387	No recommendation can be provided for this cluster within the license capacity.
19726401	Aggregate recommendations are not supported when the DR group is not in the "normal" state.
19726402	Internal error. Unable to determine the MetroCluster configuration state.
19726403	Aggregate recommendation is not supported when there are no healthy target connections to remote storage.
196608055	Aggregate recommendation is not supported on this node because it does not support NetApp Aggregate Encryption (NAE).
196608206	Internal error. Failed to get encryption operation status.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

hybrid_cache

Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.

Name	Type	Description
disk_count	integer	Number of disks used in the cache tier of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
enabled	boolean	Specifies whether the aggregate uses HDDs with SSDs as a cache.
raid_type	string	RAID type for SSD cache of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
size	integer	Total usable space in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.
used	integer	Space used in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.

mirror

Name	Type	Description
enabled	boolean	Aggregate is SyncMirror protected
state	string	

plex_reference

Plex

Name	Type	Description
_links	_links	
name	string	

simulated_raid_groups

Name	Type	Description
data_disk_count	integer	Number of data disks in RAID group.
is_partition	boolean	Indicates whether the disk is partitioned (true) or whole (false).
name	string	Name of the raid group.
parity_disk_count	integer	Number of parity disks in RAID group.
raid_type	string	RAID type of the aggregate.
usable_size	integer	Usable size of each disk, in bytes.

primary

Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

Name	Type	Description
checksum_style	string	The checksum style used by the aggregate.
disk_class	string	The class of disks being used by the aggregate.
disk_count	integer	Number of disks used in the aggregate. This includes parity disks, but excludes disks in the hybrid cache.
disk_type	string	The type of disk being used by the aggregate.

Name	Type	Description
raid_size	integer	Option to specify the maximum number of disks that can be included in a RAID group.
raid_type	string	RAID type of the aggregate.
simulated_raid_groups	array[simulated_raid_groups]	

block_storage

Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.

Name	Type	Description
hybrid_cache	hybrid_cache	Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.
mirror	mirror	
plexes	array[plex_reference]	Plex reference for each plex in the aggregate.
primary	primary	Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

cloud_store

Cloud store

Name	Type	Description
_links	_links	
name	string	
uuid	string	

cloud_storage_tier

Name	Type	Description
cloud_store	cloud_store	Cloud store

Name	Type	Description
used	integer	Capacity used in bytes in the cloud store by this aggregate. This is a cached value calculated every 5 minutes.

cloud_storage

Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.

Name	Type	Description
attach_eligible	boolean	Specifies whether the aggregate is eligible for a cloud store to be attached.
stores	array[cloud_storage_tier]	Configuration information for each cloud storage portion of the aggregate.
tiering_fullness_threshold	integer	The percentage of space in the performance tier that must be used before data is tiered out to the cloud store. Only valid for PATCH operations.

data_encryption

Name	Type	Description
drive_protection_enabled	boolean	Specifies whether the aggregate uses self-encrypting drives with data protection enabled.
software_encryption_enabled	boolean	Specifies whether NetApp aggregate encryption is enabled. All data in the aggregate is encrypted.

dr_home_node

Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.

Name	Type	Description
name	string	
uuid	string	

home_node

Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

inactive_data_reporting

Name	Type	Description
enabled	boolean	Specifes whether or not inactive data reporting is enabled on the aggregate.
start_time	string	Timestamp at which inactive data reporting was enabled on the aggregate.

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

metric

The most recent sample of I/O metrics for the aggregate.

Name	Type	Description
_links	_links	

Name	Type	Description
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

node

Node where the aggregate currently resides.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

raid_group

Name	Type	Description
default	integer	Default number of disks in a RAID group.
max	integer	Maximum number of disks allowed in a RAID group.
min	integer	Minimum number of disks allowed in a RAID group.

layout_requirement

Name	Type	Description
aggregate_min_disks	integer	Minimum number of disks to create an aggregate.
default	boolean	Indicates if this RAID type is the default.
raid_group	raid_group	
raid_type	string	RAID type.

node

Node where the spares are assigned.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

aggregate_spare

Name	Type	Description
checksum_style	string	The checksum type that has been assigned to the spares.
disk_class	string	Disk class of spares.
disk_type	string	Type of disk.
is_partition	boolean	Indicates whether a disk is partitioned (true) or whole (false)
layout_requirements	array[layout_requirement]	Available RAID protections and their restrictions.
node	node	Node where the spares are assigned.
size	integer	Usable size of each spare, in bytes.
syncmirror_pool	string	SyncMirror spare pool.
usable	integer	Total number of usable spares in the bucket. The usable count for each class of spares does not include reserved spare capacity recommended by ONTAP best practices. • example: 9 • readOnly: 1 • Introduced in: 9.6

snapshot

Name	Type	Description
files_total	integer	Total files allowed in Snapshot copies
files_used	integer	Total files created in Snapshot copies
max_files_available	integer	Maximum files available for Snapshot copies

Name	Type	Description
max_files_used	integer	Files in use by Snapshot copies

block_storage

Name	Type	Description
aggregate_metadata	integer	Space used by different metafiles and internal operations inside the aggregate, in bytes.
aggregate_metadata_percent	integer	Aggregate metadata as a percentage.
available	integer	Space available in bytes.
data_compacted_count	integer	Amount of compacted data in bytes.
data_compaction_space_saved	integer	Space saved in bytes by compacting the data.
data_compaction_space_saved_percent	integer	Percentage saved by compacting the data.
full_threshold_percent	integer	The aggregate used percentage at which 'monitor.volume.full' EMS is generated.
inactive_user_data	integer	The size that is physically used in the block storage and has a cold temperature, in bytes. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data or **.

Name	Type	Description
inactive_user_data_percent	integer	The percentage of inactive user data in the block storage. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data_percent or **.
physical_used	integer	Total physical used size of an aggregate in bytes.
physical_used_percent	integer	Physical used percentage.
size	integer	Total usable space in bytes, not including WAFL reserve and aggregate Snapshot copy reserve.
used	integer	Space used or reserved in bytes. Includes volume guarantees and aggregate metadata.
used_including_snapshot_reserve	integer	Total used including the Snapshot copy reserve, in bytes.
used_including_snapshot_reserve_percent	integer	Total used including the Snapshot reserve as a percentage.
volume_deduplication_shared_count	integer	Amount of shared bytes counted by storage efficiency.
volume_deduplication_space_saved	integer	Amount of space saved in bytes by storage efficiency.
volume_deduplication_space_saved_percent	integer	Percentage of space saved by storage efficiency.

Name	Type	Description
volume_footprints_percent	integer	A summation of volume footprints inside the aggregate, as a percentage. A volume's footprint is the amount of space being used for the volume in the aggregate.

cloud_storage

Name	Type	Description
used	integer	Used space in bytes in the cloud store. Only applicable for aggregates with a cloud store tier.

efficiency

Storage efficiency.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots

Storage efficiency that does not include the savings provided by Snapshot copies.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots_flexclones

Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

snapshot

Name	Type	Description
available	integer	Available space for Snapshot copies in bytes
reserve_percent	integer	Percentage of space reserved for Snapshot copies
total	integer	Total space for Snapshot copies in bytes
used	integer	Space used by Snapshot copies in bytes
used_percent	integer	Percentage of disk space used by Snapshot copies

space

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	efficiency	Storage efficiency.
efficiency_without_snapshots	efficiency_without_snapshots	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flexclones	efficiency_without_snapshots_flexclones	Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.

Name	Type	Description
footprint	integer	A summation of volume footprints (including volume guarantees), in bytes. This includes all of the volume footprints in the block_storage tier and the cloud_storage tier. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either footprint or **.
snapshot	snapshot	

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

The real time I/O statistics for the aggregate.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

aggregate

Name	Type	Description
_links	_links	
block_storage	block_storage	Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.
cloud_storage	cloud_storage	Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.
create_time	string	Timestamp of aggregate creation.
data_encryption	data_encryption	
dr_home_node	dr_home_node	Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.
home_node	home_node	Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.
inactive_data_reporting	inactive_data_reporting	
metric	metric	The most recent sample of I/O metrics for the aggregate.
name	string	Aggregate name.
node	node	Node where the aggregate currently resides.
recommendation_spares	array[aggregate_spare]	Information on the aggregate's remaining hot spare disks.
snaplock_type	string	SnapLock type.
snapshot	snapshot	
space	space	

Name	Type	Description
state	string	Operational state of the aggregate.
statistics	statistics	The real time I/O statistics for the aggregate.
uuid	string	Aggregate UUID.

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve a collection of cloud stores used by an aggregate

GET `/storage/aggregates/{aggregate.uuid}/cloud-stores`

Introduced In: 9.6

Retrieves the collection of cloud stores used by an aggregate.

Related ONTAP commands

- `storage aggregate object-store show`

Parameters

Name	Type	In	Required	Description
aggregate.uuid	string	path	True	Aggregate UUID
availability	string	query	False	Filter by availability
used	integer	query	False	Filter by used
mirror_degraded	boolean	query	False	Filter by mirror_degraded
unreclaimed_space_threshold	integer	query	False	Filter by unreclaimed_space_threshold
target.uuid	string	query	False	Filter by target.uuid
target.name	string	query	False	Filter by target.name
aggregate.name	string	query	False	Filter by aggregate.name • Introduced in: 9.9
primary	boolean	query	False	Filter by primary
unavailable_reason.message	string	query	False	Filter by unavailable_reason.message • Introduced in: 9.7
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[cloud_store]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "aggregate": {
        "name": "aggr1"
      },
      "availability": "string",
      "target": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "target1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "unavailable_reason": {
        "message": "string"
      },
      "unreclaimed_space_threshold": 20,
      "used": 0
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

aggregate

Aggregate

Name	Type	Description
name	string	

target

Cloud target

Name	Type	Description
_links	_links	
name	string	
uuid	string	

unavailable_reason

Name	Type	Description
message	string	Indicates why the object store is unavailable.

cloud_store

Name	Type	Description
_links	_links	

Name	Type	Description
aggregate	aggregate	Aggregate
availability	string	Availability of the object store.
mirror_degraded	boolean	This field identifies if the mirror cloud store is in sync with the primary cloud store of a FabricPool.
primary	boolean	This field indicates whether the cloud store is the primary cloud store of a mirrored FabricPool.
target	target	Cloud target
unavailable_reason	unavailable_reason	
unreclaimed_space_threshold	integer	Usage threshold for reclaiming unused space in the cloud store. Valid values are 0 to 99. The default value depends on the provider type. This can be specified in PATCH but not POST.
used	integer	The amount of object space used. Calculated every 5 minutes and cached.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message

Name	Type	Description
target	string	The target parameter that caused the error.

Attach an object store to an aggregate or add a second object store as a mirror

POST `/storage/aggregates/{aggregate.uuid}/cloud-stores`

Introduced In: 9.6

Attaches an object store to an aggregate, or adds a second object store as a mirror.

Required properties

- `target.uuid` or `target.name` - UUID or name of the cloud target.

Recommended optional properties

- `primary` - *true* if the object store is primary or *false* if it is a mirror.
- `allow_flexgroups` - Allow attaching object store to an aggregate containing FlexGroup constituents.
- `check_only` - Validate only and do not add the cloud store.

Default property values

- `primary` - *true*
- `allow_flexgroups` - *false*
- `check_only` - *false*

Related ONTAP commands

- `storage aggregate object-store attach`
- `storage aggregate object-store mirror`

Parameters

Name	Type	In	Required	Description
aggregate.uuid	string	path	True	Aggregate UUID

Name	Type	In	Required	Description
allow_flexgroups	boolean	query	False	This optional parameter allows attaching object store to an aggregate containing FlexGroup constituents. The default value is false. Mixing FabricPools and non-FabricPools within a FlexGroup is not recommended. All aggregates hosting constituents of a FlexGroup should be attached to the object store.
check_only	boolean	query	False	Validate only and do not add the cloud store.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
aggregate	aggregate	Aggregate
availability	string	Availability of the object store.

Name	Type	Description
mirror_degraded	boolean	This field identifies if the mirror cloud store is in sync with the primary cloud store of a FabricPool.
primary	boolean	This field indicates whether the cloud store is the primary cloud store of a mirrored FabricPool.
target	target	Cloud target
unavailable_reason	unavailable_reason	
unreclaimed_space_threshold	integer	Usage threshold for reclaiming unused space in the cloud store. Valid values are 0 to 99. The default value depends on the provider type. This can be specified in PATCH but not POST.
used	integer	The amount of object space used. Calculated every 5 minutes and cached.

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "aggregate": {
    "name": "aggr1"
  },
  "availability": "string",
  "target": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "target1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "unavailable_reason": {
    "message": "string"
  },
  "unreclaimed_space_threshold": 20,
  "used": 0
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregate

Aggregate

Name	Type	Description
name	string	

target

Cloud target

Name	Type	Description
_links	_links	
name	string	
uuid	string	

unavailable_reason

Name	Type	Description
message	string	Indicates why the object store is unavailable.

cloud_store

Name	Type	Description
_links	_links	
aggregate	aggregate	Aggregate
availability	string	Availability of the object store.

Name	Type	Description
mirror_degraded	boolean	This field identifies if the mirror cloud store is in sync with the primary cloud store of a FabricPool.
primary	boolean	This field indicates whether the cloud store is the primary cloud store of a mirrored FabricPool.
target	target	Cloud target
unavailable_reason	unavailable_reason	
unreclaimed_space_threshold	integer	Usage threshold for reclaiming unused space in the cloud store. Valid values are 0 to 99. The default value depends on the provider type. This can be specified in PATCH but not POST.
used	integer	The amount of object space used. Calculated every 5 minutes and cached.

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments

Name	Type	Description
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Remove a cloud target from an aggregate

DELETE `/storage/aggregates/{aggregate.uuid}/cloud-stores/{target.uuid}`

Introduced In: 9.6

Removes the specified cloud target from the aggregate. Only removal of a mirror is allowed. The primary cannot be removed. This request starts a job and returns a link to that job.

Related ONTAP commands

- `storage aggregate object-store unmirror`

Parameters

Name	Type	In	Required	Description
aggregate.uuid	string	path	True	Aggregate UUID
target.uuid	string	path	True	Cloud target UUID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve the cloud store for an aggregate

GET `/storage/aggregates/{aggregate.uuid}/cloud-stores/{target.uuid}`

Introduced In: 9.6

Retrieves the cloud store for the aggregate using the specified cloud target UUID.

Related ONTAP commands

- `storage aggregate object-store show`

Parameters

Name	Type	In	Required	Description
aggregate.uuid	string	path	True	Aggregate UUID
target.uuid	string	path	True	Cloud target UUID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
aggregate	aggregate	Aggregate
availability	string	Availability of the object store.
mirror_degraded	boolean	This field identifies if the mirror cloud store is in sync with the primary cloud store of a FabricPool.
primary	boolean	This field indicates whether the cloud store is the primary cloud store of a mirrored FabricPool.
target	target	Cloud target
unavailable_reason	unavailable_reason	

Name	Type	Description
unreclaimed_space_threshold	integer	Usage threshold for reclaiming unused space in the cloud store. Valid values are 0 to 99. The default value depends on the provider type. This can be specified in PATCH but not POST.
used	integer	The amount of object space used. Calculated every 5 minutes and cached.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "aggregate": {
    "name": "aggr1"
  },
  "availability": "string",
  "target": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "target1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "unavailable_reason": {
    "message": "string"
  },
  "unreclaimed_space_threshold": 20,
  "used": 0
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregate

Aggregate

Name	Type	Description
name	string	

target

Cloud target

Name	Type	Description
_links	_links	
name	string	
uuid	string	

unavailable_reason

Name	Type	Description
message	string	Indicates why the object store is unavailable.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update a cloud store

PATCH `/storage/aggregates/{aggregate.uuid}/cloud-stores/{target.uuid}`

Introduced In: 9.6

Updates the cloud store specified by the UUID with the fields in the body. This request starts a job and returns a link to that job.

Related ONTAP commands

- `storage aggregate object-store modify`

Parameters

Name	Type	In	Required	Description
aggregate.uuid	string	path	True	Aggregate UUID
target.uuid	string	path	True	Cloud target UUID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
aggregate	aggregate	Aggregate
availability	string	Availability of the object store.
mirror_degraded	boolean	This field identifies if the mirror cloud store is in sync with the primary cloud store of a FabricPool.

Name	Type	Description
primary	boolean	This field indicates whether the cloud store is the primary cloud store of a mirrored FabricPool.
target	target	Cloud target
unavailable_reason	unavailable_reason	
unreclaimed_space_threshold	integer	Usage threshold for reclaiming unused space in the cloud store. Valid values are 0 to 99. The default value depends on the provider type. This can be specified in PATCH but not POST.
used	integer	The amount of object space used. Calculated every 5 minutes and cached.

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "aggregate": {
    "name": "aggr1"
  },
  "availability": "string",
  "target": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "target1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "unavailable_reason": {
    "message": "string"
  },
  "unreclaimed_space_threshold": 20,
  "used": 0
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregate

Aggregate

Name	Type	Description
name	string	

target

Cloud target

Name	Type	Description
_links	_links	
name	string	
uuid	string	

unavailable_reason

Name	Type	Description
message	string	Indicates why the object store is unavailable.

cloud_store

Name	Type	Description
_links	_links	
aggregate	aggregate	Aggregate
availability	string	Availability of the object store.

Name	Type	Description
mirror_degraded	boolean	This field identifies if the mirror cloud store is in sync with the primary cloud store of a FabricPool.
primary	boolean	This field indicates whether the cloud store is the primary cloud store of a mirrored FabricPool.
target	target	Cloud target
unavailable_reason	unavailable_reason	
unreclaimed_space_threshold	integer	Usage threshold for reclaiming unused space in the cloud store. Valid values are 0 to 99. The default value depends on the provider type. This can be specified in PATCH but not POST.
used	integer	The amount of object space used. Calculated every 5 minutes and cached.

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments

Name	Type	Description
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage aggregate plexes

Storage aggregates aggregate.uuid plexes endpoint overview

Overview

The Storage Aggregate Plex API provides relevant state information for each plex in the aggregate. For each plex, details are provided for the RAID groups in the plex and the disks that make up each RAID group.

Examples

Retrieving the list of plexes in an aggregate

The following example shows the response with the list of plexes in an aggregate:

```
# The API:
/api/storage/aggregates/{uuid}/plexes

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/19425837-f2fa-4a9f-
8f01-712f626c983c/plexes" -H "accept: application/json"

# The response:
{
"records": [
  {
    "name": "plex0",
  },
  {
    "name": "plex4",
  }
],
"num_records": 2,
}
```

Retrieving a specific plex in an aggregate

The following example shows the response when requesting a specific plex of an aggregate:

```
# The API:
/api/storage/aggregates/{uuid}/plexes/{name}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/19425837-f2fa-4a9f-
8f01-712f626c983c/plexes/plex0" -H "accept: application/json"

# The response:
{
"aggregate": {
  "uuid": "19425837-f2fa-4a9f-8f01-712f626c983c",
  "name": "test1",
},
"name": "plex0",
"online": true,
"state": "normal",
"pool": "pool0",
"resync": {
  "active": false
},
"raid_groups": [
  {
    "name": "rg0",
    "raid_type": "raid_dp",
    "cache_tier": false,
    "degraded": false,
    "recomputing_parity": {
      "active": false
    },
    "reconstruct": {
      "active": false
    },
    "disks": [
      {
        "position": "dparity",
        "state": "normal",
        "type": "ssd",
        "usable_size": 86769664,
        "disk": {
          "name": "1.1.29",
        }
      },
```

```
      {
        "position": "parity",
        "state": "normal",
        "type": "ssd",
        "usable_size": 86769664,
        "disk": {
          "name": "1.1.4",
        }
      },
      {
        "position": "data",
        "state": "normal",
        "type": "ssd",
        "usable_size": 86769664,
        "disk": {
          "name": "1.1.30",
        }
      },
      {
        "position": "data",
        "state": "normal",
        "type": "ssd",
        "usable_size": 86769664,
        "disk": {
          "name": "1.1.5",
        }
      },
      {
        "position": "data",
        "state": "normal",
        "type": "ssd",
        "usable_size": 86769664,
        "disk": {
          "name": "1.1.31",
        }
      },
      {
        "position": "data",
        "state": "normal",
        "type": "ssd",
        "usable_size": 86769664,
        "disk": {
          "name": "1.1.6",
        }
      }
    ]
```

```
    }
  ],
  }
```

Retrieve a collection of plexes for an aggregate

GET `/storage/aggregates/{aggregate.uuid}/plexes`

Introduced In: 9.6

Retrieves the collection of plexes for the specified aggregate.

Related ONTAP commands

- `storage aggregate plex show`

Parameters

Name	Type	In	Required	Description
aggregate.uuid	string	path	True	Aggregate UUID
online	boolean	query	False	Filter by online
resync.level	string	query	False	Filter by resync.level
resync.percent	integer	query	False	Filter by resync.percent
resync.active	boolean	query	False	Filter by resync.active
raid_groups.degraded	boolean	query	False	Filter by raid_groups.degraded • Introduced in: 9.7
raid_groups.disks.state	string	query	False	Filter by raid_groups.disks.state • Introduced in: 9.7

Name	Type	In	Required	Description
raid_groups.disks.usable_size	integer	query	False	Filter by raid_groups.disks.usable_size • Introduced in: 9.7
raid_groups.disks.position	string	query	False	Filter by raid_groups.disks.position • Introduced in: 9.7
raid_groups.disks.disk.name	string	query	False	Filter by raid_groups.disks.disk.name • Introduced in: 9.7
raid_groups.disks.type	string	query	False	Filter by raid_groups.disks.type • Introduced in: 9.7
raid_groups.recomputing_parity.percent	integer	query	False	Filter by raid_groups.recomputing_parity.percent • Introduced in: 9.7
raid_groups.recomputing_parity.active	boolean	query	False	Filter by raid_groups.recomputing_parity.active • Introduced in: 9.7
raid_groups.name	string	query	False	Filter by raid_groups.name • Introduced in: 9.7

Name	Type	In	Required	Description
raid_groups.cache_tier	boolean	query	False	Filter by raid_groups.cache_tier • Introduced in: 9.7
raid_groups.reconstruct.percent	integer	query	False	Filter by raid_groups.reconstruct.percent • Introduced in: 9.7
raid_groups.reconstruct.active	boolean	query	False	Filter by raid_groups.reconstruct.active • Introduced in: 9.7
raid_groups.raid_type	string	query	False	Filter by raid_groups.raid_type • Introduced in: 9.9
aggregate.name	string	query	False	Filter by aggregate.name
pool	string	query	False	Filter by pool
name	string	query	False	Filter by name
state	string	query	False	Filter by state
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
error	error	
num_records	integer	Number of records
records	array[plex]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  },
  "records": [
    {
      "aggregate": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "aggr1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "name": "plex0",
      "pool": "string",
      "raid_groups": [
        {
          "disks": [
            {
              "disk": {
                "_links": {
                  "self": {
                    "href": "/api/resourcelink"
                  }
                },
                "name": "1.0.1"
```

```
              },
              "position": "string",
              "state": "string",
              "type": "ssd",
              "usable_size": 947912704
            }
          ],
          "name": "rg0",
          "raid_type": "raid_dp",
          "recomputing_parity": {
            "percent": 10
          },
          "reconstruct": {
            "percent": 10
          }
        }
      ],
      "resync": {
        "level": "string",
        "percent": 10
      },
      "state": "string"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

_links

Name	Type	Description
self	href	

aggregate

Aggregate

Name	Type	Description
_links	_links	
name	string	

Name	Type	Description
uuid	string	

disk

Disk

Name	Type	Description
_links	_links	
name	string	

raid_group_disk

Name	Type	Description
disk	disk	Disk
position	string	The position of the disk within the RAID group.
state	string	The state of the disk within the RAID group.
type	string	Disk interface type
usable_size	integer	Size in bytes that is usable by the aggregate.

recomputing_parity

Name	Type	Description
active	boolean	RAID group is recomputing parity
percent	integer	Recomputing parity percentage

reconstruct

Name	Type	Description
active	boolean	One or more disks in this RAID group are being reconstructed.
percent	integer	Reconstruct percentage

raid_group

Name	Type	Description
cache_tier	boolean	RAID group is a cache tier
degraded	boolean	RAID group is degraded. A RAID group is degraded when at least one disk from that group has failed or is offline.
disks	array[raid_group_disk]	
name	string	RAID group name
raid_type	string	RAID type of the raid group.
recomputing_parity	recomputing_parity	
reconstruct	reconstruct	

resync

Name	Type	Description
active	boolean	Plex is being resynchronized to its mirrored plex
level	string	Plex resyncing level
percent	integer	Plex resyncing percentage

plex

Name	Type	Description
aggregate	aggregate	Aggregate
name	string	Plex name
online	boolean	Plex is online
pool	string	SyncMirror pool assignment
raid_groups	array[raid_group]	
resync	resync	
state	string	Plex state

Retrieve a plex specified by the aggregate UUID and plex name

GET `/storage/aggregates/{aggregate.uuid}/plexes/{name}`

Introduced In: 9.6

Retrieves the plex specified by the aggregate UUID and plex name.

Related ONTAP commands

- `storage aggregate plex show`

Parameters

Name	Type	In	Required	Description
aggregate.uuid	string	path	True	Aggregate UUID
name	string	path	True	Plex name
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
aggregate	aggregate	Aggregate
name	string	Plex name
online	boolean	Plex is online
pool	string	SyncMirror pool assignment
raid_groups	array[raid_group]	
resync	resync	
state	string	Plex state

Example response


```
{
  "aggregate": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "aggr1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "name": "plex0",
  "pool": "string",
  "raid_groups": [
    {
      "disks": [
        {
          "disk": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "1.0.1"
          },
          "position": "string",
          "state": "string",
          "type": "ssd",
          "usable_size": 947912704
        }
      ],
      "name": "rg0",
      "raid_type": "raid_dp",
      "recomputing_parity": {
        "percent": 10
      },
      "reconstruct": {
        "percent": 10
      }
    }
  ],
  "resync": {
    "level": "string",
    "percent": 10
  },
```

```
  "state": "string"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregate

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

disk

Disk

Name	Type	Description
_links	_links	
name	string	

raid_group_disk

Name	Type	Description
disk	disk	Disk
position	string	The position of the disk within the RAID group.
state	string	The state of the disk within the RAID group.
type	string	Disk interface type
usable_size	integer	Size in bytes that is usable by the aggregate.

recomputing_parity

Name	Type	Description
active	boolean	RAID group is recomputing parity
percent	integer	Recomputing parity percentage

reconstruct

Name	Type	Description
active	boolean	One or more disks in this RAID group are being reconstructed.
percent	integer	Reconstruct percentage

raid_group

Name	Type	Description
cache_tier	boolean	RAID group is a cache tier
degraded	boolean	RAID group is degraded. A RAID group is degraded when at least one disk from that group has failed or is offline.
disks	array[raid_group_disk]	
name	string	RAID group name
raid_type	string	RAID type of the raid group.
recomputing_parity	recomputing_parity	
reconstruct	reconstruct	

resync

Name	Type	Description
active	boolean	Plex is being resynchronized to its mirrored plex
level	string	Plex resyncing level
percent	integer	Plex resyncing percentage

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Storage aggregates UUID

Storage aggregates UUID endpoint overview

Updating storage aggregates

The PATCH operation is used to modify properties of the aggregate. There are several properties that can be modified on an aggregate. Only one property can be modified for each PATCH request. PATCH operations on the aggregate's disk count will be blocked while one or more nodes in the cluster are simulating or implementing automatic aggregate creation.

The following is a list of properties that can be modified using the PATCH operation including a brief description for each:

- name - This property can be changed to rename the aggregate.
- node.name and node.uuid - Either property can be updated in order to relocate the aggregate to a different node in the cluster.
- block_storage.mirror.enabled - This property can be changed from 'false' to 'true' in order to mirror the aggregate, if the system is capable of doing so.
- block_storage.primary.disk_count - This property can be updated to increase the number of disks in an aggregate.
- block_storage.primary.raid_size - This property can be updated to set the desired RAID size.
- block_storage.primary.raid_type - This property can be updated to set the desired RAID type.
- cloud_storage.tiering_fullness_threshold - This property can be updated to set the desired tiering fullness threshold if using FabricPool.
- data_encryption.software_encryption_enabled - This property enables or disables NAE on the aggregate.

Aggregate expansion

The PATCH operation also supports automatically expanding an aggregate based on the spare disks which are present within the system. Running PATCH with the query "auto_provision_policy" set to "expand" starts the recommended expansion job. In order to see the expected change in capacity before starting the job, call GET on an aggregate instance with the query "auto_provision_policy" set to "expand".

Manual simulated aggregate expansion

The PATCH operation also supports simulated manual expansion of an aggregate. Running PATCH with the query "simulate" set to "true" and "block_storage.primary.disk_count" set to the final disk count will start running the prechecks associated with expanding the aggregate to the proposed size. The response body will include information on how many disks the aggregate can be expanded to, any associated warnings, along with the proposed final size of the aggregate.

Deleting storage aggregates

If volumes exist on an aggregate, they must be deleted or moved before the aggregate can be deleted. See the /storage/volumes API for details on moving or deleting volumes.

Examples

Retrieving a specific aggregate from the cluster

The following example shows the response of the requested aggregate. If there is no aggregate with the requested UUID, an error is returned.

```
# The API:
/api/storage/aggregates/{uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/870dd9f2-bdfa-4167-
b692-57d1cec874d4" -H "accept: application/json"

# The response:
{
"uuid": "19425837-f2fa-4a9f-8f01-712f626c983c",
"name": "test1",
"node": {
  "uuid": "caf95bec-f801-11e8-8af9-005056bbe5c1",
  "name": "node-1",
},
"home_node": {
  "uuid": "caf95bec-f801-11e8-8af9-005056bbe5c1",
  "name": "node-1",
},
"space": {
  "block_storage": {
```

```
    "size": 235003904,
    "available": 191942656,
    "used": 43061248,
    "full_threshold_percent": 98,
    "physical_used": 5271552,
    "physical_used_percent": 1,
    "volume_footprints_percent": 14,
    "aggregate_metadata": 2655,
    "aggregate_metadata_percent": 8,
    "used_including_snapshot_reserve": 674685,
    "used_including_snapshot_reserve_percent": 35,
    "data_compacted_count": 666666,
    "data_compaction_space_saved": 654566,
    "data_compaction_space_saved_percent": 47,
    "volume_deduplication_shared_count": 567543,
    "volume_deduplication_space_saved": 23765,
    "volume_deduplication_space_saved_percent": 32
  },
  "snapshot": {
    "used_percent": 45,
    "available": 2000,
    "total": 5000,
    "used": 3000,
    "reserve_percent": 20
  },
  "cloud_storage": {
    "used": 0
  },
  "efficiency": {
    "savings": 1408029,
    "ratio": 6.908119720880661,
    "logical_used": 1646350
  },
  "efficiency_without_snapshots": {
    "savings": 0,
    "ratio": 1,
    "logical_used": 737280
  },
  "efficiency_without_snapshots_flexclones": {
    "savings": 5000,
    "ratio": 2,
    "logical_used": 10000
  }
},
"snapshot": {
  "files_total": 10,
```

```
  "files_used": 3,
  "max_files_available": 5,
  "max_files_used": 50
},
"state": "online",
"snaplock_type": "non_snaplock",
"create_time": "2018-12-04T15:40:38-05:00",
"data_encryption": {
  "software_encryption_enabled": false,
  "drive_protection_enabled": false
},
"block_storage": {
  "primary": {
    "disk_count": 6,
    "disk_class": "solid_state",
    "raid_type": "raid_dp",
    "raid_size": 24,
    "checksum_style": "block",
    "disk_type": "ssd"
  },
  "hybrid_cache": {
    "enabled": false
  },
  "mirror": {
    "enabled": false,
    "state": "unmirrored"
  },
  "plexes": [
    {
      "name": "plex0",
    }
  ]
},
"cloud_storage": {
  "attach_eligible": false
},
}
```

Retrieving statistics and metric for an aggregate

In this example, the API returns the "statistics" and "metric" properties for the aggregate requested.

```
#The API:
/api/storage/aggregates/{uuid}?fields=statistics,metric

#The call:
```

```
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/538bf337-1b2c-11e8-
bad0-005056b48388?fields=statistics,metric" -H "accept: application/json"

#The response:
{
"uuid": "538bf337-1b2c-11e8-bad0-005056b48388",
"name": "aggr4",
"metric": {
     "timestamp": "2019-07-08T22:16:45Z",
     "duration": "PT15S",
     "status": "ok",
     "throughput": {
       "read": 7099,
       "write": 840226,
       "other": 193293789,
       "total": 194141115
       },
     "latency": {
       "read": 149,
       "write": 230,
       "other": 123,
       "total": 124
     },
     "iops": {
       "read": 1,
       "write": 17,
       "other": 11663,
       "total": 11682
     },
 },
  "statistics": {
     "timestamp": "2019-07-08T22:17:09Z",
     "status": "ok",
     "throughput_raw": {
       "read": 3106045952,
       "write": 63771742208,
       "other": 146185560064,
       "total": 213063348224
     },
     "latency_raw": {
       "read": 54072313,
       "write": 313354426,
       "other": 477201985,
       "total": 844628724
     },
     "iops_raw": {
```

```
        "read": 328267,
        "write": 1137230,
        "other": 1586535,
        "total": 3052032
      }
  },
}
```

For more information and examples on viewing historical performance metrics for any given aggregate, see DOC /storage/aggregates/{uuid}/metrics

Simulating aggregate expansion

The following example shows the response for a simulated data aggregate expansion based on the values of the 'block_storage.primary.disk_count' attribute passed in. The query does not modify the existing aggregate but returns how the aggregate will look after the expansion along with any associated warnings. Simulated data aggregate expansion will be blocked while one or more nodes in the cluster are simulating or implementing automatic aggregate creation. This will be reflected in the following attributes:

- space.block_storage.size - Total usable space in bytes, not including WAFL reserve and aggregate Snapshot copy reserve.
- block_storage.primary.disk_count - Number of disks that could be used to create the aggregate.

```
# The API:
/api/storage/aggregates/{uuid}?simulate=true

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/aggregates/cae60cfe-deae-
42bd-babb-ef437d118314?simulate=true" -H "accept: application/json" -d
"{\"block_storage\": {\"primary\": {\"disk_count\": 14}}}"

# The response:
{
"warnings": [
  {
    "name": "node_2_SSD_1",
    "warning": {
      "message": "One or more disks will not be added. 14 disks specified,
13 disks will be added.",
      "code": 787170,
      "arguments": [
        "14",
        "13"
      ]
    }
  }
],
```

```
"num_records": 1,
"records": [
  {
    "uuid": "cae60cfe-deae-42bd-babb-ef437d118314",
    "name": "node_2_SSD_1",
    "node": {
      "uuid": "4046dda8-f802-11e8-8f6d-005056bb2030",
      "name": "node-2",
      "_links": {
        "self": {
            "href": "/api/cluster/nodes/4046dda8-f802-11e8-8f6d-
005056bb2030"
        }
      }
    },
    "space": {
      "block_storage": {
        "size": 1116180480
      }
    },
    "block_storage": {
      "primary": {
        "disk_count": 23,
        "disk_class": "solid_state",
        "raid_type": "raid_dp",
        "disk_type": "ssd"
      },
      "hybrid_cache": {
        "enabled": false
      },
      "mirror": {
        "enabled": false
      }
    },
  }
],
"job": {
  "_links": {
    "self": {
      "href": "/api/storage/aggregates/cae60cfe-deae-42bd-babb-
ef437d118314"
    }
  }
}
}
```

Retrieving a recommendation for an aggregate expansion

The following example shows the response with the recommended data aggregate expansion based on what disks are present within the system. The query does not modify the existing aggregate but returns how the aggregate will look after the expansion. The recommendation will be reflected in the attributes - 'space.block_storage.size' and 'block_storage.primary.disk_count'. Recommended data aggregate expansion will be blocked while one or more nodes in the cluster are simulating or implementing automatic aggregate creation.

```
# The API:
/api/storage/aggregates/{uuid}?auto_provision_policy=expand

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/cae60cfe-deae-42bd-
babb-ef437d118314?auto_provision_policy=expand" -H "accept:
application/json"

# The response:
{
"uuid": "cae60cfe-deae-42bd-babb-ef437d118314",
"name": "node_2_SSD_1",
"node": {
  "uuid": "4046dda8-f802-11e8-8f6d-005056bb2030",
  "name": "node-2",
  "_links": {
    "self": {
        "href": "/api/cluster/nodes/4046dda8-f802-11e8-8f6d-005056bb2030"
    }
  }
},
"space": {
  "block_storage": {
    "size": 1116180480
  }
},
"block_storage": {
  "primary": {
    "disk_count": 23,
    "disk_class": "solid_state",
    "raid_type": "raid_dp",
    "disk_type": "ssd"
  },
  "hybrid_cache": {
    "enabled": false
  },
  "mirror": {
    "enabled": false
```

```
  }
},
"_links": {
  "self": {
    "href": "/api/storage/aggregates/cae60cfe-deae-42bd-babb-ef437d118314"
  }
}
}
```

Updating an aggregate in the cluster

The following example shows the workflow of adding disks to the aggregate.

Step 1: Check the current disk count on the aggregate.

```
# The API:
/api/storage/aggregates

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/19425837-f2fa-4a9f-
8f01-712f626c983c?fields=block_storage.primary.disk_count" -H "accept:
application/json"

# The response:
{
"uuid": "19425837-f2fa-4a9f-8f01-712f626c983c",
"name": "test1",
"block_storage": {
  "primary": {
    "disk_count": 6
  }
},
}
```

Step 2: Update the aggregate with the new disk count in 'block_storage.primary.disk_count'. The response to PATCH is a job unless the request is invalid.

```
# The API:
/api/storage/aggregates

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/aggregates/19425837-f2fa-
4a9f-8f01-712f626c983c" -H "accept: application/hal+json" -d
"{\"block_storage\": {\"primary\": {\"disk_count\": 8}}}"

# The response:
{
"job": {
  "uuid": "c103d15e-730b-11e8-a57f-005056b465d6",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/c103d15e-730b-11e8-a57f-005056b465d6"
    }
  }
}
}
```

Step 3: Wait for the job to finish, then call GET to see the reflected change.

```
# The API:
/api/storage/aggregates

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/19425837-f2fa-4a9f-
8f01-712f626c983c?fields=block_storage.primary.disk_count" -H "accept:
application/json"

# The response:
{
"uuid": "19425837-f2fa-4a9f-8f01-712f626c983c",
"name": "test1",
"block_storage": {
  "primary": {
    "disk_count": 8
  }
},
}
```

The following example shows the workflow to enable software encryption on an aggregate.

Step 1: Check the current software encryption status of the aggregate.

```
# The API:
/api/storage/aggregates

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/f3aafdc6-be35-4d93-
9590-5a402bffbe4b?fields=data_encryption.software_encryption_enabled" -H
"accept: application/json"

# The response:
{
"uuid": "f3aafdc6-be35-4d93-9590-5a402bffbe4b",
"name": "aggr5",
"data_encryption": {
  "software_encryption_enabled": false
},
}
```

Step 2: Update the aggregate with the encryption status in 'data_encryption.software_encryption_enabled'. The response to PATCH is a job unless the request is invalid.

```
# The API:
/api/storage/aggregates

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/aggregates/f3aafdc6-be35-
4d93-9590-5a402bffbe4b" -H "accept: application/hal+json" -d
'{"data_encryption": {"software_encryption_enabled": "true"}}'

# The response:
{
"job": {
  "uuid": "6b7ab28e-168d-11ea-8a50-0050568eca76",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/6b7ab28e-168d-11ea-8a50-0050568eca76"
    }
  }
}
}
```

Step 3: Wait for the job to finish, then call GET to see the reflected change.

```
# The API:
/api/storage/aggregates

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/f3aafdc6-be35-4d93-
9590-5a402bffbe4b?fields=data_encryption.software_encryption_enabled" -H
"accept: application/json"

# The response:
{
"uuid": "f3aafdc6-be35-4d93-9590-5a402bffbe4b",
"name": "aggr5",
"data_encryption": {
  "software_encryption_enabled": true
},
}
```

Delete an aggregate specified by the UUID

DELETE `/storage/aggregates/{uuid}`

Introduced In: 9.6

Deletes the aggregate specified by the UUID. This request starts a job and returns a link to that job.

Related ONTAP commands

- `storage aggregate delete`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Aggregate UUID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
460770	The aggregate delete job failed to delete the aggregate.
460777	Failed to get information on the delete job.
786435	Internal Error. Failed to create a communication handle.
786451	Failed to delete specified aggregate.
786468	VLDB is offline.
786472	Node that hosts the aggregate is offline.
786497	Cannot delete an aggregate that has volumes.
786771	Aggregate does not exist.
786867	Specified aggregate resides on the remote cluster.
786897	Specified aggregate cannot be deleted as it is a switched-over root aggregate.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve an aggregate specified by the UUID

GET `/storage/aggregates/{uuid}`

Introduced In: 9.6

Retrieves the aggregate specified by the UUID. The recommend query cannot be used for this operation.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `metric.*`
- `space.block_storage.inactive_user_data`
- `space.block_storage.inactive_user_data_percent`
- `space.footprint`
- `statistics.*`

Related ONTAP commands

- `storage aggregate show`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Aggregate UUID
auto_provision_policy	string	query	False	If set to expand, a query is run on the system for the recommended optimal expansion layout of the aggregate. • Introduced in: 9.8
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	

Name	Type	Description
block_storage	block_storage	Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.
cloud_storage	cloud_storage	Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.
create_time	string	Timestamp of aggregate creation.
data_encryption	data_encryption	
dr_home_node	dr_home_node	Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.
home_node	home_node	Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.
inactive_data_reporting	inactive_data_reporting	
metric	metric	The most recent sample of I/O metrics for the aggregate.
name	string	Aggregate name.
node	node	Node where the aggregate currently resides.
recommendation_spares	array[aggregate_spare]	Information on the aggregate's remaining hot spare disks.
snaplock_type	string	SnapLock type.
snapshot	snapshot	
space	space	
state	string	Operational state of the aggregate.
statistics	statistics	The real time I/O statistics for the aggregate.

Name	Type	Description
uuid	string	Aggregate UUID.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "block_storage": {
    "hybrid_cache": {
      "disk_count": 6,
      "raid_type": "string",
      "size": 1612709888,
      "used": 26501122
    },
    "mirror": {
      "enabled": "",
      "state": "string"
    },
    "plexes": [
      {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "plex0"
      }
    ],
    "primary": {
      "checksum_style": "string",
      "disk_class": "performance",
      "disk_count": 8,
      "disk_type": "string",
      "raid_size": 16,
      "raid_type": "string",
      "simulated_raid_groups": [
        {
          "name": "string",
          "raid_type": "string"
        }
      ]
    }
  },
  "cloud_storage": {
    "stores": [
```

```
      {
        "cloud_store": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "store1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "used": 0
      }
    ]
  },
  "create_time": "2018-01-01T12:00:00-04:00",
  "dr_home_node": {
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "inactive_data_reporting": {
    "start_time": "2019-12-12T12:00:00-04:00"
  },
  "metric": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "duration": "PT15S",
    "iops": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency": {
      "read": 200,
      "total": 1000,
```

```
      "write": 100
    },
    "status": "ok",
    "throughput": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "name": "node1_aggr_1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "recommendation_spares": [
    {
      "checksum_style": "string",
      "disk_class": "solid_state",
      "disk_type": "string",
      "is_partition": 1,
      "layout_requirements": [
        {
          "aggregate_min_disks": 6,
          "raid_group": {
            "default": 16,
            "max": 28,
            "min": 5
          },
          "raid_type": "string"
        }
      ],
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
```

```
      "size": 10156769280,
      "syncmirror_pool": "string",
      "usable": 9
    }
  ],
  "snaplock_type": "string",
  "snapshot": {
    "files_total": 10,
    "files_used": 3,
    "max_files_available": 5,
    "max_files_used": 50
  },
  "space": {
    "block_storage": {
      "aggregate_metadata": 2655,
      "aggregate_metadata_percent": 8,
      "available": 10156560384,
      "data_compacted_count": 1990000,
      "data_compaction_space_saved": 1996000,
      "data_compaction_space_saved_percent": 27,
      "full_threshold_percent": 0,
      "inactive_user_data": 304448,
      "inactive_user_data_percent": 0,
      "physical_used": 2461696,
      "physical_used_percent": 50,
      "size": 10156769280,
      "used": 2088960,
      "used_including_snapshot_reserve": 674685,
      "used_including_snapshot_reserve_percent": 35,
      "volume_deduplication_shared_count": 1990000,
      "volume_deduplication_space_saved": 1996000,
      "volume_deduplication_space_saved_percent": 27,
      "volume_footprints_percent": 14
    },
    "cloud_storage": {
      "used": 402743264
    },
    "efficiency": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "efficiency_without_snapshots": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
```

```
    },
    "efficiency_without_snapshots_flexclones": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "footprint": 608896,
    "snapshot": {
      "available": 2000,
      "reserve_percent": 20,
      "total": 5000,
      "used": 3000,
      "used_percent": 45
    }
  },
  "state": "string",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "uuid": "string"
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
787092	The target field cannot be specified for this operation.
7209049	Cannot perform the operation because the aggregate is currently expanding.
8586225	Unexpected error encountered when retrieving metrics and statistics for this aggregate.
19726382	Another provisioning operation is in progress on this cluster. Wait a few minutes, and try the operation again.
19726390	Unable to provide a recommmendation to expand the aggregate.
19726391	Too many unassigned disks visible to the node that owns this aggregate.
19726392	Layout of this aggregate is not a supported configuration.
19726393	Failed to expand the aggregate. Aggregate expansion is not supported on this system.
19726394	Automatic aggregate expansion is not supported on systems with multiple data aggregates.
19726395	Automatic aggregate expansion is not supported when MetroCluster is not configured
19726396	Automatic aggregate expansion is not supported when the DR group is not in a normal state
19726397	Aggregates must contain disks with identical disk-types and disk-sizes.
19726402	Internal error. Unable to determine the MetroCluster configuration state.
19726538	Cannot perform the operation because the aggregate is not in a healthy state.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

hybrid_cache

Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.

Name	Type	Description
disk_count	integer	Number of disks used in the cache tier of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
enabled	boolean	Specifies whether the aggregate uses HDDs with SSDs as a cache.
raid_type	string	RAID type for SSD cache of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
size	integer	Total usable space in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.
used	integer	Space used in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.

mirror

Name	Type	Description
enabled	boolean	Aggregate is SyncMirror protected
state	string	

plex_reference

Plex

Name	Type	Description
_links	_links	
name	string	

simulated_raid_groups

Name	Type	Description
data_disk_count	integer	Number of data disks in RAID group.
is_partition	boolean	Indicates whether the disk is partitioned (true) or whole (false).
name	string	Name of the raid group.
parity_disk_count	integer	Number of parity disks in RAID group.
raid_type	string	RAID type of the aggregate.
usable_size	integer	Usable size of each disk, in bytes.

primary

Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

Name	Type	Description
checksum_style	string	The checksum style used by the aggregate.
disk_class	string	The class of disks being used by the aggregate.
disk_count	integer	Number of disks used in the aggregate. This includes parity disks, but excludes disks in the hybrid cache.
disk_type	string	The type of disk being used by the aggregate.

Name	Type	Description
raid_size	integer	Option to specify the maximum number of disks that can be included in a RAID group.
raid_type	string	RAID type of the aggregate.
simulated_raid_groups	array[simulated_raid_groups]	

block_storage

Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.

Name	Type	Description
hybrid_cache	hybrid_cache	Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.
mirror	mirror	
plexes	array[plex_reference]	Plex reference for each plex in the aggregate.
primary	primary	Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

cloud_store

Cloud store

Name	Type	Description
_links	_links	
name	string	
uuid	string	

cloud_storage_tier

Name	Type	Description
cloud_store	cloud_store	Cloud store

Name	Type	Description
used	integer	Capacity used in bytes in the cloud store by this aggregate. This is a cached value calculated every 5 minutes.

cloud_storage

Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.

Name	Type	Description
attach_eligible	boolean	Specifies whether the aggregate is eligible for a cloud store to be attached.
stores	array[cloud_storage_tier]	Configuration information for each cloud storage portion of the aggregate.
tiering_fullness_threshold	integer	The percentage of space in the performance tier that must be used before data is tiered out to the cloud store. Only valid for PATCH operations.

data_encryption

Name	Type	Description
drive_protection_enabled	boolean	Specifies whether the aggregate uses self-encrypting drives with data protection enabled.
software_encryption_enabled	boolean	Specifies whether NetApp aggregate encryption is enabled. All data in the aggregate is encrypted.

dr_home_node

Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.

Name	Type	Description
name	string	
uuid	string	

home_node

Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

inactive_data_reporting

Name	Type	Description
enabled	boolean	Specifes whether or not inactive data reporting is enabled on the aggregate.
start_time	string	Timestamp at which inactive data reporting was enabled on the aggregate.

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

metric

The most recent sample of I/O metrics for the aggregate.

Name	Type	Description
_links	_links	

Name	Type	Description
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

node

Node where the aggregate currently resides.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

raid_group

Name	Type	Description
default	integer	Default number of disks in a RAID group.
max	integer	Maximum number of disks allowed in a RAID group.
min	integer	Minimum number of disks allowed in a RAID group.

layout_requirement

Name	Type	Description
aggregate_min_disks	integer	Minimum number of disks to create an aggregate.
default	boolean	Indicates if this RAID type is the default.
raid_group	raid_group	
raid_type	string	RAID type.

node

Node where the spares are assigned.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

aggregate_spare

Name	Type	Description
checksum_style	string	The checksum type that has been assigned to the spares.
disk_class	string	Disk class of spares.
disk_type	string	Type of disk.
is_partition	boolean	Indicates whether a disk is partitioned (true) or whole (false)
layout_requirements	array[layout_requirement]	Available RAID protections and their restrictions.
node	node	Node where the spares are assigned.
size	integer	Usable size of each spare, in bytes.
syncmirror_pool	string	SyncMirror spare pool.
usable	integer	Total number of usable spares in the bucket. The usable count for each class of spares does not include reserved spare capacity recommended by ONTAP best practices. • example: 9 • readOnly: 1 • Introduced in: 9.6

snapshot

Name	Type	Description
files_total	integer	Total files allowed in Snapshot copies
files_used	integer	Total files created in Snapshot copies
max_files_available	integer	Maximum files available for Snapshot copies

Name	Type	Description
max_files_used	integer	Files in use by Snapshot copies

block_storage

Name	Type	Description
aggregate_metadata	integer	Space used by different metafiles and internal operations inside the aggregate, in bytes.
aggregate_metadata_percent	integer	Aggregate metadata as a percentage.
available	integer	Space available in bytes.
data_compacted_count	integer	Amount of compacted data in bytes.
data_compaction_space_saved	integer	Space saved in bytes by compacting the data.
data_compaction_space_saved_percent	integer	Percentage saved by compacting the data.
full_threshold_percent	integer	The aggregate used percentage at which 'monitor.volume.full' EMS is generated.
inactive_user_data	integer	The size that is physically used in the block storage and has a cold temperature, in bytes. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data or **.

Name	Type	Description
inactive_user_data_percent	integer	The percentage of inactive user data in the block storage. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data_percent or **.
physical_used	integer	Total physical used size of an aggregate in bytes.
physical_used_percent	integer	Physical used percentage.
size	integer	Total usable space in bytes, not including WAFL reserve and aggregate Snapshot copy reserve.
used	integer	Space used or reserved in bytes. Includes volume guarantees and aggregate metadata.
used_including_snapshot_reserve	integer	Total used including the Snapshot copy reserve, in bytes.
used_including_snapshot_reserve_percent	integer	Total used including the Snapshot reserve as a percentage.
volume_deduplication_shared_count	integer	Amount of shared bytes counted by storage efficiency.
volume_deduplication_space_saved	integer	Amount of space saved in bytes by storage efficiency.
volume_deduplication_space_saved_percent	integer	Percentage of space saved by storage efficiency.

Name	Type	Description
volume_footprints_percent	integer	A summation of volume footprints inside the aggregate, as a percentage. A volume's footprint is the amount of space being used for the volume in the aggregate.

cloud_storage

Name	Type	Description
used	integer	Used space in bytes in the cloud store. Only applicable for aggregates with a cloud store tier.

efficiency

Storage efficiency.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots

Storage efficiency that does not include the savings provided by Snapshot copies.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots_flexclones

Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

snapshot

Name	Type	Description
available	integer	Available space for Snapshot copies in bytes
reserve_percent	integer	Percentage of space reserved for Snapshot copies
total	integer	Total space for Snapshot copies in bytes
used	integer	Space used by Snapshot copies in bytes
used_percent	integer	Percentage of disk space used by Snapshot copies

space

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	efficiency	Storage efficiency.
efficiency_without_snapshots	efficiency_without_snapshots	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flexclones	efficiency_without_snapshots_flexclones	Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.

Name	Type	Description
footprint	integer	A summation of volume footprints (including volume guarantees), in bytes. This includes all of the volume footprints in the block_storage tier and the cloud_storage tier. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either footprint or **.
snapshot	snapshot	

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

The real time I/O statistics for the aggregate.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update an aggregate specified by the UUID

PATCH `/storage/aggregates/{uuid}`

Introduced In: 9.6

Updates the aggregate specified by the UUID with the properties in the body. This request starts a job and returns a link to that job.

Related ONTAP commands

- `storage aggregate add-disks`
- `storage aggregate mirror`
- `storage aggregate modify`
- `storage aggregate relocation start`
- `storage aggregate rename`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Aggregate UUID

Name	Type	In	Required	Description
auto_provision_policy	string	query	False	If set to expand, the PATCH operation runs the recommended expansion of the aggregate. • Introduced in: 9.8
simulate	boolean	query	False	If set to true, the PATCH operation runs a simulated aggregate expansion with the provided input disk count and returns the proposed size of the new aggregate along with any associated warnings. • Introduced in: 9.8
disk_size	integer	query	False	If set, PATCH only selects disks of the specified size.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
block_storage	block_storage	Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.
cloud_storage	cloud_storage	Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.

Name	Type	Description
create_time	string	Timestamp of aggregate creation.
data_encryption	data_encryption	
dr_home_node	dr_home_node	Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.
home_node	home_node	Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.
inactive_data_reporting	inactive_data_reporting	
metric	metric	The most recent sample of I/O metrics for the aggregate.
name	string	Aggregate name.
node	node	Node where the aggregate currently resides.
recommendation_spares	array[aggregate_spare]	Information on the aggregate's remaining hot spare disks.
snaplock_type	string	SnapLock type.
snapshot	snapshot	
space	space	
state	string	Operational state of the aggregate.
statistics	statistics	The real time I/O statistics for the aggregate.
uuid	string	Aggregate UUID.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "block_storage": {
    "hybrid_cache": {
      "disk_count": 6,
      "raid_type": "string",
      "size": 1612709888,
      "used": 26501122
    },
    "mirror": {
      "enabled": "",
      "state": "string"
    },
    "plexes": [
      {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "plex0"
      }
    ],
    "primary": {
      "checksum_style": "string",
      "disk_class": "performance",
      "disk_count": 8,
      "disk_type": "string",
      "raid_size": 16,
      "raid_type": "string",
      "simulated_raid_groups": [
        {
          "name": "string",
          "raid_type": "string"
        }
      ]
    }
  },
  "cloud_storage": {
    "stores": [
```

```
      {
        "cloud_store": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "store1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "used": 0
      }
    ]
  },
  "create_time": "2018-01-01T12:00:00-04:00",
  "dr_home_node": {
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "inactive_data_reporting": {
    "start_time": "2019-12-12T12:00:00-04:00"
  },
  "metric": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "duration": "PT15S",
    "iops": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency": {
      "read": 200,
      "total": 1000,
```

```
      "write": 100
    },
    "status": "ok",
    "throughput": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "name": "node1_aggr_1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "recommendation_spares": [
    {
      "checksum_style": "string",
      "disk_class": "solid_state",
      "disk_type": "string",
      "is_partition": 1,
      "layout_requirements": [
        {
          "aggregate_min_disks": 6,
          "raid_group": {
            "default": 16,
            "max": 28,
            "min": 5
          },
          "raid_type": "string"
        }
      ],
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
```

```
      "size": 10156769280,
      "syncmirror_pool": "string",
      "usable": 9
    }
  ],
  "snaplock_type": "string",
  "snapshot": {
    "files_total": 10,
    "files_used": 3,
    "max_files_available": 5,
    "max_files_used": 50
  },
  "space": {
    "block_storage": {
      "aggregate_metadata": 2655,
      "aggregate_metadata_percent": 8,
      "available": 10156560384,
      "data_compacted_count": 1990000,
      "data_compaction_space_saved": 1996000,
      "data_compaction_space_saved_percent": 27,
      "full_threshold_percent": 0,
      "inactive_user_data": 304448,
      "inactive_user_data_percent": 0,
      "physical_used": 2461696,
      "physical_used_percent": 50,
      "size": 10156769280,
      "used": 2088960,
      "used_including_snapshot_reserve": 674685,
      "used_including_snapshot_reserve_percent": 35,
      "volume_deduplication_shared_count": 1990000,
      "volume_deduplication_space_saved": 1996000,
      "volume_deduplication_space_saved_percent": 27,
      "volume_footprints_percent": 14
    },
    "cloud_storage": {
      "used": 402743264
    },
    "efficiency": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "efficiency_without_snapshots": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
```

```
    },
    "efficiency_without_snapshots_flexclones": {
      "logical_used": 0,
      "ratio": 0,
      "savings": 0
    },
    "footprint": 608896,
    "snapshot": {
      "available": 2000,
      "reserve_percent": 20,
      "total": 5000,
      "used": 3000,
      "used_percent": 45
    }
  },
  "state": "string",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "uuid": "string"
}
```


Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	
num_records	integer	Number of records
records	array[aggregate]	
warnings	array[aggregate_warning]	List of validation warnings and remediation advice for the aggregate simulate behavior.

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "block_storage": {
        "hybrid_cache": {
          "disk_count": 6,
          "raid_type": "string",
          "size": 1612709888,
          "used": 26501122
        },
        "mirror": {
          "enabled": "",
          "state": "string"
        },
        "plexes": [
          {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "plex0"
          }
        ],
        "primary": {
          "checksum_style": "string",
          "disk_class": "performance",
          "disk_count": 8,
          "disk_type": "string",
          "raid_size": 16,
          "raid_type": "string",
```

```
        "simulated_raid_groups": [
          {
            "name": "string",
            "raid_type": "string"
          }
        ]
      }
    },
    "cloud_storage": {
      "stores": [
        {
          "cloud_store": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "store1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          },
          "used": 0
        }
      ]
    },
    "create_time": "2018-01-01T12:00:00-04:00",
    "dr_home_node": {
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "home_node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "inactive_data_reporting": {
      "start_time": "2019-12-12T12:00:00-04:00"
    },
    "metric": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
```

```
      },
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "throughput": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "name": "node1_aggr_1",
    "node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "recommendation_spares": [
      {
        "checksum_style": "string",
        "disk_class": "solid_state",
        "disk_type": "string",
        "is_partition": 1,
        "layout_requirements": [
          {
            "aggregate_min_disks": 6,
            "raid_group": {
              "default": 16,
              "max": 28,
              "min": 5
            },
            "raid_type": "string"
          }
```

```
      ],
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "size": 10156769280,
      "syncmirror_pool": "string",
      "usable": 9
    }
  ],
  "snaplock_type": "string",
  "snapshot": {
    "files_total": 10,
    "files_used": 3,
    "max_files_available": 5,
    "max_files_used": 50
  },
  "space": {
    "block_storage": {
      "aggregate_metadata": 2655,
      "aggregate_metadata_percent": 8,
      "available": 10156560384,
      "data_compacted_count": 1990000,
      "data_compaction_space_saved": 1996000,
      "data_compaction_space_saved_percent": 27,
      "full_threshold_percent": 0,
      "inactive_user_data": 304448,
      "inactive_user_data_percent": 0,
      "physical_used": 2461696,
      "physical_used_percent": 50,
      "size": 10156769280,
      "used": 2088960,
      "used_including_snapshot_reserve": 674685,
      "used_including_snapshot_reserve_percent": 35,
      "volume_deduplication_shared_count": 1990000,
      "volume_deduplication_space_saved": 1996000,
      "volume_deduplication_space_saved_percent": 27,
      "volume_footprints_percent": 14
    },
    "cloud_storage": {
      "used": 402743264
```

```
      },
      "efficiency": {
        "logical_used": 0,
        "ratio": 0,
        "savings": 0
      },
      "efficiency_without_snapshots": {
        "logical_used": 0,
        "ratio": 0,
        "savings": 0
      },
      "efficiency_without_snapshots_flexclones": {
        "logical_used": 0,
        "ratio": 0,
        "savings": 0
      },
      "footprint": 608896,
      "snapshot": {
        "available": 2000,
        "reserve_percent": 20,
        "total": 5000,
        "used": 3000,
        "used_percent": 45
      }
    },
    "state": "string",
    "statistics": {
      "iops_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "throughput_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "uuid": "string"
```

```
      }
    ],
    "warnings": [
      {
        "action": {
          "arguments": [
            "string"
          ],
          "message": "string"
        },
        "name": "string",
        "warning": {
          "arguments": [
            "string"
          ],
          "message": "string"
        }
      }
    ]
  }
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
262247	The value is invalid for the field.
460777	Failed to get information on the job.
786434	Cannot connect to node where the aggregate resides.
786435	Internal Error. Failed to create a communication handle.
786439	An aggregate already uses the specified name.
786447	Failed to modify the aggregate.
786456	Failed to add disks to the aggregate.
786458	Failed to rename aggregate.
786468	VLDB is offline.
786472	Node that hosts the aggregate is offline.
786479	Cannot find node ID for the node.

Error Code	Description
786491	Not enough spares on the node.
786730	Internal Error
786771	Aggregate does not exist.
786787	Aggregate is not online.
786808	Aggregate mirror failed.
786867	Specified aggregate resides on the remote cluster.
786911	Not every node in the cluster has the Data ONTAP version required for the feature.
786923	This operation is not allowed during the pre-commit phase of a 7-mode to clustered Data ONTAP transition.
786924	Internal error for an aggregate that is in the pre-commit phase of a 7-mode to clustered Data ONTAP transition.
786955	Modifying raidtype to raid_tec requires a minimum of six disks in the RAID Group.
786956	Modifying raidtype to raid_dp requires a minimum of four disks in the RAID Group.
786965	Spare Selection in userspace failed.
787046	Mirroring of a FabricPool is not allowed.
787092	The target field cannot be specified for this operation.
787144	Aggregate is not a FabricPool.
787156	Modifying the attributes of mirror object store is not allowed.
787169	Only one field can be modified per operation.
787170	Failed to patch the "block_storage.primary.disk_count" because the disk count specified is smaller than existing disk count.
787172	This query is only allowed during the modification of the specified field.
787178	Unmirroring an aggregate with a PATCH operation is not supported.
787187	Internal error. Failed to check if the aggregate is a FabricPool.
1258699	Cannot use all the disks specified for the requested operation.
1263500	Operation will lead to creation of new raid group.
1263501	Operation will exceed half of the maximum volume sizes allowed on the node.

Error Code	Description
1263502	One spare data partition from at least one of the chosen root-data1-data2 disks will not be used.
1263503	Operation will lead to downsizing of one or more disks.
1263504	Operation will lead to a spares low condition.
1263598	One or more selected disks will be partitioned.
1263624	Operation will lead to a no sparecore condition.
2425736	No matching node found for the UUID provided.
7209049	Cannot perform the operation because the aggregate is currently expanding.
7209075	Cannot perform the operation because the volume size limit for this system type would be exceeded.
13108106	Cannot run aggregate relocation because volume expand is in progress.
19726347	There are a number of unassigned disks visible to the node that owns this aggregate.
19726382	Another provisioning operation is in progress on this cluster. Wait a few minutes, and try the operation again.
19726390	Unable to automatically expand this aggregate.
19726391	Too many unassigned disks visible to the node that owns this aggregate.
19726392	Layout of this aggregate is not a supported configuration.
19726393	Failed to expand the aggregate. Aggregate expansion is not supported on this system.
19726394	Automatic aggregate expansion is not supported on systems with multiple data aggregates.
19726395	Automatic aggregate expansion is not supported when MetroCluster is not configured.
19726396	Automatic aggregate expansion is not supported when the DR group is not in a normal state.
19726397	Aggregates must contain disks with identical disk-types and disk-sizes.
19726402	Internal error. Unable to determine the MetroCluster configuration state.
19726538	Cannot perform the operation because the aggregate is not in a healthy state.
26542083	Destination node is at higher Data ONTAP version than source node.

Error Code	Description
26542084	Source node is at higher Data ONTAP version than destination node.
26542097	Unable to get D-blade ID of destination.
26542101	Unable to contact the source node.
26542102	Unable to contact the destination node.
26542120	An SVM migrate operation is in progress. When the migrate operation completes, try the operation again.
26542121	A MetroCluster disaster recovery operation is in progress. When the recovery operation completes, try the operation again.
196608334	Failed to modify the aggregate because it contains NAE volumes.
196608335	Failed to modify the aggregate because it contains non-encrypted volumes.

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

hybrid_cache

Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.

Name	Type	Description
disk_count	integer	Number of disks used in the cache tier of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
enabled	boolean	Specifies whether the aggregate uses HDDs with SSDs as a cache.
raid_type	string	RAID type for SSD cache of the aggregate. Only provided when hybrid_cache.enabled is 'true'.
size	integer	Total usable space in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.
used	integer	Space used in bytes of SSD cache. Only provided when hybrid_cache.enabled is 'true'.

mirror

Name	Type	Description
enabled	boolean	Aggregate is SyncMirror protected
state	string	

plex_reference

Plex

Name	Type	Description
_links	_links	
name	string	

simulated_raid_groups

Name	Type	Description
data_disk_count	integer	Number of data disks in RAID group.
is_partition	boolean	Indicates whether the disk is partitioned (true) or whole (false).
name	string	Name of the raid group.
parity_disk_count	integer	Number of parity disks in RAID group.
raid_type	string	RAID type of the aggregate.
usable_size	integer	Usable size of each disk, in bytes.

primary

Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

Name	Type	Description
checksum_style	string	The checksum style used by the aggregate.
disk_class	string	The class of disks being used by the aggregate.
disk_count	integer	Number of disks used in the aggregate. This includes parity disks, but excludes disks in the hybrid cache.
disk_type	string	The type of disk being used by the aggregate.

Name	Type	Description
raid_size	integer	Option to specify the maximum number of disks that can be included in a RAID group.
raid_type	string	RAID type of the aggregate.
simulated_raid_groups	array[simulated_raid_groups]	

block_storage

Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.

Name	Type	Description
hybrid_cache	hybrid_cache	Contains the configuration for the hybrid cache. The hybrid cache is made up of either whole SSDs or storage pool SSDs.
mirror	mirror	
plexes	array[plex_reference]	Plex reference for each plex in the aggregate.
primary	primary	Configuration information for the primary storage portion of the aggregate. This excludes the hybrid cache details.

cloud_store

Cloud store

Name	Type	Description
_links	_links	
name	string	
uuid	string	

cloud_storage_tier

Name	Type	Description
cloud_store	cloud_store	Cloud store

Name	Type	Description
used	integer	Capacity used in bytes in the cloud store by this aggregate. This is a cached value calculated every 5 minutes.

cloud_storage

Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.

Name	Type	Description
attach_eligible	boolean	Specifies whether the aggregate is eligible for a cloud store to be attached.
stores	array[cloud_storage_tier]	Configuration information for each cloud storage portion of the aggregate.
tiering_fullness_threshold	integer	The percentage of space in the performance tier that must be used before data is tiered out to the cloud store. Only valid for PATCH operations.

data_encryption

Name	Type	Description
drive_protection_enabled	boolean	Specifies whether the aggregate uses self-encrypting drives with data protection enabled.
software_encryption_enabled	boolean	Specifies whether NetApp aggregate encryption is enabled. All data in the aggregate is encrypted.

dr_home_node

Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.

Name	Type	Description
name	string	
uuid	string	

home_node

Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

inactive_data_reporting

Name	Type	Description
enabled	boolean	Specifes whether or not inactive data reporting is enabled on the aggregate.
start_time	string	Timestamp at which inactive data reporting was enabled on the aggregate.

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

metric

The most recent sample of I/O metrics for the aggregate.

Name	Type	Description
_links	_links	

Name	Type	Description
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

node

Node where the aggregate currently resides.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

raid_group

Name	Type	Description
default	integer	Default number of disks in a RAID group.
max	integer	Maximum number of disks allowed in a RAID group.
min	integer	Minimum number of disks allowed in a RAID group.

layout_requirement

Name	Type	Description
aggregate_min_disks	integer	Minimum number of disks to create an aggregate.
default	boolean	Indicates if this RAID type is the default.
raid_group	raid_group	
raid_type	string	RAID type.

node

Node where the spares are assigned.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

aggregate_spare

Name	Type	Description
checksum_style	string	The checksum type that has been assigned to the spares.
disk_class	string	Disk class of spares.
disk_type	string	Type of disk.
is_partition	boolean	Indicates whether a disk is partitioned (true) or whole (false)
layout_requirements	array[layout_requirement]	Available RAID protections and their restrictions.
node	node	Node where the spares are assigned.
size	integer	Usable size of each spare, in bytes.
syncmirror_pool	string	SyncMirror spare pool.
usable	integer	Total number of usable spares in the bucket. The usable count for each class of spares does not include reserved spare capacity recommended by ONTAP best practices. • example: 9 • readOnly: 1 • Introduced in: 9.6

snapshot

Name	Type	Description
files_total	integer	Total files allowed in Snapshot copies
files_used	integer	Total files created in Snapshot copies
max_files_available	integer	Maximum files available for Snapshot copies

Name	Type	Description
max_files_used	integer	Files in use by Snapshot copies

block_storage

Name	Type	Description
aggregate_metadata	integer	Space used by different metafiles and internal operations inside the aggregate, in bytes.
aggregate_metadata_percent	integer	Aggregate metadata as a percentage.
available	integer	Space available in bytes.
data_compacted_count	integer	Amount of compacted data in bytes.
data_compaction_space_saved	integer	Space saved in bytes by compacting the data.
data_compaction_space_saved_percent	integer	Percentage saved by compacting the data.
full_threshold_percent	integer	The aggregate used percentage at which 'monitor.volume.full' EMS is generated.
inactive_user_data	integer	The size that is physically used in the block storage and has a cold temperature, in bytes. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data or **.

Name	Type	Description
inactive_user_data_percent	integer	The percentage of inactive user data in the block storage. This property is only supported if the aggregate is either attached to a cloud store or can be attached to a cloud store. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either block_storage.inactive_user_data_percent or **.
physical_used	integer	Total physical used size of an aggregate in bytes.
physical_used_percent	integer	Physical used percentage.
size	integer	Total usable space in bytes, not including WAFL reserve and aggregate Snapshot copy reserve.
used	integer	Space used or reserved in bytes. Includes volume guarantees and aggregate metadata.
used_including_snapshot_reserve	integer	Total used including the Snapshot copy reserve, in bytes.
used_including_snapshot_reserve_percent	integer	Total used including the Snapshot reserve as a percentage.
volume_deduplication_shared_count	integer	Amount of shared bytes counted by storage efficiency.
volume_deduplication_space_saved	integer	Amount of space saved in bytes by storage efficiency.
volume_deduplication_space_saved_percent	integer	Percentage of space saved by storage efficiency.

Name	Type	Description
volume_footprints_percent	integer	A summation of volume footprints inside the aggregate, as a percentage. A volume's footprint is the amount of space being used for the volume in the aggregate.

cloud_storage

Name	Type	Description
used	integer	Used space in bytes in the cloud store. Only applicable for aggregates with a cloud store tier.

efficiency

Storage efficiency.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots

Storage efficiency that does not include the savings provided by Snapshot copies.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

efficiency_without_snapshots_flexclones

Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

snapshot

Name	Type	Description
available	integer	Available space for Snapshot copies in bytes
reserve_percent	integer	Percentage of space reserved for Snapshot copies
total	integer	Total space for Snapshot copies in bytes
used	integer	Space used by Snapshot copies in bytes
used_percent	integer	Percentage of disk space used by Snapshot copies

space

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	efficiency	Storage efficiency.
efficiency_without_snapshots	efficiency_without_snapshots	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flexclones	efficiency_without_snapshots_flexclones	Storage efficiency that does not include the savings provided by Snapshot copies and Flexclone volumes.

Name	Type	Description
footprint	integer	A summation of volume footprints (including volume guarantees), in bytes. This includes all of the volume footprints in the block_storage tier and the cloud_storage tier. This is an advanced property; there is an added cost to retrieving its value. The field is not populated for either a collection GET or an instance GET unless it is explicitly requested using the *fields* query parameter containing either footprint or **.
snapshot	snapshot	

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

The real time I/O statistics for the aggregate.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

aggregate

Name	Type	Description
_links	_links	
block_storage	block_storage	Configuration information for the locally attached portion of the aggregate. When a cloud store is also used by this aggregate, this is referred to as the performance tier.
cloud_storage	cloud_storage	Configuration information for the cloud storage portion of the aggregate. This is referred to as the capacity tier.
create_time	string	Timestamp of aggregate creation.
data_encryption	data_encryption	
dr_home_node	dr_home_node	Node where the aggregate resides after disaster recovery. The value for this field might differ from the 'node' field during switchover.
home_node	home_node	Node where the aggregate resides after giveback. The value for this field might differ from the value of the 'node' field during takeover.
inactive_data_reporting	inactive_data_reporting	
metric	metric	The most recent sample of I/O metrics for the aggregate.
name	string	Aggregate name.
node	node	Node where the aggregate currently resides.
recommendation_spares	array[aggregate_spare]	Information on the aggregate's remaining hot spare disks.
snaplock_type	string	SnapLock type.
snapshot	snapshot	
space	space	

Name	Type	Description
state	string	Operational state of the aggregate.
statistics	statistics	The real time I/O statistics for the aggregate.
uuid	string	Aggregate UUID.

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

action

Name	Type	Description
arguments	array[string]	Arguments present in the specified action message.
code	integer	Corrective action code of the specified action.
message	string	Specifies the corrective action to be taken to resolve the issue.

warning

Name	Type	Description
arguments	array[string]	Arguments present in the warning message encountered.
code	integer	Warning code of the warning encountered.
message	string	Details of the warning encountered by the aggregate simulate query.

aggregate_warning

Name	Type	Description
action	action	
name	string	Name of the entity that returns the warning.
warning	warning	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage aggregate metrics

Storage aggregates UUID metrics endpoint overview

Overview

The Storage Aggregate Metrics API provides historical performance metrics for the specified aggregate. The collection GET operation retrieves read, write, other and total metrics for a given aggregate, in terms of IOPS, latency and throughput. The read and write categories display the I/O operations that service user reads and writes across all the hosted volumes on a given aggregate. The other category encompasses background I/O operations that implement data protection services currently running on the aggregate. IOPs are the number of I/O operations reported per second, throughput is the amount of I/O operations measured in bytes per second and latency is the average response time for an IOP, reported in microseconds. Without a specified time interval, the output is limited to statistics collected at 15 second intervals over the last hour.

Examples

Retrieving metrics for an aggregate

In this example, the API returns a set of records that exist for the aggregate with the given UUID for the last hour.

```
# The API:
/api/storage/aggregates/{uuid}/metrics

#The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/538bf337-1b2c-11e8-
bad0-005056b48388/metrics?max_records=4" -H "accept: application/json"

#The response:
{
"records": [
  {
    "timestamp": "2019-01-14T23:33:45Z"
  },
  {
    "timestamp": "2019-01-14T23:33:30Z"
  },
  {
    "timestamp": "2019-01-14T23:33:15Z"
  },
  {
    "timestamp": "2019-01-14T23:33:00Z"
  }
],
"num_records": 4
}
```

Retrieving metrics for an aggregate with a set timestamp

In this example, the API returns metric values for latency, IOPS, and throughput properties such as read, write and total. The status and duration for which the metrics are requested are also returned.

```
#The API:
/api/storage/aggregates/{uuid}/metrics?timestamp={timestamp}

#The call:
curl -X GET "https://<mgmt-ip>/api/storage/aggregates/538bf337-1b2c-11e8-
bad0-005056b48388/metrics?timestamp=2019-01-1T23:33:00Z" -H "accept:
application/json"

#The response:
{
"records": [
  {
    "uuid": "538bf337-1b2c-11e8-bad0-005056b48388",
    "timestamp": "2019-01-01T23:33:00Z",
    "status": "ok",
    "duration": "PT15S",
    "throughput": {
      "read": 6826,
      "write": 205892,
      "other": 0,
      "total": 212718
    },
    "latency": {
      "read": 148,
      "write": 216,
      "other": 0,
      "total": 199
    },
    "iops": {
      "read": 1,
      "write": 5,
      "other": 0,
      "total": 6
    }
  }
]
}
```

Retrieving metrics for an aggregate for a set time interval

In this example, the API returns the requested metrics for the given time interval of 1 week. The interval value can be 1 hour, 1 day, 1 week, 1 month or 1 year. If the interval value is not set, a default value of 1 hour is used.

```
#The API:
```

```
/api/storage/aggregates/{uuid}/metrics

#The call:
  curl -X GET "https://<mgmt-ip>/api/storage/aggregates/538bf337-1b2c-
11e8-bad0-
005056b48388/metrics?return_timeout=15&fields=*&interval=1w&max_records=4"
-H "accept: application/json"

#The response:
{
"records": [
  {
     "timestamp": "2019-01-01T23:30:00Z",
     "status": "ok",
     "duration": "PT30M",
     "throughput": {
       "read": 268328,
       "write": 5556255,
       "other": 0,
       "total": 5824584
     },
     "latency": {
       "read": 156,
       "write": 430,
       "other": 0,
       "total": 318
     },
     "iops": {
       "read": 18,
       "write": 26,
       "other": 0,
       "total": 45
     }
  },
  {
     "timestamp": "2019-01-01T23:00:00Z",
     "status": "ok",
     "duration": "PT30M",
     "throughput": {
       "read": 474266,
       "write": 6121908,
       "other": 0,
       "total": 6596175
     },
     "latency": {
       "read": 154,
```

```
      "write": 448,
      "other": 0,
      "total": 262
    },
    "iops": {
      "read": 48,
      "write": 28,
      "other": 0,
      "total": 76
    }
  },
  {
    "timestamp": "2019-01-01T22:30:00Z",
    "status": "ok",
    "duration": "PT30M",
    "throughput": {
      "read": 540164,
      "write": 2411356,
      "other": 26244685,
      "total": 29196206
    },
    "latency": {
      "read": 159,
      "write": 394,
      "other": 192,
      "total": 193
    },
    "iops": {
      "read": 94,
      "write": 16,
      "other": 437,
      "total": 548
    }
  },
  {
    "timestamp": "2019-01-01T22:00:00Z",
    "status": "ok",
    "duration": "PT30M",
    "throughput": {
      "read": 2842,
      "write": 2765407,
      "other": 0,
      "total": 2768249
    },
    "latency": {
      "read": 189,
```

```
        "write": 540,
        "other": 0,
        "total": 523
      },
      "iops": {
        "read": 0,
        "write": 13,
        "other": 0,
        "total": 13
      }
    }
  ],
  "num_records": 4
}
```


Related ONTAP commands

- `statistics aggregate show`

Retrieve historical performance metrics for an aggregate

GET `/storage/aggregates/{uuid}/metrics`

Introduced In: 9.7

Retrieves historical performance metrics for an aggregate.

Parameters

Name	Type	In	Required	Description
iops.total	integer	query	False	Filter by iops.total
iops.write	integer	query	False	Filter by iops.write
iops.other	integer	query	False	Filter by iops.other
iops.read	integer	query	False	Filter by iops.read
status	string	query	False	Filter by status
throughput.total	integer	query	False	Filter by throughput.total
throughput.write	integer	query	False	Filter by throughput.write

Name	Type	In	Required	Description
throughput.other	integer	query	False	Filter by throughput.other
throughput.read	integer	query	False	Filter by throughput.read
duration	string	query	False	Filter by duration
latency.total	integer	query	False	Filter by latency.total
latency.write	integer	query	False	Filter by latency.write
latency.other	integer	query	False	Filter by latency.other
latency.read	integer	query	False	Filter by latency.read
timestamp	string	query	False	Filter by timestamp
uuid	string	path	True	Unique identifier of the aggregate.

Name	Type	In	Required	Description
interval	string	query	False	The time range for the data. Values can be 1h, 1d, 1w, 1m, or 1y. The period for each time range is as follows: • 1h: Metrics over the most recent hour sampled over 15 seconds. • 1d: Metrics over the most recent day sampled over 5 minutes. • 1w: Metrics over the most recent week sampled over 30 minutes. • 1m: Metrics over the most recent month sampled over 2 hours. • 1y: Metrics over the most recent year sampled over a day. • Default value: 1 • enum: ["1h", "1d", "1w", "1m", "1y"]

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
order_by	array[string]	query	False	Order results by specified fields and optional [asc
desc] direction. Default direction is 'asc' for ascending.	return_records	boolean	query	False

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[records]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "throughput": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "timestamp": "2017-01-25T11:20:13Z"
    }
  ]
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
8586225	Encountered unexpected error in retrieving metrics for the requested aggregate.

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

records

Performance numbers, such as IOPS latency and throughput.

Name	Type	Description
_links	_links	

Name	Type	Description
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage bridges

Storage bridges endpoint overview

Retrieving storage bridge information

The storage bridge GET API retrieves all of the bridges in the cluster.

Examples

1) Retrieves a list of bridges from the cluster

The following example shows the response with a list of bridges from the cluster:

```
# The API:
/api/storage/bridges

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/bridges" -H "accept:
application/hal+json"

# The response:
{
"records": [
  {
    "wwn": "2000001086a18100",
    "name": "ATTO_2000001086a18100",
    "_links": {
      "self": {
        "href": "/api/storage/bridges/2000001086a18100"
      }
    }
  },
  {
    "wwn": "2000001086a18380",
    "name": "ATTO_2000001086a18380",
    "_links": {
      "self": {
        "href": "/api/storage/bridges/2000001086a18380"
      }
    }
  }
],
"num_records": 2,
"_links": {
  "self": {
    "href": "/api/storage/bridges/"
  }
}
}
```

2) Retrieves a specific bridge from the cluster

The following example shows the response of the requested bridge. If there is no bridge with the requested wwn, an error is returned.

```
# The API:
/api/storage/bridges/{wwn}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/bridges/2000001086a18100" -H
"accept: application/hal+json"

# The response:
{
 "wwn": "2000001086a18100",
 "chassis_throughput_state": "ok",
 "dram_single_bit_error_count": 0,
 "firmware_version": "3.10 007A",
 "ip_address": "10.226.57.178",
 "security_enabled": false,
 "monitoring_enabled": true,
 "model": "FibreBridge 7500N",
 "state": "ok",
 "managed_by": "in_band",
 "serial_number": "FB7500N102450",
 "symbolic_name": "RTP-FCSAS02-41KK10",
 "vendor": "atto",
 "name": "ATTO_2000001086a18100",
 "last_reboot": {
 "reason": {
   "message": "Reason: \"FirmwareRestart Command\".",
   "code": "39321683"
 },
 "time": "2020-12-09T00:47:58-05:00"
 },
 "paths": [
 {
   "name": "0e",
   "node": {
     "name": "sti8080mcc-htp-005",
     "uuid": "ecc3d992-3a86-11eb-9fab-00a0985a6024",
     "_links": {
       "self": {
         "href": "/api/cluster/nodes/ecc3d992-3a86-11eb-9fab-00a0985a6024"
       }
     }
   },
   "_links": {
     "self": {
       "href": "/api/storage/ports/ecc3d992-3a86-11eb-9fab-
00a0985a6024/0e"
```

```
      }
    },
    "target_port": {
      "wwn": "2100001086a18380"
    }
  }
  ],
  "temperature_sensor": {
  "name": "Chassis Temperature Sensor",
  "minimum": 0,
  "maximum": 90,
  "reading": 54,
  "state": "ok"
  },
  "fc_ports": [
{
  "id": 1,
  "state": "online",
  "enabled": true,
  "negotiated_data_rate": 8,
  "configured_data_rate": 8,
  "conn_mode": "ptp",
  "data_rate_capability": 16,
  "wwn": "2100001086a18100",
  "peer_wwn": "0000000000000000",
  "sfp": {
   "vendor": "FINISAR CORP.",
   "serial_number": "UW106SA",
   "part_number": "FTLF8529P3BCV",
   "data_rate_capability": 16
  }
},
{
  "id": 2,
  "state": "online",
  "enabled": true,
  "negotiated_data_rate": 16,
  "configured_data_rate": 16,
  "conn_mode": "ptp",
  "data_rate_capability": 16,
  "wwn": "2200001086a18100",
  "peer_wwn": "0000000000000000",
  "sfp": {
   "vendor": "FINISAR CORP.",
   "serial_number": "UW1072B",
   "part_number": "FTLF8529P3BCV",
```

```
   "data_rate_capability": 16
   }
  }
 ],
  "power_supply_units": [
 {
  "name": "A",
  "state": "ok"
 },
 {
  "name": "B",
  "state": "ok"
 }
  ],
  "sas_ports": [
 {
  "id": 1,
   "state": "online",
   "enabled": true,
   "data_rate_capability": 12,
   "negotiated_data_rate": 6,
   "wwn": "5001086000a18100",
   "phy_1": {
     "state": "online"
   },
   "phy_2": {
     "state": "online"
   },
   "phy_3": {
     "state": "online"
   },
   "phy_4": {
     "state": "online"
   },
   "cable": {
     "vendor": "Molex Inc.",
     "serial_number": "618130935",
     "technology": "Passive Copper 5m ID:00",
     "part_number": "112-00431"
   }
  },
 {
   "state": "offline",
   "enabled": false,
   "data_rate_capability": 12,
   "negotiated_data_rate": 0,
```

```
  "wwn": "5001086000a18104",
  "phy_1": {
    "state": "offline"
  },
  "phy_2": {
    "state": "offline"
  },
  "phy_3": {
    "state": "offline"
  },
  "phy_4": {
    "state": "offline"
  },
 },
{
  "state": "offline",
  "enabled": false,
  "data_rate_capability": 12,
  "negotiated_data_rate": 0,
  "wwn": "5001086000a18108",
  "phy_1": {
    "state": "offline"
  },
  "phy_2": {
    "state": "offline"
  },
  "phy_3": {
    "state": "offline"
  },
  "phy_4": {
    "state": "offline"
  },
 },
{
  "state": "offline",
  "enabled": false,
  "data_rate_capability": 12,
  "negotiated_data_rate": 0,
  "wwn": "5001086000a1810c",
  "phy_1": {
    "state": "offline"
  },
  "phy_2": {
    "state": "offline"
  },
  "phy_3": {
```

```
    "state": "offline"
  },
  "phy_4": {
    "state": "offline"
  },
}
],
"_links": {
"self": {
  "href": "/api/storage/bridges/2000001086a18100"
 }
}
}
```


Retrieve a collection of bridges

GET `/storage/bridges`

Introduced In: 9.9

Retrieves a collection of bridges.

Related ONTAP commands

- `storage bridge show`

Learn more

- DOC /storage/bridges

Parameters

Name	Type	In	Required	Description
managed_by	string	query	False	Filter by managed_by
symbolic_name	string	query	False	Filter by symbolic_name
firmware_version	string	query	False	Filter by firmware_version
serial_number	string	query	False	Filter by serial_number

Name	Type	In	Required	Description
last_reboot.reason.arguments.message	string	query	False	Filter by last_reboot.reason.arguments.message • Introduced in: 9.10
last_reboot.reason.arguments.code	string	query	False	Filter by last_reboot.reason.arguments.code • Introduced in: 9.10
last_reboot.reason.message	string	query	False	Filter by last_reboot.reason.message
last_reboot.reason.code	string	query	False	Filter by last_reboot.reason.code
last_reboot.reason.target	string	query	False	Filter by last_reboot.reason.target • Introduced in: 9.10
last_reboot.time	string	query	False	Filter by last_reboot.time
name	string	query	False	Filter by name
model	string	query	False	Filter by model
ip_address	string	query	False	Filter by ip_address
fc_ports.wwn	string	query	False	Filter by fc_ports.wwn
fc_ports.configured_data_rate	number	query	False	Filter by fc_ports.configured_data_rate

Name	Type	In	Required	Description
fc_ports.connection_mode	string	query	False	Filter by fc_ports.connection_mode
fc_ports.enabled	boolean	query	False	Filter by fc_ports.enabled
fc_ports.peer_wwn	string	query	False	Filter by fc_ports.peer_wwn
fc_ports.sfp.data_rate_capability	number	query	False	Filter by fc_ports.sfp.data_rate_capability
fc_ports.sfp.part_number	string	query	False	Filter by fc_ports.sfp.part_number
fc_ports.sfp.serial_number	string	query	False	Filter by fc_ports.sfp.serial_number
fc_ports.sfp.vendor	string	query	False	Filter by fc_ports.sfp.vendor
fc_ports.data_rate_capability	number	query	False	Filter by fc_ports.data_rate_capability
fc_ports.negotiated_data_rate	number	query	False	Filter by fc_ports.negotiated_data_rate
fc_ports.id	integer	query	False	Filter by fc_ports.id
fc_ports.state	string	query	False	Filter by fc_ports.state
wwn	string	query	False	Filter by wwn
state	string	query	False	Filter by state
paths.node.uuid	string	query	False	Filter by paths.node.uuid

Name	Type	In	Required	Description
paths.node.name	string	query	False	Filter by paths.node.name
paths.source_port.name	string	query	False	Filter by paths.source_port.name
paths.source_port.id	string	query	False	Filter by paths.source_port.id
paths.target_port.name	string	query	False	Filter by paths.target_port.name
paths.target_port.id	string	query	False	Filter by paths.target_port.id
paths.target_port.wwn	string	query	False	Filter by paths.target_port.wwn
paths.name	string	query	False	Filter by paths.name
temperature_sensor.minimum	integer	query	False	Filter by temperature_sensor.minimum
temperature_sensor.maximum	integer	query	False	Filter by temperature_sensor.maximum
temperature_sensor.reading	integer	query	False	Filter by temperature_sensor.reading
temperature_sensor.name	string	query	False	Filter by temperature_sensor.name
temperature_sensor.state	string	query	False	Filter by temperature_sensor.state
vendor	string	query	False	Filter by vendor

Name	Type	In	Required	Description
security_enabled	boolean	query	False	Filter by security_enabled
chassis_throughput_state	string	query	False	Filter by chassis_throughput_state
power_supply_units.name	string	query	False	Filter by power_supply_units.name
power_supply_units.state	string	query	False	Filter by power_supply_units.state
monitoring_enabled	boolean	query	False	Filter by monitoring_enabled
sas_ports.negotiated_data_rate	number	query	False	Filter by sas_ports.negotiated_data_rate
sas_ports.phy_2.state	string	query	False	Filter by sas_ports.phy_2.state
sas_ports.id	integer	query	False	Filter by sas_ports.id
sas_ports.state	string	query	False	Filter by sas_ports.state
sas_ports.cable.technology	string	query	False	Filter by sas_ports.cable.technology
sas_ports.cable.part_number	string	query	False	Filter by sas_ports.cable.part_number
sas_ports.cable.vendor	string	query	False	Filter by sas_ports.cable.vendor
sas_ports.cable.serial_number	string	query	False	Filter by sas_ports.cable.serial_number

Name	Type	In	Required	Description
sas_ports.data_rate_capability	number	query	False	Filter by sas_ports.data_rate_capability
sas_ports.phy_3.state	string	query	False	Filter by sas_ports.phy_3.state
sas_ports.wwn	string	query	False	Filter by sas_ports.wwn
sas_ports.phy_4.state	string	query	False	Filter by sas_ports.phy_4.state
sas_ports.phy_1.state	string	query	False	Filter by sas_ports.phy_1.state
sas_ports.enabled	boolean	query	False	Filter by sas_ports.enabled
dram_single_bit_error_count	integer	query	False	Filter by dram_single_bit_error_count
errors.component.unique_id	string	query	False	Filter by errors.component.unique_id
errors.component.id	integer	query	False	Filter by errors.component.id
errors.component.name	string	query	False	Filter by errors.component.name
errors.severity	string	query	False	Filter by errors.severity
errors.reason.arguments.message	string	query	False	Filter by errors.reason.arguments.message • Introduced in: 9.10

Name	Type	In	Required	Description
errors.reason.arguments.code	string	query	False	Filter by errors.reason.arguments.code • Introduced in: 9.10
errors.reason.message	string	query	False	Filter by errors.reason.message
errors.reason.code	string	query	False	Filter by errors.reason.code
errors.reason.target	string	query	False	Filter by errors.reason.target • Introduced in: 9.10
errors.type	string	query	False	Filter by errors.type
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[storage_bridge]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "chassis_throughput_state": "ok",
      "errors": [
        {
          "component": {
            "name": "string",
            "unique_id": "string"
          },
          "reason": {
            "arguments": [
              {
                "code": "string",
                "message": "string"
              }
            ],
            "code": "4",
            "message": "entry doesn't exist",
            "target": "uuid"
          },
          "severity": "string",
          "type": "string"
        }
      ],
      "fc_ports": [
        {
          "configured_data_rate": "0",
          "connection_mode": "string",
          "data_rate_capability": "2",
          "negotiated_data_rate": "0",
          "peer_wwn": "200650eb1a238892",
          "sfp": {
            "data_rate_capability": "2",
            "part_number": "string",
            "serial_number": "string",
```

```
          "vendor": "string"
        },
        "state": "string",
        "wwn": "2100001086a54100"
      }
    ],
    "firmware_version": "4.10 007A",
    "ip_address": "string",
    "last_reboot": {
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      },
      "time": "2020-12-09T00:47:58-05:00"
    },
    "managed_by": "string",
    "model": "FibreBridge6500N",
    "name": "ATTO_FibreBridge6500N_1",
    "paths": [
      {
        "name": "2c",
        "node": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "source_port": {
          "id": "100050eb1a238892",
          "name": "rtp-fc03-41kk11:1"
        },
        "target_port": {
          "id": "100050eb1a238892",
          "name": "rtp-fc03-41kk11:6",
          "wwn": "2100001086a54100"
        }
```

```
        }
      ],
      "power_supply_units": [
        {
          "name": "string",
          "state": "string"
        }
      ],
      "sas_ports": [
        {
          "cable": {
            "part_number": "string",
            "serial_number": "string",
            "technology": "string",
            "vendor": "string"
          },
          "data_rate_capability": "0",
          "negotiated_data_rate": "0",
          "phy_1": {
            "state": "string"
          },
          "phy_2": {
            "state": "string"
          },
          "phy_3": {
            "state": "string"
          },
          "phy_4": {
            "state": "string"
          },
          "state": "string",
          "wwn": "2100001086a54100"
        }
      ],
      "serial_number": "FB7600N100004",
      "state": "string",
      "symbolic_name": "rtp-fcsas03-41kk11",
      "temperature_sensor": {
        "name": "Chassis temperature sensor",
        "state": "string"
      },
      "vendor": "atto",
      "wwn": "2000001086600476"
    }
  ]
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

component

Name	Type	Description
id	integer	Bridge error component ID
name	string	Bridge error component name
unique_id	string	Bridge error component unique ID

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

errors

Name	Type	Description
component	component	
reason	error	
severity	string	Bridge error severity
type	string	Bridge error type

sfp

Name	Type	Description
data_rate_capability	number	Bridge FC port SFP data rate capability, in Gbps
part_number	string	
serial_number	string	Bridge FC port SFP serial number
vendor	string	Bridge FC port SFP vendor

fc_ports

Name	Type	Description
configured_data_rate	number	Bridge FC port configured data rate, in Gbps
connection_mode	string	Bridge FC port configured connection mode
data_rate_capability	number	Bridge FC port data rate capability, in Gbps
enabled	boolean	Indicates whether the bridge FC port is enabled.
id	integer	Bridge FC port index
negotiated_data_rate	number	Bridge FC port negotiated data rate, in Gbps
peer_wwn	string	Bridge FC port peer port world wide name
sfp	sfp	

Name	Type	Description
state	string	Bridge FC port state
wwn	string	Bridge FC port world wide name

error

The error message and code explaining why the bridge rebooted.

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

last_reboot

Name	Type	Description
reason	error	The error message and code explaining why the bridge rebooted.
time	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

source_port

Name	Type	Description
id	string	Initiator side switch port id
name	string	Initiator side switch port name

target_port

Name	Type	Description
id	string	Target side switch port id
name	string	Target side switch port name
wwn	string	Target side switch port world wide name

paths

Name	Type	Description
name	string	
node	node	
source_port	source_port	
target_port	target_port	

power_supply_units

Name	Type	Description
name	string	Power supply unit name
state	string	Power supply unit state

cable

Name	Type	Description
part_number	string	Bridge cable part number
serial_number	string	Bridge cable serial number
technology	string	Bridge cable type
vendor	string	Bridge cable vendor

phy_1

Name	Type	Description
state	string	Bridge SAS port PHY1 state

phy_2

Name	Type	Description
state	string	Bridge SAS port PHY2 state

phy_3

Name	Type	Description
state	string	Bridge SAS port PHY3 state

phy_4

Name	Type	Description
state	string	Bridge SAS port PHY4 state

sas_ports

Name	Type	Description
cable	cable	
data_rate_capability	number	Bridge SAS port data rate capability, in Gbps
enabled	boolean	Indicates whether a bridge SAS port is enabled.
id	integer	Bridge SAS port index
negotiated_data_rate	number	Bridge SAS port negotiated data rate, in Gbps
phy_1	phy_1	
phy_2	phy_2	
phy_3	phy_3	
phy_4	phy_4	
state	string	Bridge SAS port state

Name	Type	Description
wwn	string	Bridge SAS port world wide name

temperature_sensor

Name	Type	Description
maximum	integer	Maximum safe operating temperature, in degrees Celsius.
minimum	integer	Minimum safe operating temperature, in degrees Celsius.
name	string	Temperature sensor name
reading	integer	Chassis temperature sensor reading, in degrees Celsius.
state	string	

storage_bridge

Name	Type	Description
chassis_throughput_state	string	Chassis throughput status
dram_single_bit_error_count	integer	
errors	array[errors]	
fc_ports	array[fc_ports]	
firmware_version	string	Bridge firmware version
ip_address	string	IP Address
last_reboot	last_reboot	
managed_by	string	
model	string	Bridge model
monitoring_enabled	boolean	Indicates whether monitoring is enabled for the bridge.
name	string	Bridge name
paths	array[paths]	
power_supply_units	array[power_supply_units]	

Name	Type	Description
sas_ports	array[sas_ports]	
security_enabled	boolean	Indicates whether security is enabled for the bridge.
serial_number	string	Bridge serial number
state	string	Bridge state
symbolic_name	string	Bridge symbolic name
temperature_sensor	temperature_sensor	
vendor	string	Bridge vendor
wwn	string	Bridge world wide name

Retrieve a specific bridge

GET `/storage/bridges/{wwn}`

Introduced In: 9.9

Retrieves a specific bridge

Related ONTAP commands

- `storage bridge show`

Learn more

- DOC /storage/bridges

Parameters

Name	Type	In	Required	Description
wwn	string	path	True	
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
chassis_throughput_state	string	Chassis throughput status
dram_single_bit_error_count	integer	
errors	array[errors]	
fc_ports	array[fc_ports]	
firmware_version	string	Bridge firmware version
ip_address	string	IP Address
last_reboot	last_reboot	
managed_by	string	
model	string	Bridge model
monitoring_enabled	boolean	Indicates whether monitoring is enabled for the bridge.
name	string	Bridge name
paths	array[paths]	
power_supply_units	array[power_supply_units]	
sas_ports	array[sas_ports]	
security_enabled	boolean	Indicates whether security is enabled for the bridge.
serial_number	string	Bridge serial number
state	string	Bridge state
symbolic_name	string	Bridge symbolic name
temperature_sensor	temperature_sensor	
vendor	string	Bridge vendor
wwn	string	Bridge world wide name

Example response


```
{
  "chassis_throughput_state": "ok",
  "errors": [
    {
      "component": {
        "name": "string",
        "unique_id": "string"
      },
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      },
      "severity": "string",
      "type": "string"
    }
  ],
  "fc_ports": [
    {
      "configured_data_rate": "0",
      "connection_mode": "string",
      "data_rate_capability": "2",
      "negotiated_data_rate": "0",
      "peer_wwn": "200650eb1a238892",
      "sfp": {
        "data_rate_capability": "2",
        "part_number": "string",
        "serial_number": "string",
        "vendor": "string"
      },
      "state": "string",
      "wwn": "2100001086a54100"
    }
  ],
  "firmware_version": "4.10 007A",
  "ip_address": "string",
  "last_reboot": {
    "reason": {
```

```
      "arguments": [
        {
          "code": "string",
          "message": "string"
        }
      ],
      "code": "4",
      "message": "entry doesn't exist",
      "target": "uuid"
    },
    "time": "2020-12-09T00:47:58-05:00"
  },
  "managed_by": "string",
  "model": "FibreBridge6500N",
  "name": "ATTO_FibreBridge6500N_1",
  "paths": [
    {
      "name": "2c",
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "source_port": {
        "id": "100050eb1a238892",
        "name": "rtp-fc03-41kk11:1"
      },
      "target_port": {
        "id": "100050eb1a238892",
        "name": "rtp-fc03-41kk11:6",
        "wwn": "2100001086a54100"
      }
    }
  ],
  "power_supply_units": [
    {
      "name": "string",
      "state": "string"
    }
  ],
  "sas_ports": [
    {
```

```
      "cable": {
        "part_number": "string",
        "serial_number": "string",
        "technology": "string",
        "vendor": "string"
      },
      "data_rate_capability": "0",
      "negotiated_data_rate": "0",
      "phy_1": {
        "state": "string"
      },
      "phy_2": {
        "state": "string"
      },
      "phy_3": {
        "state": "string"
      },
      "phy_4": {
        "state": "string"
      },
      "state": "string",
      "wwn": "2100001086a54100"
    }
  ],
  "serial_number": "FB7600N100004",
  "state": "string",
  "symbolic_name": "rtp-fcsas03-41kk11",
  "temperature_sensor": {
    "name": "Chassis temperature sensor",
    "state": "string"
  },
  "vendor": "atto",
  "wwn": "2000001086600476"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

component

Name	Type	Description
id	integer	Bridge error component ID
name	string	Bridge error component name
unique_id	string	Bridge error component unique ID

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

errors

Name	Type	Description
component	component	
reason	error	
severity	string	Bridge error severity
type	string	Bridge error type

sfp

Name	Type	Description
data_rate_capability	number	Bridge FC port SFP data rate capability, in Gbps
part_number	string	
serial_number	string	Bridge FC port SFP serial number
vendor	string	Bridge FC port SFP vendor

fc_ports

Name	Type	Description
configured_data_rate	number	Bridge FC port configured data rate, in Gbps
connection_mode	string	Bridge FC port configured connection mode
data_rate_capability	number	Bridge FC port data rate capability, in Gbps
enabled	boolean	Indicates whether the bridge FC port is enabled.
id	integer	Bridge FC port index
negotiated_data_rate	number	Bridge FC port negotiated data rate, in Gbps
peer_wwn	string	Bridge FC port peer port world wide name
sfp	sfp	
state	string	Bridge FC port state
wwn	string	Bridge FC port world wide name

error

The error message and code explaining why the bridge rebooted.

Name	Type	Description
arguments	array[error_arguments]	Message arguments

Name	Type	Description
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

last_reboot

Name	Type	Description
reason	error	The error message and code explaining why the bridge rebooted.
time	string	

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

source_port

Name	Type	Description
id	string	Initiator side switch port id
name	string	Initiator side switch port name

target_port

Name	Type	Description
id	string	Target side switch port id
name	string	Target side switch port name
wwn	string	Target side switch port world wide name

paths

Name	Type	Description
name	string	
node	node	
source_port	source_port	
target_port	target_port	

power_supply_units

Name	Type	Description
name	string	Power supply unit name
state	string	Power supply unit state

cable

Name	Type	Description
part_number	string	Bridge cable part number
serial_number	string	Bridge cable serial number
technology	string	Bridge cable type
vendor	string	Bridge cable vendor

phy_1

Name	Type	Description
state	string	Bridge SAS port PHY1 state

phy_2

Name	Type	Description
state	string	Bridge SAS port PHY2 state

phy_3

Name	Type	Description
state	string	Bridge SAS port PHY3 state

phy_4

Name	Type	Description
state	string	Bridge SAS port PHY4 state

sas_ports

Name	Type	Description
cable	cable	
data_rate_capability	number	Bridge SAS port data rate capability, in Gbps
enabled	boolean	Indicates whether a bridge SAS port is enabled.
id	integer	Bridge SAS port index
negotiated_data_rate	number	Bridge SAS port negotiated data rate, in Gbps
phy_1	phy_1	
phy_2	phy_2	
phy_3	phy_3	
phy_4	phy_4	
state	string	Bridge SAS port state
wwn	string	Bridge SAS port world wide name

temperature_sensor

Name	Type	Description
maximum	integer	Maximum safe operating temperature, in degrees Celsius.
minimum	integer	Minimum safe operating temperature, in degrees Celsius.
name	string	Temperature sensor name
reading	integer	Chassis temperature sensor reading, in degrees Celsius.
state	string	

Report cluster-wide storage details across different tiers

GET `/storage/cluster`

Introduced In: 9.6

Reports cluster wide storage details across different tiers. By default, this endpoint returns all fields. Supports the following roles: admin, and readonly.

Parameters

Name	Type	In	Required	Description
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	space_efficiency	Storage efficiency
efficiency_without_snapshots	space_efficiency	Storage efficiency that does not include the savings provided by Snapshot copies.

Name	Type	Description
efficiency_without_snapshots_flexclones	space_efficiency	Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.

Example response


```
{
  "block_storage": {
    "medias": [
      {
        "efficiency": {
          "logical_used": 0,
          "ratio": 0,
          "savings": 0
        },
        "efficiency_without_snapshots": {
          "logical_used": 0,
          "ratio": 0,
          "savings": 0
        },
        "efficiency_without_snapshots_flexclones": {
          "logical_used": 0,
          "ratio": 0,
          "savings": 0
        },
        "type": "string"
      }
    ]
  },
  "cloud_storage": {
    "used": 0
  },
  "efficiency": {
    "logical_used": 0,
    "ratio": 0,
    "savings": 0
  },
  "efficiency_without_snapshots": {
    "logical_used": 0,
    "ratio": 0,
    "savings": 0
  },
  "efficiency_without_snapshots_flexclones": {
    "logical_used": 0,
    "ratio": 0,
    "savings": 0
  }
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

space_efficiency

Storage Efficiency

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

space_efficiency

Storage efficiency that does not include the savings provided by Snapshot copies.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

space_efficiency

Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

medias

Name	Type	Description
available	integer	Available space

Name	Type	Description
efficiency	space_efficiency	Storage Efficiency
efficiency_without_snapshots	space_efficiency	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flexclones	space_efficiency	Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.
physical_used	integer	Total physical used space
size	integer	Total space
type	string	The type of media being used
used	integer	Used space

block_storage

Name	Type	Description
available	integer	Available space across the cluster
inactive_data	integer	Inactive data across all aggregates
medias	array[medias]	
physical_used	integer	Total physical used space across the cluster
size	integer	Total space across the cluster
used	integer	Space used (includes volume reserves)

cloud_storage

Name	Type	Description
used	integer	Total space used in cloud.

space_efficiency

Storage efficiency

Name	Type	Description
logical_used	integer	Logical used
ratio	number	Data reduction ratio (logical_used / used)
savings	integer	Space saved by storage efficiencies (logical_used - used)

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage disks

Storage disks endpoint overview

Retrieving storage disk information

The storage disk GET API retrieves all of the disks in the cluster.

Examples

1) Retrieve a list of disks from the cluster.

The following example shows the response with a list of disks in the cluster:

```
# The API:
/api/storage/disks

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/disks" -H "accept:
application/hal+json"

# The response:
{
"records": [
  {
    "name": "1.24.4",
    "_links": {
      "self": {
        "href": "/api/storage/disks/1.24.4"
      }
    }
  },
  {
    "name": "1.24.3",
    "_links": {
      "self": {
        "href": "/api/storage/disks/1.24.3"
      }
    }
  },
  {
    "name": "1.24.5",
    "_links": {
      "self": {
        "href": "/api/storage/disks/1.24.5"
      }
    }
  },
  {
    "name": "1.24.0",
    "_links": {
      "self": {
        "href": "/api/storage/disks/1.24.0"
      }
    }
```

```
  },
  {
    "name": "1.24.2",
    "_links": {
      "self": {
        "href": "/api/storage/disks/1.24.2"
      }
    }
  },
  {
    "name": "1.24.1",
    "_links": {
      "self": {
        "href": "/api/storage/disks/1.24.1"
      }
    }
  }
],
"num_records": 6,
"_links": {
  "self": {
    "href": "/api/storage/disks"
  }
}
}
```

2) Retrieve a specific disk from the cluster.

The following example shows the response of the requested disk. If there is no disk with the requested name, an error is returned:

```
# The API:
/api/storage/disks/{name}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/disks/1.24.3" -H "accept:
application/hal+json"

# The response:
{
"name": "1.24.3",
"uid":
"50000394:0808AA88:00000000:00000000:00000000:00000000:00000000:00000000:0
```

```
0000000:00000000",
"serial_number": "EC47PC5021SW",
"model": "X421_FAL12450A10",
"vendor": "NETAPP",
"firmware_version": "NA02",
"usable_size": 438304768000,
"rpm": 10000,
"type": "sas",
"effective_type": "sas",
"class": "performance",
"container_type": "aggregate",
"pool": "pool0",
"state": "present",
"node": {
  "uuid": "3a89ed49-8c6d-11e8-93bc-00a0985a64b6",
  "name": "node-2",
  "_links": {
    "self": {
      "href": "/api/cluster/nodes/3a89ed49-8c6d-11e8-93bc-00a0985a64b6"
    }
  }
},
"home_node": {
  "uuid": "3a89ed49-8c6d-11e8-93bc-00a0985a64b6",
  "name": "node-2",
  "_links": {
    "self": {
      "href": "/api/cluster/nodes/3a89ed49-8c6d-11e8-93bc-00a0985a64b6"
    }
  }
},
"aggregates": [
  {
    "uuid": "3fd9c345-ba91-4949-a7b1-6e2b898d74e3",
    "name": "node_2_SAS_1",
    "_links": {
      "self": {
        "href": "/api/storage/aggregates/3fd9c345-ba91-4949-a7b1-
6e2b898d74e3"
      }
    }
  }
],
"shelf": {
  "uid": "10318311901725526608",
  "_links": {
```

```
    "self": {
      "href": "/api/storage/shelves/10318311901725526608"
    }
  }
},
"local": true,
"paths": [
{
   "initiator": "3a",
   "port_name": "B",
   "port_type": "sas",
   "wwnn": "5000cca02f0e6768",
   "wwpn": "5000cca02f0e676a"
 },
 {
   "initiator": "3d",
   "port_name": "A",
   "port_type": "sas",
   "wwnn": "5000cca02f0e6768",
   "wwpn": "5000cca02f0e6769"
},
{
   "initiator": "3d",
   "port_name": "A",
   "port_type": "sas",
   "wwnn": "5000cca02f0e6768",
   "wwpn": "5000cca02f0e6769"
},
{
   "initiator": "3a",
   "port_name": "B",
   "port_type": "sas",
   "wwnn": "5000cca02f0e6768",
   "wwpn": "5000cca02f0e676a"
}
],
"outage": {
  "persistently_failed": true,
  "reason": {
    "message": "Failed disk. Reason: \"admin failed\".",
    "code": "721081"
  }
},
"bay": 3,
"_links": {
  "self": {
```

```
    "href": "/api/storage/disks/1.24.3"
  }
},
"error": [
{
  "reason": {
    "message": "\"The node is configured with All-Flash Optimized
personality and this disk is not an SSD. The disk needs to be removed from
the system.\"",
    "code": "721082"
  },
  "type": "notallflashdisk"
}
],
"bytes_per_sector": 512,
"sector_count": 1172123568,
"stats": {
  "average_latency": 6,
  "throughput": 1957888,
  "iops_total": 12854,
  "path_error_count": 0,
  "power_on_hours": 11797
 }
}
```


Modifying storage disk

The storage disk PATCH API modifies disk ownership or encrypting drive authentication keys (AKs) in the cluster.

Updating the disk ownership for a specified disk

1. When the disk is not assigned

When the disk is a spare (or unowned) disk and node name is specified, the PATCH opertaion assigns the disk to the specified node.

2. When the disk is already assigned

When the disk is already assigned (aleady has a owner), and a new node is specified, the PATCH operation changes the ownership to the new node.

Examples

1. Update the disk ownership for an unowned disk

```
# The API:
/api/storage/disks

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/disks/<disk-name>" -H
"accept: application/hal+json" -H "Content-Type: application/hal+json" -d
'{"node": {"name": "node-name"}}'

# The response:
{
}
```

2. Update the disk ownership for an already owned disk.

```
# The API:
/api/storage/disks

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/disks/<disk-name>" -H
"accept: application/hal+json" -H "Content-Type: application/hal+json" -d
'{"node": {"name": "node-name"}}'

# The response:
{
}
```

3. Rekey the data AK of all encrypting drives to an AK selected automatically by the system.

```
# The API:
/api/storage/disks

# The call:
curl -X PATCH "https://<mgmt-
ip>/api/storage/disks?name=*&encryption_operation=rekey_data_auto_id" -H
"accept: application/hal+json" -H "Content-Type: application/hal+json"

# The response contains the number of disks attempted.
{
 "num_records": 32
}
```

4. Cryptographically sanitize a spare or broken disk.

```
# The API:
/api/storage/disks

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/disks?name=<disk-
name>&encryption_operation=sanitize_disk" -H "accept:
application/hal+json" -H "Content-Type: application/hal+json"

# The response contains the number of disks attempted.
{
 "num_records": 1
}
```

Retrieve a collection of disks

GET `/storage/disks`

Introduced In: 9.6

Retrieves a collection of disks.

Related ONTAP commands

- `storage disk show`

Learn more

- DOC /storage/disks

Parameters

Name	Type	In	Required	Description
aggregates.uuid	string	query	False	Filter by aggregates.uuid
aggregates.name	string	query	False	Filter by aggregates.name
sector_count	integer	query	False	Filter by sector_count • Introduced in: 9.9
container_type	string	query	False	Filter by container_type
vendor	string	query	False	Filter by vendor
dr_node.name	string	query	False	Filter by dr_node.name
dr_node.uuid	string	query	False	Filter by dr_node.uuid
drawer.id	integer	query	False	Filter by drawer.id
drawer.slot	integer	query	False	Filter by drawer.slot
paths.wwpn	string	query	False	Filter by paths.wwpn • Introduced in: 9.9
paths.port_type	string	query	False	Filter by paths.port_type • Introduced in: 9.9
paths.wwnn	string	query	False	Filter by paths.wwnn • Introduced in: 9.9

Name	Type	In	Required	Description
paths.initiator	string	query	False	Filter by paths.initiator • Introduced in: 9.9
paths.port_name	string	query	False	Filter by paths.port_name • Introduced in: 9.9
shelf.uid	string	query	False	Filter by shelf.uid
rpm	integer	query	False	Filter by rpm
error.reason.arguments.message	string	query	False	Filter by error.reason.arguments.message • Introduced in: 9.10
error.reason.arguments.code	string	query	False	Filter by error.reason.arguments.code • Introduced in: 9.10
error.reason.message	string	query	False	Filter by error.reason.message • Introduced in: 9.9
error.reason.code	string	query	False	Filter by error.reason.code • Introduced in: 9.9
error.reason.target	string	query	False	Filter by error.reason.target • Introduced in: 9.10

Name	Type	In	Required	Description
error.type	string	query	False	Filter by error.type • Introduced in: 9.9
bay	integer	query	False	Filter by bay
class	string	query	False	Filter by class
effective_type	string	query	False	Filter by effective_type • Introduced in: 9.9
usable_size	integer	query	False	Filter by usable_size
pool	string	query	False	Filter by pool
model	string	query	False	Filter by model
name	string	query	False	Filter by name
uid	string	query	False	Filter by uid
node.uuid	string	query	False	Filter by node.uuid
node.name	string	query	False	Filter by node.name
rated_life_used_percent	integer	query	False	Filter by rated_life_used_percent
key_id.data	string	query	False	Filter by key_id.data • Introduced in: 9.7
key_id.fips	string	query	False	Filter by key_id.fips • Introduced in: 9.7

Name	Type	In	Required	Description
fips_certified	boolean	query	False	Filter by fips_certified • Introduced in: 9.7
outage.reason.arguments.message	string	query	False	Filter by outage.reason.arguments.message • Introduced in: 9.10
outage.reason.arguments.code	string	query	False	Filter by outage.reason.arguments.code • Introduced in: 9.10
outage.reason.message	string	query	False	Filter by outage.reason.message • Introduced in: 9.9
outage.reason.code	string	query	False	Filter by outage.reason.code • Introduced in: 9.9
outage.reason.target	string	query	False	Filter by outage.reason.target • Introduced in: 9.10
outage.persistently_failed	boolean	query	False	Filter by outage.persistently_failed • Introduced in: 9.9
type	string	query	False	Filter by type

Name	Type	In	Required	Description
stats.iops_total	integer	query	False	Filter by stats.iops_total • Introduced in: 9.9
stats.path_error_count	integer	query	False	Filter by stats.path_error_count • Introduced in: 9.9
stats.power_on_hours	integer	query	False	Filter by stats.power_on_hours • Introduced in: 9.9
stats.average_latency	integer	query	False	Filter by stats.average_latency • Introduced in: 9.9
stats.throughput	integer	query	False	Filter by stats.throughput • Introduced in: 9.9
local	boolean	query	False	Filter by local • Introduced in: 9.9
protection_mode	string	query	False	Filter by protection_mode • Introduced in: 9.7
bytes_per_sector	integer	query	False	Filter by bytes_per_sector • Introduced in: 9.9

Name	Type	In	Required	Description
state	string	query	False	Filter by state
home_node.uuid	string	query	False	Filter by home_node.uuid
home_node.name	string	query	False	Filter by home_node.name
serial_number	string	query	False	Filter by serial_number
self_encrypting	boolean	query	False	Filter by self_encrypting • Introduced in: 9.7
firmware_version	string	query	False	Filter by firmware_version
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[disk]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "aggregates": [
        {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        }
      ],
      "bay": 1,
      "bytes_per_sector": 520,
      "class": "solid_state",
      "container_type": "spare",
      "dr_node": {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "effective_type": "vmdisk",
      "encryption_operation": "string",
      "error": [
        {
          "reason": {
            "arguments": [
              {
                "code": "string",
                "message": "string"
              }
            ],
            "code": "4",
            "message": "entry doesn't exist",
            "target": "uuid"
```

```
        },
        "type": "notallflashdisk"
      }
    ],
    "firmware_version": "NA51",
    "home_node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "key_id": {
      "data": "string",
      "fips": "string"
    },
    "model": "X421_HCOBE450A10",
    "name": "1.0.1",
    "node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "outage": {
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      }
    },
    "paths": [
      {
        "initiator": "3a",
        "port_name": "A",
```

```
          "port_type": "sas",
          "wwnn": "5000c2971c1b2b8c",
          "wwpn": "5000c2971c1b2b8d"
        }
      ],
      "pool": "pool0",
      "protection_mode": "string",
      "rated_life_used_percent": 10,
      "rpm": 15000,
      "sector_count": 1172123568,
      "serial_number": "KHG2VX8R",
      "shelf": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "uid": "7777841915827391056"
      },
      "state": "present",
      "stats": {
        "average_latency": 3,
        "iops_total": 12854,
        "path_error_count": 0,
        "power_on_hours": 21016,
        "throughput": 1957888
      },
      "type": "ssd",
      "uid":
"002538E5:71B00B2F:00000000:00000000:00000000:00000000:00000000:00000000:00000000:00000000",
      "usable_size": 959934889984,
      "vendor": "NETAPP"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

aggregates

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

dr_node

Name	Type	Description
name	string	
uuid	string	

drawer

Name	Type	Description
id	integer	
slot	integer	

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument

error

The message and code detailing the error state of this disk.

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

disk_error_info

Name	Type	Description
reason	error	The message and code detailing the error state of this disk.
type	string	Disk error type.

home_node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

key_id

Name	Type	Description
data	string	Key ID of the data authentication key
fips	string	Key ID of the FIPS authentication key

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error

This error message and code explaining the disk failure.

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

outage

Indicates if a disk has an entry in the failed disk registry, along with the reason for the failure.

Name	Type	Description
persistently_failed	boolean	Indicates whether RAID maintains the state of this disk as failed accross reboots.
reason	error	This error message and code explaining the disk failure.

disk_path_info

Name	Type	Description
initiator	string	Initiator port.
port_name	string	Name of the disk port.
port_type	string	Disk port type.
wwnn	string	Target device's World Wide Node Name.

Name	Type	Description
wwpn	string	Target device's World Wide Port Name.

shelf

Name	Type	Description
_links	_links	
uid	string	

stats

Name	Type	Description
average_latency	integer	Average I/O latency across all active paths, in milliseconds.
iops_total	integer	Total I/O operations per second read and written to this disk across all active paths.
path_error_count	integer	Disk path error count; failed I/O operations.
power_on_hours	integer	Hours powered on.
throughput	integer	Total disk throughput per second across all active paths, in bytes.

disk

Name	Type	Description
aggregates	array[aggregates]	List of aggregates sharing this disk
bay	integer	Disk shelf bay
bytes_per_sector	integer	Bytes per sector.
class	string	Disk class
container_type	string	Type of overlying disk container
dr_node	dr_node	
drawer	drawer	

Name	Type	Description
effective_type	string	Effective Disk type
encryption_operation	string	This field should only be set as a query parameter in a PATCH operation. It is input only and won't be returned by a subsequent GET.
error	array[disk_error_info]	List of disk errors information.
fips_certified	boolean	
firmware_version	string	
home_node	home_node	
key_id	key_id	
local	boolean	Indicates if a disk is locally attached versus being remotely attached. A locally attached disk resides in the same proximity as the host cluster versus been attached to the remote cluster.
model	string	
name	string	Cluster-wide disk name
node	node	
outage	outage	Indicates if a disk has an entry in the failed disk registry, along with the reason for the failure.
paths	array[disk_path_info]	List of paths to a disk
pool	string	Pool to which disk is assigned

Name	Type	Description
protection_mode	string	Mode of drive data protection and FIPS compliance. Possible values are: • *open* - Data is unprotected • *data* - Data protection only, without FIPS compliance • *part* - Data is unprotected; other FIPS compliance settings present • *full* - Full data and FIPS compliance protection • *miss* - Protection mode information is not available
rated_life_used_percent	integer	Percentage of rated life used
rpm	integer	Revolutions per minute
sector_count	integer	Number of sectors on the disk.
self_encrypting	boolean	
serial_number	string	
shelf	shelf	
state	string	State
stats	stats	
type	string	Disk interface type
uid	string	The unique identifier for a disk
usable_size	integer	
vendor	string	

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message

Name	Type	Description
target	string	The target parameter that caused the error.

Update disk ownership, change authentication keys, or sanitize disks

PATCH `/storage/disks`

Introduced In: 9.7

Updates disk ownership, changes authentication keys, or sanitizes disks.

Related ONTAP commands

- `storage disk assign`
- `storage encryption disk modify -data-key-id`
- `storage encryption disk sanitize`
- `security key-manager key query -key-type NSE-AK`

Learn more

- DOC /storage/disks

Parameters

Name	Type	In	Required	Description
name	string	query	False	Disk name
node	string	query	False	Node to assign disk • Introduced in: 9.8

Name	Type	In	Required	Description
encryption_operation	string	query	False	Name of the operation to apply to encrypting disks. • rekey_data_default changes the data authentication key (AK) to the drive-unique Manufacture Secure ID (MSID) value. Allows the drive to be attached to other clusters. Disables data-at-rest protection without erasing the data. • rekey_data_auto_id changes the data authentication key (AK) to an AK the cluster selects automatically. Enables data-at-rest protection. • sanitize_disk cryptographically erases all user data from a spare or broken drive by altering the data encryption key. Resets the data AK to the drive-unique MSID value and disables data-at-rest protection. Used when a drive is being repurposed or returned. • enum: ["rekey_data_default", "rekey_data_auto_id",

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
aggregates	array[aggregates]	List of aggregates sharing this disk
bay	integer	Disk shelf bay
bytes_per_sector	integer	Bytes per sector.
class	string	Disk class
container_type	string	Type of overlying disk container
dr_node	dr_node	
drawer	drawer	
effective_type	string	Effective Disk type
encryption_operation	string	This field should only be set as a query parameter in a PATCH operation. It is input only and won't be returned by a subsequent GET.
error	array[disk_error_info]	List of disk errors information.
fips_certified	boolean	
firmware_version	string	
home_node	home_node	
key_id	key_id	
local	boolean	Indicates if a disk is locally attached versus being remotely attached. A locally attached disk resides in the same proximity as the host cluster versus been attached to the remote cluster.
model	string	

Name	Type	Description
name	string	Cluster-wide disk name
node	node	
outage	outage	Indicates if a disk has an entry in the failed disk registry, along with the reason for the failure.
paths	array[disk_path_info]	List of paths to a disk
pool	string	Pool to which disk is assigned
protection_mode	string	Mode of drive data protection and FIPS compliance. Possible values are: • *open* - Data is unprotected • *data* - Data protection only, without FIPS compliance • *part* - Data is unprotected; other FIPS compliance settings present • *full* - Full data and FIPS compliance protection • *miss* - Protection mode information is not available
rated_life_used_percent	integer	Percentage of rated life used
rpm	integer	Revolutions per minute
sector_count	integer	Number of sectors on the disk.
self_encrypting	boolean	
serial_number	string	
shelf	shelf	
state	string	State
stats	stats	
type	string	Disk interface type
uid	string	The unique identifier for a disk
usable_size	integer	

Name	Type	Description
vendor	string	

Example request


```
{
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "bay": 1,
  "bytes_per_sector": 520,
  "class": "solid_state",
  "container_type": "spare",
  "dr_node": {
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "effective_type": "vmdisk",
  "encryption_operation": "string",
  "error": [
    {
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      },
      "type": "notallflashdisk"
    }
  ],
  "firmware_version": "NA51",
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
```

```
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "key_id": {
    "data": "string",
    "fips": "string"
  },
  "model": "X421_HCOBE450A10",
  "name": "1.0.1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "outage": {
    "reason": {
      "arguments": [
        {
          "code": "string",
          "message": "string"
        }
      ],
      "code": "4",
      "message": "entry doesn't exist",
      "target": "uuid"
    }
  },
  "paths": [
    {
      "initiator": "3a",
      "port_name": "A",
      "port_type": "sas",
      "wwnn": "5000c2971c1b2b8c",
      "wwpn": "5000c2971c1b2b8d"
    }
  ],
  "pool": "pool0",
  "protection_mode": "string",
  "rated_life_used_percent": 10,
  "rpm": 15000,
  "sector_count": 1172123568,
```

```
  "serial_number": "KHG2VX8R",
  "shelf": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uid": "7777841915827391056"
  },
  "state": "present",
  "stats": {
    "average_latency": 3,
    "iops_total": 12854,
    "path_error_count": 0,
    "power_on_hours": 21016,
    "throughput": 1957888
  },
  "type": "ssd",
  "uid":
"002538E5:71B00B2F:00000000:00000000:00000000:00000000:00000000:00000000:00000000:00000000",
  "usable_size": 959934889984,
  "vendor": "NETAPP"
}
```


Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
721066	Node is outside the list of controllers for disk.
1441795	Setting the data key ID to the manufacture secure ID is not allowed when in FIPS-compliance mode.
14155777	The operation failed on one or more disks.
14155778	No self-encrypting disks were specified.

Error Code	Description
14155779	Status from a node shows that a conflicting operation has occurred. Some disk controls might have changed.
14155780	Could not retrieve the required key ID from the key manager.
14155786	Changes to encryption controls are not allowed with drive assignment.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregates

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

dr_node

Name	Type	Description
name	string	
uuid	string	

drawer

Name	Type	Description
id	integer	
slot	integer	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

The message and code detailing the error state of this disk.

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

disk_error_info

Name	Type	Description
reason	error	The message and code detailing the error state of this disk.
type	string	Disk error type.

home_node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

key_id

Name	Type	Description
data	string	Key ID of the data authentication key
fips	string	Key ID of the FIPS authentication key

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error

This error message and code explaining the disk failure.

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

outage

Indicates if a disk has an entry in the failed disk registry, along with the reason for the failure.

Name	Type	Description
persistently_failed	boolean	Indicates whether RAID maintains the state of this disk as failed accross reboots.
reason	error	This error message and code explaining the disk failure.

disk_path_info

Name	Type	Description
initiator	string	Initiator port.
port_name	string	Name of the disk port.
port_type	string	Disk port type.
wwnn	string	Target device's World Wide Node Name.
wwpn	string	Target device's World Wide Port Name.

shelf

Name	Type	Description
_links	_links	
uid	string	

stats

Name	Type	Description
average_latency	integer	Average I/O latency across all active paths, in milliseconds.
iops_total	integer	Total I/O operations per second read and written to this disk across all active paths.
path_error_count	integer	Disk path error count; failed I/O operations.
power_on_hours	integer	Hours powered on.
throughput	integer	Total disk throughput per second across all active paths, in bytes.

disk

Name	Type	Description
aggregates	array[aggregates]	List of aggregates sharing this disk
bay	integer	Disk shelf bay
bytes_per_sector	integer	Bytes per sector.
class	string	Disk class
container_type	string	Type of overlying disk container
dr_node	dr_node	
drawer	drawer	
effective_type	string	Effective Disk type
encryption_operation	string	This field should only be set as a query parameter in a PATCH operation. It is input only and won't be returned by a subsequent GET.
error	array[disk_error_info]	List of disk errors information.
fips_certified	boolean	

Name	Type	Description
firmware_version	string	
home_node	home_node	
key_id	key_id	
local	boolean	Indicates if a disk is locally attached versus being remotely attached. A locally attached disk resides in the same proximity as the host cluster versus been attached to the remote cluster.
model	string	
name	string	Cluster-wide disk name
node	node	
outage	outage	Indicates if a disk has an entry in the failed disk registry, along with the reason for the failure.
paths	array[disk_path_info]	List of paths to a disk
pool	string	Pool to which disk is assigned
protection_mode	string	Mode of drive data protection and FIPS compliance. Possible values are: • *open* - Data is unprotected • *data* - Data protection only, without FIPS compliance • *part* - Data is unprotected; other FIPS compliance settings present • *full* - Full data and FIPS compliance protection • *miss* - Protection mode information is not available
rated_life_used_percent	integer	Percentage of rated life used
rpm	integer	Revolutions per minute
sector_count	integer	Number of sectors on the disk.
self_encrypting	boolean	

Name	Type	Description
serial_number	string	
shelf	shelf	
state	string	State
stats	stats	
type	string	Disk interface type
uid	string	The unique identifier for a disk
usable_size	integer	
vendor	string	

Retrieve a specific disk

GET `/storage/disks/{name}`

Introduced In: 9.6

Retrieves a specific disk.

Related ONTAP commands

- `storage disk show`

Learn more

- DOC /storage/disks

Parameters

Name	Type	In	Required	Description
name	string	path	True	Disk name
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
aggregates	array[aggregates]	List of aggregates sharing this disk
bay	integer	Disk shelf bay
bytes_per_sector	integer	Bytes per sector.
class	string	Disk class
container_type	string	Type of overlying disk container
dr_node	dr_node	
drawer	drawer	
effective_type	string	Effective Disk type
encryption_operation	string	This field should only be set as a query parameter in a PATCH operation. It is input only and won't be returned by a subsequent GET.
error	array[disk_error_info]	List of disk errors information.
fips_certified	boolean	
firmware_version	string	
home_node	home_node	
key_id	key_id	
local	boolean	Indicates if a disk is locally attached versus being remotely attached. A locally attached disk resides in the same proximity as the host cluster versus been attached to the remote cluster.
model	string	
name	string	Cluster-wide disk name
node	node	
outage	outage	Indicates if a disk has an entry in the failed disk registry, along with the reason for the failure.
paths	array[disk_path_info]	List of paths to a disk

Name	Type	Description
pool	string	Pool to which disk is assigned
protection_mode	string	Mode of drive data protection and FIPS compliance. Possible values are: • *open* - Data is unprotected • *data* - Data protection only, without FIPS compliance • *part* - Data is unprotected; other FIPS compliance settings present • *full* - Full data and FIPS compliance protection • *miss* - Protection mode information is not available
rated_life_used_percent	integer	Percentage of rated life used
rpm	integer	Revolutions per minute
sector_count	integer	Number of sectors on the disk.
self_encrypting	boolean	
serial_number	string	
shelf	shelf	
state	string	State
stats	stats	
type	string	Disk interface type
uid	string	The unique identifier for a disk
usable_size	integer	
vendor	string	

Example response


```
{
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "bay": 1,
  "bytes_per_sector": 520,
  "class": "solid_state",
  "container_type": "spare",
  "dr_node": {
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "effective_type": "vmdisk",
  "encryption_operation": "string",
  "error": [
    {
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      },
      "type": "notallflashdisk"
    }
  ],
  "firmware_version": "NA51",
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
```

```
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "key_id": {
    "data": "string",
    "fips": "string"
  },
  "model": "X421_HCOBE450A10",
  "name": "1.0.1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "outage": {
    "reason": {
      "arguments": [
        {
          "code": "string",
          "message": "string"
        }
      ],
      "code": "4",
      "message": "entry doesn't exist",
      "target": "uuid"
    }
  },
  "paths": [
    {
      "initiator": "3a",
      "port_name": "A",
      "port_type": "sas",
      "wwnn": "5000c2971c1b2b8c",
      "wwpn": "5000c2971c1b2b8d"
    }
  ],
  "pool": "pool0",
  "protection_mode": "string",
  "rated_life_used_percent": 10,
  "rpm": 15000,
  "sector_count": 1172123568,
```

```
  "serial_number": "KHG2VX8R",
  "shelf": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uid": "77778419158273910 56"
  },
  "state": "present",
  "stats": {
    "average_latency": 3,
    "iops_total": 12854,
    "path_error_count": 0,
    "power_on_hours": 21016,
    "throughput": 1957888
  },
  "type": "ssd",
  "uid":
"002538E5:71B00B2F:00000000:00000000:00000000:00000000:00000000:00000000:00000000:00000000",
  "usable_size": 959934889984,
  "vendor": "NETAPP"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregates

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

dr_node

Name	Type	Description
name	string	
uuid	string	

drawer

Name	Type	Description
id	integer	
slot	integer	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

The message and code detailing the error state of this disk.

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

disk_error_info

Name	Type	Description
reason	error	The message and code detailing the error state of this disk.
type	string	Disk error type.

home_node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

key_id

Name	Type	Description
data	string	Key ID of the data authentication key
fips	string	Key ID of the FIPS authentication key

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error

This error message and code explaining the disk failure.

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

outage

Indicates if a disk has an entry in the failed disk registry, along with the reason for the failure.

Name	Type	Description
persistently_failed	boolean	Indicates whether RAID maintains the state of this disk as failed accross reboots.
reason	error	This error message and code explaining the disk failure.

disk_path_info

Name	Type	Description
initiator	string	Initiator port.
port_name	string	Name of the disk port.
port_type	string	Disk port type.
wwnn	string	Target device's World Wide Node Name.
wwpn	string	Target device's World Wide Port Name.

shelf

Name	Type	Description
_links	_links	
uid	string	

stats

Name	Type	Description
average_latency	integer	Average I/O latency across all active paths, in milliseconds.
iops_total	integer	Total I/O operations per second read and written to this disk across all active paths.
path_error_count	integer	Disk path error count; failed I/O operations.
power_on_hours	integer	Hours powered on.
throughput	integer	Total disk throughput per second across all active paths, in bytes.

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage file clones

Storage file clone endpoint overview

Overview

You can use these API's to create file clones, retrieve split status and manage split loads. These endpoints are used for cloning files within a volume, without taking much of extra space. Child and parent clones shares the unchanged blocks of data.

A file clone split operation detach child clone from its parent. Split operations use space. To ensure that file clone create operation is not affected by split, file clone tokens are use to reserve space. API endpoints can be used to update the validity and space reserved by token.

File clone APIs

The following APIs are used to perform the following operations:

– POST /api/storage/file/clone

– GET /api/storage/file/clone/split-status

– PATCH /api/storage/file/clone/split-loads/{node.uuid}

– GET /api/storage/file/clone/split-loads/{node.uuid}

– GET /api/storage/file/clone/split-loads

– GET /api/storage/file/clone/tokens/

– DELETE /api/storage/file/clone/tokens/{node.uuid}/{token.uuid}

– PATCH /api/storage/file/clone/tokens/{node.uuid}/{token.uuid}

Create a clone of the file

POST `/storage/file/clone`

Introduced In: 9.6

Creates a clone of the file.

Required Properties

- `source_path`
- `destination_path`
- `volume.uuid` and `volume.name` - Instance UUID and name of volume in which to create clone.

Optional Properties

- `range` - Required only in the case of a sub file clone.
- `autodelete` - Marks a cloned file for auto deletion.
- `backup` - Cloned file is used as a backup.

Related Ontap commands

- `volume file clone create`

Creating file clones

The POST operation is used to create file clones with the specified attributes in body. Set the `volume.name` and `volume.uuid` to identify the volume.

Set `source_path` and `destination_path` to identify the file path of original and copied file. In case of full file clone, the new file is created using `destination_path`.
 In case of a sub file clone, set `range` in the format source-file-block-number:destination-file-block-number:block-count. The API returns an error for the

following overlapping conditions: (a) if source and destination files are same and any of the source ranges overlap with any of the destination ranges. (b) if any of the source ranges overlap amongst themselves. (c) if any of the destination ranges overlap amongst themselves. If not provided, full file cloning is assumed.

If set to `autodelete`, the cloned file is deleted when the volumes are full.

```
# The API:
curl -X POST "https://<mgmt_ip>/api/storage/file/clone" -H "accept:
application/hal+json" -d '{"volume": {"name": "vol1",  "uuid": "40e0fdc5-
c28f-11eb-8270-005056bbeb0b"}, "source_path": "f1", "destination_path":
"f2_c1"}'

# The response:
{
"job": {
  "uuid": "0d025fd9-c4dc-11eb-adb5-005056bbeb0b",
  "_links": {
     "self": {
       "href": "/api/cluster/jobs/0d025fd9-c4dc-11eb-adb5-005056bbeb0b"
     }
  }
}
}
```

Learn More

- [`DOC /storage/file/clone`]

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
autodelete	boolean	Mark clone file for auto deletion.
destination_path	string	Relative path of the clone/destination file in the volume.

Name	Type	Description
is_backup	boolean	Mark clone file for backup.
overwrite_destination	boolean	Destination file gets overwritten.
range	array[string]	List of block ranges for sub-file cloning in the format "source-file-block-number:destination-file-block-number:block-count"
source_path	string	Relative path of the source file in the volume.
token_uuid	string	UUID of existing clone token with reserved split load.
volume	volume	

Example request

```
{
  "destination_path": "dest_file1, dir1/dest_file2",
  "range": [
    "10:10:5",
    "20:20:10"
  ],
  "source_path": "src_file1, dir1/src_file2,
./.snapshot/snap1/src_file3",
  "token_uuid": "string",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

file_clone

File clone

Name	Type	Description
autodelete	boolean	Mark clone file for auto deletion.
destination_path	string	Relative path of the clone/destination file in the volume.
is_backup	boolean	Mark clone file for backup.
overwrite_destination	boolean	Destination file gets overwritten.

Name	Type	Description
range	array[string]	List of block ranges for sub-file cloning in the format "source-file-block-number:destination-file-block-number:block-count"
source_path	string	Relative path of the source file in the volume.
token_uuid	string	UUID of existing clone token with reserved split load.
volume	volume	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve the clone split load of a node

GET `/storage/file/clone/split-loads`

Introduced In: 9.10

Retrieves the clone split load of a node.

Related Ontap Commands

- `volume file clone split load show`

Retrieving file clone split load related information

The GET operation can be used to retrieve information about clone split load data. Split load data is the data currently undergoing the split. There is a limit on split load data. This API communicates how much data is undergoing split and how much can still be processed.

```
# The API:
/api/storage/file/clone/split-loads

# The call:
curl -X GET "https://<mgmt_ip>/api/storage/file/clone/split-loads" -H
"accept: application/hal+json"

# The response:
{
"records": [
  {
    "node": {
      "uuid": "158d592f-a829-11eb-a47b-005056bb46d7",
      "name": "node1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/158d592f-a829-11eb-a47b-
005056bb46d7"
        }
      }
    },
    "load": {
      "maximum": 35184372088832,
      "current": 0,
      "token_reserved": 0,
      "allowable": 35184372088832
    },
    "_links": {
      "self": {
        "href": "/api/storage/file/clone/split-loads/158d592f-a829-11eb-
```

```
a47b-005056bb46d7"
      }
    }
  },
  {
    "node": {
      "uuid": "9686b8d1-a828-11eb-80d8-005056bbe7b6",
      "name": "node2",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/9686b8d1-a828-11eb-80d8-
005056bbe7b6"
        }
      }
    },
    "load": {
      "maximum": 35184372088832,
      "current": 0,
      "token_reserved": 0,
      "allowable": 35184372088832
    },
    "_links": {
      "self": {
        "href": "/api/storage/file/clone/split-loads/9686b8d1-a828-11eb-
80d8-005056bbe7b6"
      }
    }
  }
],
"num_records": 2,
"_links":
  "self": {
    "href": "/api/storage/file/clone/split-loads"
  }
}
}
```


Learn More

- [DOC /storage/file/clone]

Parameters

Name	Type	In	Required	Description
load.current	integer	query	False	Filter by load.current

Name	Type	In	Required	Description
load.maximum	integer	query	False	Filter by load.maximum
load.allowable	integer	query	False	Filter by load.allowable
load.token_reserved	integer	query	False	Filter by load.token_reserved
node.uuid	string	query	False	Filter by node.uuid
node.name	string	query	False	Filter by node.name
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	collection_links	
num_records	integer	Number of records.
records	array[split_load]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "load": {
        "allowable": 0,
        "current": 0,
        "token_reserved": 0
      },
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

collection_links

Name	Type	Description
next	href	
self	href	

self_link

Name	Type	Description
self	href	

load

Name	Type	Description
allowable	integer	Specifies the available file clone split load on the node.
current	integer	Specifies the current on-going file clone split load on the node.
maximum	integer	Specifies the maximum allowable file clone split load on the node at any point in time.
token_reserved	integer	Specifies the file clone split load on the node reserved for tokens.

_links

Name	Type	Description
self	href	

node_reference

Name	Type	Description
_links	_links	
name	string	

Name	Type	Description
uuid	string	

split_load

Name	Type	Description
_links	self_link	
load	load	
node	node_reference	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve the volume file clone split load

GET `/storage/file/clone/split-loads/{node.uuid}`

Introduced In: 9.10

Retrieve Volume File Clone Split Load REST

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node Uuid

Name	Type	In	Required	Description
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	self_link	
load	load	
node	node_reference	

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "load": {
    "allowable": 0,
    "current": 0,
    "token_reserved": 0
  },
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

load

Name	Type	Description
allowable	integer	Specifies the available file clone split load on the node.
current	integer	Specifies the current on-going file clone split load on the node.
maximum	integer	Specifies the maximum allowable file clone split load on the node at any point in time.
token_reserved	integer	Specifies the file clone split load on the node reserved for tokens.

_links

Name	Type	Description
self	href	

node_reference

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update the maximum split load

PATCH `/storage/file/clone/split-loads/{node.uuid}`

Introduced In: 9.10

Updates the maximum split load.

Related Ontap command

- `volume file clone split load modify`

Learn More

- [`DOC /storage/file/clone`]

```
# The call:
curl -X PATCH "https://<mgmt_IP>/api/storage/file/clone/split-
loads/9686b8d1-a828-11eb-80d8-005056bbe7b6" -d '{"load": {"maximum":
"16TB" } }'

# The response to successful patch is empty body
```

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID

Request Body

Name	Type	Description
_links	self_link	
load	load	
node	node_reference	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "load": {
    "allowable": 0,
    "current": 0,
    "token_reserved": 0
  },
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  }
}
```


Response

```
Status: 200, Ok
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

load

Name	Type	Description
allowable	integer	Specifies the available file clone split load on the node.
current	integer	Specifies the current on-going file clone split load on the node.
maximum	integer	Specifies the maximum allowable file clone split load on the node at any point in time.
token_reserved	integer	Specifies the file clone split load on the node reserved for tokens.

_links

Name	Type	Description
self	href	

node_reference

Name	Type	Description
_links	_links	
name	string	
uuid	string	

split_load

Name	Type	Description
_links	self_link	

Name	Type	Description
load	load	
node	node_reference	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve file clone split status of all volumes in the node

GET `/storage/file/clone/split-status`

Introduced In: 9.10

Retrieves file clone split status of all volumes in the node.

Learn More

- [DOC /storage/file/clone]

```
# The API:
/api/storage/file/clone/split-status

# The call:
curl -X GET "https://<mgmt_ip>/api/storage/file/clone/split-status" -H
"accept: application/hal+json"

# The response:
{
```

```
"records": [
  {
    "volume": {
      "uuid": "ac559964-57a3-40cf-b5cb-f3cb99151a7d",
      "name": "vol1",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/ac559964-57a3-40cf-b5cb-
f3cb99151a7d"
        }
      }
    },
    "svm": {
      "name": "vs1"
    },
    "pending_splits": 0,
    "unsplit_clone_size": 0,
    "_links": {
      "self": {
        "href": "/api/storage/file/clone/split-status/ac559964-57a3-40cf-
b5cb-f3cb99151a7d"
      }
    }
  },
  {
    "volume": {
      "uuid": "32d95d48-d8b7-11eb-a41d-005056bb3837",
      "name": "vs1_root",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/32d95d48-d8b7-11eb-a41d-
005056bb3837"
        }
      }
    },
    "svm": {
      "name": "vs1"
    },
    "pending_splits": 0,
    "unsplit_clone_size": 0,
    "_links": {
      "self": {
        "href": "/api/storage/file/clone/split-status/32d95d48-d8b7-11eb-
a41d-005056bb3837"
      }
    }
```

```
    }
  ],
  "num_records": 2,
  "_links": {
    "self": {
      "href": "/api/storage/file/clone/split-status"
    }
  }
}
```

Parameters

Name	Type	In	Required	Description
volume.uuid	string	query	False	Filter by volume.uuid
volume.name	string	query	False	Filter by volume.name
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
pending_splits	integer	query	False	Filter by pending_splits
unsplit_clone_size	integer	query	False	Filter by unsplit_clone_size
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	collection_links	
num_records	integer	Number of Records
records	array[split_status]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "pending_splits": 0,
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "unsplit_clone_size": 0,
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

collection_links

Name	Type	Description
next	href	
self	href	

self_link

Name	Type	Description
self	href	

_links

Name	Type	Description
self	href	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.

Name	Type	Description
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

split_status

Name	Type	Description
_links	self_link	
pending_splits	integer	Specifies the number of pending file clone split operations in the volume.
svm	svm	
unsplit_clone_size	integer	Specifies the space occupied by unsplit file clones in the volume.
volume	volume	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve file clone split status of all volumes

GET `/storage/file/clone/split-status/{volume.uuid}`

Introduced In: 9.10

Retrieves file clone split status of all volumes in the node.

Related Ontap commands

- `volume file clone split status`

Learn More

- [`DOC /storage/file/clone`]

Retrieves the information of split status.

The GET operation retrieves information about split processes in the volume.
 `pending-clone-splits` is the number of files for which file clone split is not yet completed.
 `unsplit-size` is the sum of all sizes, in bytes in the volume that is not split.

```
# The API:
/api/storage/file/clone/split-status/{volume.uuid}

# The call:
curl -X GET "https://<mgmt_ip>/api/storage/file/clone/split-
status/ac559964-57a3-40cf-b5cb-f3cb99151a7d" -H "accept:
application/hal+json"

# The response:
{
"volume": {
  "uuid": "ac559964-57a3-40cf-b5cb-f3cb99151a7d",
  "name": "vol1",
  "_links": {
    "self": {
      "href": "/api/storage/volumes/ac559964-57a3-40cf-b5cb-f3cb99151a7d"
    }
  }
},
"svm": {
  "name": "vs1"
},
"pending_splits": 0,
"unsplit_clone_size": 0,
"_links": {
  "self": {
    "href": "/api/storage/file/clone/split-status/ac559964-57a3-40cf-b5cb-
f3cb99151a7d"
  }
}
}
```

Parameters

Name	Type	In	Required	Description
volume.uuid	string	path	True	Volume Instance UUID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	self_link	
pending_splits	integer	Specifies the number of pending file clone split operations in the volume.
svm	svm	
unsplit_clone_size	integer	Specifies the space occupied by unsplit file clones in the volume.
volume	volume	

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "pending_splits": 0,
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "unsplit_clone_size": 0,
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

_links

Name	Type	Description
self	href	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve information for a token

GET `/storage/file/clone/tokens`

Introduced In: 9.10

Retrieves information for the specified token.

Related Ontap command

- `volume file clone token show`

Learn More

- [`DOC /storage/file/clone`]

Retrieving information on clone tokens

```
# The API:
/api/storage/file/clone/tokens

# The call:
curl -X GET "https://<mgmt_ip>/api/storage/file/clone/tokens" -H "accept:
application/hal+json"

# The response:
{
"records": [
  {
    "node": {
      "uuid": "97255711-a1ad-11eb-92b2-0050568eb2ca",
      "name": "node1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/97255711-a1ad-11eb-92b2-
0050568eb2ca"
        }
      }
    },
    "uuid": "905c42ce-a74b-11eb-bd86-0050568ec7ae",
    "reserve_size": 10240,
    "expiry_time": {
      "limit": "PT1H10M",
      "left": "PT1H9M"
    },
    "_links": {
      "self": {
        "href": "/api/storage/file/clone/tokens/97255711-a1ad-11eb-92b2-
0050568eb2ca/905c42ce-a74b-11eb-bd86-0050568ec7ae"
      }
    }
  }
],
"num_records": 1,
"_links": {
  "self": {
    "href": "/api/storage/file/clone/tokens"
  }
}
}
```

Parameters

Name	Type	In	Required	Description
reserve_size	integer	query	False	Filter by reserve_size
uuid	string	query	False	Filter by uuid
node.uuid	string	query	False	Filter by node.uuid
node.name	string	query	False	Filter by node.name
expiry_time.left	string	query	False	Filter by expiry_time.left
expiry_time.limit	string	query	False	Filter by expiry_time.limit
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	collection_links	
num_records	integer	Number of records.
records	array[token]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {}
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

collection_links

Name	Type	Description
next	href	
self	href	

self_link

Name	Type	Description
self	href	

expiry_time

Name	Type	Description
left	string	Specifies the time remaining before the given token expires in ISO-8601 format.
limit	string	Specifies when the given token expires in ISO-8601 format.

_links

Name	Type	Description
self	href	

node_reference

Name	Type	Description
_links	_links	
name	string	
uuid	string	

token

token

Name	Type	Description
_links	self_link	
expiry_time	expiry_time	
node	node_reference	
reserve_size	integer	Specifies the available reserve in the file clone split load for the given token.
uuid	string	Token UUID.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Create a new token to reserve the split load

POST `/storage/file/clone/tokens`

Introduced In: 9.10

Creates a new token to reserve the split load.

Required Properties

- `node.uuid`
- `reserve-size`

Optional Propeties

- `expiry_time.limit`
- `expiry_time.left`

Related Ontap Commands

- `volume file clone token create`

Learn More

- [`DOC /storage/file/clone`]

Creating clone tokens to reserve space for clone creation on the node

There is a limit on the amount of clone data that can undergo a split at a point of time on the node (clone split load). Clone tokens are used to reserve space from clone split load for clone creation. The POST operation is used to create clone tokens with `reserve-size` and `expiry-time.limit` in the body.

```
# The API
/api/storage/file/clone/tokens

# The call
curl -X POST "https://<mgmt_ip>/api/storage/file/clone/tokens" -H "accept:
application/hal+json" -d '{"node": {"uuid": "97255711-a1ad-11eb-92b2-
0050568eb2ca"}, "reserve_size": "40M", "expiry_time": { "limit": "4200"}
}'

# The response
{
"num_records": 1,
"records": [
  {
    "node": {
      "name": "node1"
    },
    "uuid": "286f6ae4-c94d-11eb-adb5-005056bbeb0b",
    "reserve_size": 41943040,
    "_links": {
      "self": {
        "href": "/api/storage/file/clone/tokens/97255711-a1ad-11eb-92b2-
0050568eb2ca"
      }
    }
  }
]
}
```

Parameters

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	self_link	
expiry_time	expiry_time	
node	node_reference	
reserve_size	integer	Specifies the available reserve in the file clone split load for the given token.
uuid	string	Token UUID.

Response

```
Status: 201, Created
```

Name	Type	Description
_links	collection_links	
num_records	integer	Number of records.
records	array[token]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {}
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

expiry_time

Name	Type	Description
left	string	Specifies the time remaining before the given token expires in ISO-8601 format.
limit	string	Specifies when the given token expires in ISO-8601 format.

_links

Name	Type	Description
self	href	

node_reference

Name	Type	Description
_links	_links	
name	string	
uuid	string	

token

token

Name	Type	Description
_links	self_link	
expiry_time	expiry_time	
node	node_reference	

Name	Type	Description
reserve_size	integer	Specifies the available reserve in the file clone split load for the given token.
uuid	string	Token UUID.

collection_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Delete a specific file clone token

DELETE `/storage/file/clone/tokens/{node.uuid}/{uuid}`

Introduced In: 9.10

Deletes a specific file clone token.

Related Ontap command

- `volume file clone token delete`

Delete specific clone token.

```
# The API:
/api/storage/file/clone/tokens/{node.uuid}/{token.uuid}

# The call:
curl -X DELETE "https://<mgmt_ip>/api/storage/file/clone/tokens/97255711-
a1ad-11eb-92b2-0050568eb2ca/909c42ce-a74b-11eb-bd86-0050568ec7ae"

# The successful response is empty body.
```

Learn More

- [DOC /storage/file/clone]

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID
uuid	string	path	True	Token UUID

Response

```
Status: 200, Ok
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve a file clone token

GET `/storage/file/clone/tokens/{node.uuid}/{uuid}`

Introduced In: 9.10

Retrieves a file clone token

Related Ontap command

- `volume file clone token show`

Retrieve information for single token.

```
# The call:
curl -X GET "https://<mgmt_ip>/api/storage/file/clone/tokens/97255711-
a1ad-11eb-92b2-0050568eb2ca/905c42ce-a74b-11eb-bd86-0050568ec7ae"

# The response:
{
"node": {
  "uuid": "97255711-a1ad-11eb-92b2-0050568eb2ca",
  "name": "node1",
  "_links": {
    "self": {
      "href": "/api/cluster/nodes/97255711-a1ad-11eb-92b2-0050568eb2ca"
    }
  }
},
"uuid": "905c42ce-a74b-11eb-bd86-0050568ec7ae",
"reserve_size": 41943040,
"expiry_time": {
  "limit": "PT1H10M",
  "left": "PT1H9M"
},
"_links": {
  "self": {
    "href": "/api/storage/file/clone/tokens/97255711-a1ad-11eb-92b2-
0050568eb2ca/905c42ce-a74b-11eb-bd86-0050568ec7ae"
  }
}
}
```

Learn More

- [`DOC /storage/file/clone`]

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID
uuid	string	path	True	Token UUID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	self_link	
expiry_time	expiry_time	
node	node_reference	
reserve_size	integer	Specifies the available reserve in the file clone split load for the given token.
uuid	string	Token UUID.

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

expiry_time

Name	Type	Description
left	string	Specifies the time remaining before the given token expires in ISO-8601 format.
limit	string	Specifies when the given token expires in ISO-8601 format.

_links

Name	Type	Description
self	href	

node_reference

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update a file clone token

PATCH `/storage/file/clone/tokens/{node.uuid}/{uuid}`

Introduced In: 9.10

Updates a file clone token.

Related Ontap commands

- `volume file clone token modify`

Modify clone token

Use the PATCH API to update the expiry time associated with the clone token.

```
# The call:
curl -X PATCH "https://<mgmt_ip>/api/storage/file/clone/tokens/97255711-
a1ad-11eb-92b2-0050568eb2ca/905c42ce-a74b-11eb-bd86-0050568ec7ae" -d
'{"expiry_time": {"limit": "5400"} }'

# The response for successful PATCH is empty.
```

Learn More

- [DOC `/storage/file/clone`]

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID
uuid	string	path	True	Token UUID

Request Body

Name	Type	Description
_links	self_link	
expiry_time	expiry_time	
node	node_reference	
reserve_size	integer	Specifies the available reserve in the file clone split load for the given token.
uuid	string	Token UUID.

Response

```
Status: 200, Ok
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

self_link

Name	Type	Description
self	href	

expiry_time

Name	Type	Description
left	string	Specifies the time remaining before the given token expires in ISO-8601 format.
limit	string	Specifies when the given token expires in ISO-8601 format.

_links

Name	Type	Description
self	href	

node_reference

Name	Type	Description
_links	_links	
name	string	
uuid	string	

token

token

Name	Type	Description
_links	self_link	
expiry_time	expiry_time	
node	node_reference	

Name	Type	Description
reserve_size	integer	Specifies the available reserve in the file clone split load for the given token.
uuid	string	Token UUID.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Start a file copy operation

POST `/storage/file/copy`

Introduced In: 9.8

Starts a file copy operation. Only supported on flexible volumes.

Required properties

- `files_to_copy` - List of files with the destination they are to be copied to.

Default property values

- `cutover_time` - *10*
- `hold_quiescence` - *false*
- `max_throughput` - *0*

- `reference_cutover_time` - *10*

Related ONTAP commands

- `volume file copy start`

Examples

Copying two files

The POST request is used to copy file(s).

```
# The API:
/api/storage/file/copy

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/file/copy" -H "accept:
application/hal+json" -d
'{"files_to_copy":[{"source":{"volume":{"name":"vol_a"},"svm":{"name":"vs0
"},"path":"d1/src_f1"},"destination":{"volume":{"name":"vol_a"},"svm":{"na
me":"vs0"},"path":"d1/dst_f1"}},
{"source":{"volume":{"name":"vol_a"},"svm":{"name":"vs0"},"path":"d1/src_f
2"},"destination":{"volume":{"name":"vol_a"},"svm":{"name":"vs0"},"path":"
d1/dst_f2"}}]}'

# The response:
{
"job": {
  "uuid": "b89bc5dd-94a3-11e8-a7a3-0050568edf84",
  "_links": {
     "self": {
       "href": "/api/cluster/jobs/b89bc5dd-94a3-11e8-a7a3-0050568edf84"
     }
   }
 }
}
```

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
cutover_time	integer	The maximum amount of time (in seconds) that the source can be quiesced before a destination file must be made available for read-write traffic.

Name	Type	Description
files_to_copy	array[files_to_copy]	A list of source files along with the destinations they are copied to. If the terminal path component of the destination is a directory, then the source file's basename is replicated in that directory.
hold_quiescence	boolean	Specifies whether the source file should be held quiescent for the duration of the copy operation.
max_throughput	integer	The maximum amount of data (in bytes) that can be transferred per second in support of this operation.
reference_cutover_time	integer	The maximum amount of time (in seconds) that the source reference file can be quiesced before the corresponding destination file must be made available for read-write traffic.
reference_file	reference_file	

Example request


```
{
  "cutover_time": 10,
  "files_to_copy": [
    {
      "destination": {
        "path": "string",
        "svm": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "svm1",
          "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
        },
        "volume": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "volume1",
          "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
        }
      },
      "source": {
        "path": "string",
        "svm": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "svm1",
          "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
        },
        "volume": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "volume1",
          "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
```

```
        }
      }
    }
  ],
  "reference_cutover_time": 10,
  "reference_file": {
    "path": "string",
    "volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "volume1",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    }
  }
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
7012352	File locations are inconsistent. All files must be on the same volume.
7012353	Exceeded the file operations supported number of files.
7012354	Unable to pair the number of source files to destination files.
7012357	Cannot start a file operation until all cluster nodes support the file operations capability.
7012358	The specified source path is invalid.
7012359	The specified destination path is invalid.
7012360	The SVMs are not in an intracluster peering relationship.
7012361	The SVMs peering relationship does not include application "file-copy".
7012362	The SVMs are not yet in a peered state yet.
7012363	Cannot copy files. All file operations must be managed by the destination SVM’s administrator.
7012365	Copying a file between clusters is not supported.
7012367	A reference path may only be specified if multiple source paths are specified.
7012368	The reference path must have a matching source path.
7012371	The reference cutover time exceeds the maximum allowable time.
7012374	Source volume and destination volume have different home clusters.
7012376	Operation not allowed on a volume that is part of a SnapMirror Synchronous relationship.
7012377	Cannot start a file copy operation on the volume because an active volume conversion is in progress.
13107223	Operation not supported for FlexGroup volumes or FlexGroup constituents.
196608143	Cannot start operation. The volume is undergoing a secure purge operation.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

file_reference

Name	Type	Description
path	string	Path of the file or directory.
svm	svm	
volume	volume	

files_to_copy

Name	Type	Description
destination	file_reference	
source	file_reference	

reference_file

Name	Type	Description
path	string	The source reference file. If a reference file is specified, data for other files being copied will be transferred as a difference from the reference file. This can save bandwidth and destination storage if the specified source files share blocks. If provided, this input must match one of the source file paths. This input need not be provided if only one source file is specified.
volume	volume	

file_copy

File copy

Name	Type	Description
cutover_time	integer	The maximum amount of time (in seconds) that the source can be quiesced before a destination file must be made available for read-write traffic.
files_to_copy	array[files_to_copy]	A list of source files along with the destinations they are copied to. If the terminal path component of the destination is a directory, then the source file's basename is replicated in that directory.
hold_quiescence	boolean	Specifies whether the source file should be held quiescent for the duration of the copy operation.

Name	Type	Description
max_throughput	integer	The maximum amount of data (in bytes) that can be transferred per second in support of this operation.
reference_cutover_time	integer	The maximum amount of time (in seconds) that the source reference file can be quiesced before the corresponding destination file must be made available for read-write traffic.
reference_file	reference_file	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage FlexCache volumes

Storage flexcache flexcaches endpoint overview

Overview

FlexCache is a persistent cache of an origin volume. An origin volume can only be a FlexVol while a FlexCache is always a FlexGroup.

The following relationship configurations are supported:

– Intra-Vserver where FlexCache and the corresponding origin volume reside in the same Vserver.

– Cross-Vserver but intra-cluster where FlexCache and the origin volume reside in the same cluster but belong to different Vservers.

– Cross-cluster where FlexCache and the origin volume reside in different clusters.

FlexCache supports fan-out and more than one FlexCache can be created from one origin volume. This API retrieves and manages FlexCache configurations in the cache cluster.

FlexCache APIs

The following APIs can be used to perform operations related with FlexCache:

– GET /api/storage/flexcache/flexcaches

– GET /api/storage/flexcache/flexcaches/{uuid}

– POST /api/storage/flexcache/flexcaches

– DELETE /api/storage/flexcache/flexcaches/{uuid}

Examples

Creating a FlexCache

The POST request is used to create a FlexCache.

```
# The API:
/api/storage/flexcache/flexcaches

# The call:
curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H
"accept: application/json" -H  "Content-Type: application/json" -d "{
\"aggregates\": [ { \"name\": \"aggr_1\" } ], \"name\": \"fc_333\",
\"origins\": [ {  \"svm\": { \"name\": \"vs_3\"  }, \"volume\": {
\"name\": \"vol_o1\" } } ], \"svm\": { \"name\": \"vs_1\" } }"

# The response:
{
"job": {
  "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79"
    }
  }
}
}
```

curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"aggregates\": [{ \"name\": \"aggr_1\" }], \"name\": \"fc_333\", \"origins\": [{ \"svm\": { \"name\": \"vs_3\" }, \"volume\": { \"name\": \"vol_o1\" } }], \"svm\": { \"name\": \"vs_1\" }, \"path\": \"/fc_333\", \"prepopulate\": { \"dir_paths\": [\"/dir1\"] } }"</mgmt-ip>

The response:

{ "job": { "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79" } } } }

```
curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H
"accept: application/json" -H  "Content-Type: application/json" -d "{
\"aggregates\": [ { \"name\":           \"aggr_1\" } ], \"name\":
\"fc_333\", \"origins\": [ {  \"svm\": { \"name\": \"vs_3\"  },
\"volume\": { \"name\": \"vol_o1\" } } ], \"svm\": { \"name\": \"vs_1\" },
\"path\": \"/       fc_333\", \"prepopulate\": { \"dir_paths\": [
\"/dir1\" ], \"exclude_dir_paths\": [ \"/dir1/dir11\" ] } }"

# The response:
{
"job": {
  "uuid": "5afe9ea4-1dcf-11eb-b006-005056ac6a93",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/5afe9ea4-1dcf-11eb-b006-005056ac6a93"
    }
  }
}
}
```

curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"aggregates\": [{ \"name\": \"aggr_1\" }], \"name\": \"fc_333\", \"origins\": [{ \"svm\": { \"name\": \"vs_3\" }, \"volume\": { \"name\": \"vol_o1\" } }], \"svm\":{ \"name\": \"vs_1\" }, \"dr_cache\": true, \"path\": \"/fc_333\", \"prepopulate\": { \"dir_paths\": [\"/dir1\"] } }"</mgmt-ip>

The response:

{ "job": { "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79" } } } }

```
### Retrieving FlexCache attributes
The GET request is used to retrieve FlexCache attributes. The object
includes a large set of fields which can be expensive to retrieve. Most
notably, the fields size, guarantee.type, aggregates, path,
origins.ip_address, origins.size, and origins.state are expensive to
retrieve. The recommended method to use this API is to filter and retrieve
only the required fields.
```

The API:

/api/storage/flexcache/flexcaches

The call:

curl -X GET "https://<mgmt-ip>/api/storage/flexcache/flexcaches?" -H "accept: application/json"</mgmt-ip>

The response:

{ "records": [{ "uuid": "04d5e07b-0ebe-11e9-8180-0050568e0b79", "name": "fc_322", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/04d5e07b-0ebe-11e9-8180-0050568e0b79" } } }, { "uuid": "47902654-0ea4-11e9-8180-0050568e0b79", "name": "fc_321", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/47902654-0ea4-11e9-8180-0050568e0b79" } } }, { "uuid": "77e911ff-0ebe-11e9-8180-0050568e0b79", "name": "fc_323", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/77e911ff-0ebe-11e9-8180-0050568e0b79" } } }, { "uuid": "ddb42bbc-0e95-11e9-8180-0050568e0b79", "name": "fc_32", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/ddb42bbc-0e95-11e9-8180-0050568e0b79" } } }, { "uuid": "ec774932-0f3c-11e9-8b2b-0050568e0b79", "name": "fc_333", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" } } }], "num_records": 5, "_links": { "self": { "href": "/api/storage/flexcache/flexcaches?" } } }

```
### Retrieving the attributes of a FlexCache
The GET request is used to retrieve the attributes of a FlexCache. The
object includes a large set of fields which can be expensive to retrieve.
Most notably, the fields size, guarantee.type, aggregates, path,
origins.ip_address, origins.size, and origins.state are expensive to
retrieve. The recommended method to use this API is to filter and retrieve
only the required fields.
```

The API:

/api/storage/flexcache/flexcaches/{uuid}

The call:

curl -X GET "https://<mgmt-ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" -H "accept: application/json"</mgmt-ip>

The response:

{ "uuid": "ec774932-0f3c-11e9-8b2b-0050568e0b79", "name": "fc_333", "svm": { "name": "vs_1", "uuid": "e708fbe2-0e92-11e9-8180-0050568e0b79" }, "size": 4294967296, "guarantee": { "type": "volume" }, "dr_cache": "true", "aggregates": [{ "name": "aggr_1", "uuid": "26f34b76-88f8-4a47-b5e0-d8e901fb1114" }], "origins": [{ "ip_address": "10.140.103.175", "size": 20971520, "create_time": "2019-01-03T15:19:55+05:30", "state": "online", "volume": { "name": "vol_o1", "uuid": "2bc957dd-2617-4afb-8d2f-66ac6070d313" }, "svm": { "name": "vs_3", "uuid": "8aa2cd28-0e92-11e9-b391-0050568e4115" }, "cluster": { "name": "node2", "uuid": "50733f81-0e90-11e9-b391-0050568e4115" } }], "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" } } }

```
### Deleting a FlexCache
The DELETE request is used to delete a FlexCache.
```

The API:

/api/storage/flexcache/flexcaches

The call:

curl -X DELETE "https://<mgmt-ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" -H "accept: application/json"</mgmt-ip>

The response:

{ "job": { "uuid": "e17994f2-0f3e-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e17994f2-0f3e-11e9-8b2b-0050568e0b79" } } } }

```
### Modifying a FlexCache volume
Use the PATCH request to update a FlexCache volume.
```

the API:

/api/storage/flexcache/flexcaches/{uuid}

The call:

curl -X PATCH "https://<mgmt-ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"prepopulate\": { \"dir_paths\": [\"/dir1\"] } }"</mgmt-ip>

The response:

{ "job": { "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79" } } } }

```
# The call
curl -X PATCH "https://<mgmt-
ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79"
-H  "accept: application/json" -H  "Content-Type: application/json" -d "{
\"prepopulate\": { \"dir_paths\": [ \"/dir1\" ], \"exclude_dir_paths\": [
\"/dir1/dir11\" ] } }"

# The response:
{
"job": {
  "uuid": "b574c48c-1da7-11eb-b006-005056ac6a93",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/b574c48c-1da7-11eb-b006-005056ac6a93"
    }
  }
}
}
```

Retrieve a FlexCache volume in the cluster

GET `/storage/flexcache/flexcaches`

Introduced In: 9.6

Retrieves FlexCache in the cluster.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `origins.ip_address` - IP address of origin.
- `origins.size` - Physical size of origin.
- `origins.state` - State of origin.
- `size` - Physical size of FlexCache.
- `guarantee.type` - Space guarantee style of FlexCache.
- `aggregates.name` or `aggregates.uuid` - Name or UUID of aggregrate of FlexCache volume.
- `path` - Fully-qualified path of the owning SVM's namespace where the FlexCache is mounted.

Related ONTAP commands

- `volume flexcache show`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
aggregates.uuid	string	query	False	Filter by aggregates.uuid
aggregates.name	string	query	False	Filter by aggregates.name
global_file_locking_enabled	boolean	query	False	Filter by global_file_locking_enabled • Introduced in: 9.9

Name	Type	In	Required	Description
use_tiered_aggregate	boolean	query	False	Filter by use_tiered_aggregate • Introduced in: 9.8
origins.state	string	query	False	Filter by origins.state
origins.svm.uuid	string	query	False	Filter by origins.svm.uuid
origins.svm.name	string	query	False	Filter by origins.svm.name
origins.size	integer	query	False	Filter by origins.size
origins.ip_address	string	query	False	Filter by origins.ip_address
origins.create_time	string	query	False	Filter by origins.create_time
origins.cluster.name	string	query	False	Filter by origins.cluster.name
origins.cluster.uuid	string	query	False	Filter by origins.cluster.uuid
origins.volume.uuid	string	query	False	Filter by origins.volume.uuid
origins.volume.name	string	query	False	Filter by origins.volume.name
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
constituents_per_aggregate	integer	query	False	Filter by constituents_per_aggregate
size	integer	query	False	Filter by size

Name	Type	In	Required	Description
name	string	query	False	Filter by name
dr_cache	boolean	query	False	Filter by dr_cache • Introduced in: 9.9
guarantee.type	string	query	False	Filter by guarantee.type • Introduced in: 9.7
path	string	query	False	Filter by path
uuid	string	query	False	Filter by uuid
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
order_by	array[string]	query	False	Order results by specified fields and optional [asc
desc] direction. Default direction is 'asc' for ascending.	return_records	boolean	query	False

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[flexcache]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "aggregates": [
        {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        }
      ],
      "guarantee": {
        "type": "string"
      },
      "name": "vol1",
      "origins": [
        {
          "cluster": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "cluster1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          },
          "create_time": "2018-06-04T19:00:00Z",
          "ip_address": "10.10.10.7",
```

```
          "size": 0,
          "state": "string",
          "svm": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "svm1",
            "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
          },
          "volume": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "volume1",
            "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
          }
        }
      ],
      "path": "/user/my_fc",
      "prepopulate": {
        "dir_paths": [
          "/dir1"
        ],
        "exclude_dir_paths": [
          "/dir1/dir2"
        ]
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

aggregates

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

prepopulate

FlexCache prepopulate

Name	Type	Description
dir_paths	array[string]	
exclude_dir_paths	array[string]	
recurse	boolean	Specifies whether or not the prepopulate action should search through the `dir_paths` recursively. If not set, the default value *true* is used.

svm

FlexCache SVM

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

flexcache

Defines the cache endpoint of FlexCache.

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".

Name	Type	Description
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM's namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM's namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Create a FlexCache volume in the cluster

POST `/storage/flexcache/flexcaches`

Introduced In: 9.6

Creates a FlexCache in the cluster.

Required properties

- `name` - Name of FlexCache volume.
- `origins.volume.name` or `origins.volume.uuid` - Name or UUID of origin volume.
- `origins.svm.name` - Name of origin Vserver.
- `svm.name` or `svm.uuid` - Name or UUID of Vserver where FlexCache will be created.

Recommended optional properties

- `path` - Path to mount the FlexCache volume
- `prepopulate.dir_paths` - List of directory-paths to be prepopulated for the FlexCache volume.
- `prepopulate.exclude_dir_paths` - List of directory-paths to be excluded from prepopulation for he FlexCache volume.

Default property values

If not specified in POST, the following default property values are assigned:

- `size` - 10% of origin volume size or 1GB per constituent, whichever is greater.
- `guarantee.type` - none. FlexCache is thin provisioned by default.
- `constituents_per_aggregate` - 4 if aggregates.name or aggregates.uuid is used.
- `use_tiered_aggregate` - false if aggr-list is not used. This property is only used when auto-provisioning a FlexCache volume.
- `is_disconnected_mode_off_for_locks` - false. This property specifies if the origin will honor the cache side locks when doing the lock checks in the disconnected mode.

- `dr_cache` - false if FlexCache is not a DR cache. This property is used to create a DR FlexCache.
- `global_file_locking_enabled` - false. This property specifies whether global file locking is enabled on the FlexCache volume.

Related ONTAP commands

- `volume flexcache create`
- `volume flexcache prepopulate start`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM's namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM's namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.

Name	Type	Description
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "guarantee": {
    "type": "string"
  },
  "name": "vol1",
  "origins": [
    {
      "cluster": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "cluster1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "create_time": "2018-06-04T19:00:00Z",
      "ip_address": "10.10.10.7",
      "size": 0,
      "state": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
```

```
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ],
  "path": "/user/my_fc",
  "prepopulate": {
    "dir_paths": [
      "/dir1"
    ],
    "exclude_dir_paths": [
      "/dir1/dir2"
    ]
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```


Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
66846870	Either the SVM name or origin volume name is missing
66846871	Constituents per aggregate are specified but aggregate name is missing
66846872	More than one origin volume is specified
66846873	The specified SVM UUID is incorrect for the specified SVM name
66846874	The specified aggregate UUID is incorrect for the specified aggregate name
66846875	The specified aggregate name does not exist
66846876	The specified SVM does not exist or is not peered
66846877	The specified origin SVM name is of zero length
66846878	The specified SVM UUID is invalid
66846730	Failed to create a FlexCache volume
66846760	The specified SVM is not a data Vserver
66846787	The specified aggregate is a SnapLock aggregate
66846812	The specified aggregate is a Composite aggregate
66846812	The specified junction path is under a FlexCache volume

Error Code	Description
66846834	FlexCache encryption requires a cluster version of 9.6 or higher
66846835	A volume encryption license is not found

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregates

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

prepopulate

FlexCache prepopulate

Name	Type	Description
dir_paths	array[string]	
exclude_dir_paths	array[string]	
recurse	boolean	Specifies whether or not the prepopulate action should search through the `dir_paths` recursively. If not set, the default value *true* is used.

svm

FlexCache SVM

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

flexcache

Defines the cache endpoint of FlexCache.

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	

Name	Type	Description
path	string	The fully-qualified path in the owning SVM's namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM's namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Delete a FlexCache volume

DELETE `/storage/flexcache/flexcaches/{uuid}`

Introduced In: 9.6

Deletes a FlexCache. If a FlexCache volume is online, it is offlined before deletion.

Related ONTAP commands

- `volume flexcache delete`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Unique identifier of the FlexCache.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
66846879	The specified volume UUID is not a FlexCache volume
66846731	Failed to delete the FlexCache volume
524546	Failed to delete the FlexCache volume because the FlexCache volume is not unmounted

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve attributes of the FlexCache volume in the cluster

GET `/storage/flexcache/flexcaches/{uuid}`

Introduced In: 9.6

Retrieves attributes of the FlexCache in the cluster.

Expensive properties

There is an added cost to retrieving values for these properties. They are included by default in GET. The recommended method to use this API is to filter and retrieve only the required fields. See Requesting specific fields to learn more.

- `origins.ip_address` - IP address of origin.
- `origins.size` - Physical size of origin.
- `origins.state` - State of origin.
- `size` - Physical size of FlexCache.
- `guarantee.type` - Space guarantee style of FlexCache.
- `aggregates.name` or `aggregates.uuid` - Name or UUID of aggregrate of FlexCache volume.
- `path` - Fully-qualified path of the owning SVM's namespace where the FlexCache is mounted.

Related ONTAP commands

- `volume flexcache show`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Unique identifier of FlexCache.
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	

Name	Type	Description
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM’s namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM’s namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM

Name	Type	Description
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "guarantee": {
    "type": "string"
  },
  "name": "vol1",
  "origins": [
    {
      "cluster": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "cluster1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "create_time": "2018-06-04T19:00:00Z",
      "ip_address": "10.10.10.7",
      "size": 0,
      "state": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
```

```
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ],
  "path": "/user/my_fc",
  "prepopulate": {
    "dir_paths": [
      "/dir1"
    ],
    "exclude_dir_paths": [
      "/dir1/dir2"
    ]
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregates

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

prepopulate

FlexCache prepopulate

Name	Type	Description
dir_paths	array[string]	
exclude_dir_paths	array[string]	
recurse	boolean	Specifies whether or not the prepopulate action should search through the `dir_paths` recursively. If not set, the default value *true* is used.

svm

FlexCache SVM

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Pre-populate a FlexCache volume in the cluster

PATCH `/storage/flexcache/flexcaches/{uuid}`

Introduced In: 9.8

Prepopulates a FlexCache volume in the cluster.

Required properties

- `uuid` - FlexCache volume UUID.
- `prepopulate.dir_paths` - List of directory-paths to be prepopulated for the FlexCache volume.

Recommended optional properties

- `prepopulate.exclude_dir_paths` - List of directory-paths to be excluded from prepopulation for the FlexCache volume.

Default property values

If not specified in PATCH, the following default property value is assigned:

- `prepopulate.recurse` - Default value is "true".

Related ONTAP commands

- `volume flexcache prepopulate start`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Unique identifier of the FlexCache volume.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.

Name	Type	Description
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM's namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM's namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "guarantee": {
    "type": "string"
  },
  "name": "vol1",
  "origins": [
    {
      "cluster": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "cluster1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "create_time": "2018-06-04T19:00:00Z",
      "ip_address": "10.10.10.7",
      "size": 0,
      "state": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
```

```
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ],
  "path": "/user/my_fc",
  "prepopulate": {
    "dir_paths": [
      "/dir1"
    ],
    "exclude_dir_paths": [
      "/dir1/dir2"
    ]
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
66846922	FlexCache volume does not exist in the SVM
66846923	Failed to prepopulate FlexCache volume because the origin volume is not reachable
66846924	FlexCache volume is offline
66846925	FlexCache volume is not mounted or the junction-path is not active
66846926	The junction-path of FlexCache volume is not active
66846927	FlexCache volume does not have an origin volume
66846928	FlexCache volume does not exist
66846929	Using FlexCache prepopulate requires an effective cluster version of 9.8.0 or later
66846930	Using FlexCache prepopulate in a MetroCluster configuration requires an effective cluster version of 9.8.0 or later on both the local and remote clusters
66846931	Internal Error. FlexCache prepopulate job queue failed. Wait a few minutes, and then try the operation again
66846936	Failed to lookup root file handle for origin of FlexCache volume. Wait a few minutes, and then try the operation again

Error Code	Description
66846937	Internal error. Failed to initialize thread
66846939	Internal error. Failed to get the MSID of the origin volume for FlexCache volume
66846943	Failed to prepopulate because dir_path does not exist
66846944	Failed to get root constituent for FlexCache volume
66846945	Origin of FlexCache volume is not mounted or the junction-path is not active
66846946	The junction-path of origin of FlexCache volume is not active
66846947	FlexCache prepopulate job for FlexCache volume already exists
66846948	FlexCache prepopulate job for FlexCache volume could not be queued because the node is offline

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregates

Aggregate

Name	Type	Description
_links	_links	
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

prepopulate

FlexCache prepopulate

Name	Type	Description
dir_paths	array[string]	
exclude_dir_paths	array[string]	
recurse	boolean	Specifies whether or not the prepopulate action should search through the `dir_paths` recursively. If not set, the default value *true* is used.

svm

FlexCache SVM

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

flexcache

Defines the cache endpoint of FlexCache.

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	

Name	Type	Description
path	string	The fully-qualified path in the owning SVM's namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM's namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage FlexCache origin volumes

Storage flexcache origins endpoint overview

Overview

FlexCache is a persistent cache of an origin volume. An origin volume can only be a FlexVol while a FlexCache is always a FlexGroup.

The following relationship configurations are supported:

– Intra-Vserver where FlexCache and the corresponding origin volume reside in the same Vserver.

– Cross-Vserver but intra-cluster where FlexCache and the origin volume reside in the same cluster but belong to different Vservers.

– Cross-cluster where FlexCache and the origin volume reside in different clusters.

FlexCache supports fan-out and more than one FlexCache can be created from one origin volume. This API retrieves the origin of FlexCache onfigurations in the origin cluster.

FlexCache APIs

The following APIs can be used to perform operations related to the origin of a FlexCache:

– GET /api/storage/flexcache/origins

– GET /api/storage/flexcache/origins/{uuid}

– PATCH /api/storage/flexcache/origins/{uuid}

Examples

Retrieving origins of FlexCache attributes

The GET request is used to retrieve the origins of FlexCache attributes.

```
# The API:
/api/storage/flexcache/origins

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/flexcache/origins?" -H
"accept: application/json"

# The response:
{
  "records": [
    {
      "uuid": "2bc957dd-2617-4afb-8d2f-66ac6070d313",
      "name": "vol_o1",
      "_links": {
        "self": {
          "href": "/api/storage/flexcache/origins/2bc957dd-2617-4afb-8d2f-
66ac6070d313"
        }
      }
    },
    {
      "uuid": "80fcaee4-0dc2-488b-afb8-86d28a34cda8",
      "name": "vol_1",
      "_links": {
        "self": {
          "href": "/api/storage/flexcache/origins/80fcaee4-0dc2-488b-afb8-
86d28a34cda8"
        }
      }
    }
  ],
  "num_records": 2,
  "_links": {
    "self": {
      "href": "/api/storage/flexcache/origins?"
    }
  }
}
```

Retrieving the attributes of an origin volume

The GET request is used to retrieve the attributes of an origin volume.

```
# The API:
/api/storage/flexcache/origins/{uuid}
```

```
# The call:
curl -X GET "https://<mgmt-ip>/api/storage/flexcache/origins/80fcaee4-
0dc2-488b-afb8-86d28a34cda8" -H  "accept: application/json"

# The response:
{
  "uuid": "80fcaee4-0dc2-488b-afb8-86d28a34cda8",
  "name": "vol_1",
  "svm": {
    "name": "vs_3",
    "uuid": "8aa2cd28-0e92-11e9-b391-0050568e4115"
  },
  "block_level_invalidation": "false",
  "global_file_locking_enabled": "true",
  "flexcaches": [
    {
      "ip_address": "10.140.103.183",
      "create_time": "2019-01-02T19:27:22+05:30",
      "volume": {
        "name": "fc_42",
        "uuid": "4e7f9d49-0e96-11e9-aed0-0050568eddbe"
      },
      "svm": {
        "name": "vs_1_4",
        "uuid": "36f68322-0e93-11e9-aed0-0050568eddbe"
      },
      "cluster": {
        "name": "node4",
        "uuid": "c32f16b8-0e90-11e9-aed0-0050568eddbe"
      }
    },
    {
      "ip_address": "10.140.103.183",
      "create_time": "2019-01-02T21:08:34+05:30",
      "volume": {
        "name": "fc_421",
        "uuid": "71ee8f36-0ea4-11e9-aed0-0050568eddbe"
      },
      "svm": {
        "name": "vs_1_4",
        "uuid": "36f68322-0e93-11e9-aed0-0050568eddbe"
      },
      "cluster": {
        "name": "node4",
        "uuid": "c32f16b8-0e90-11e9-aed0-0050568eddbe"
```

```
      }
    },
    {
      "ip_address": "10.140.103.183",
      "create_time": "2019-01-03T11:14:38+05:30",
      "volume": {
        "name": "fc_422"
      },
      "svm": {
        "name": "vs_1_4",
        "uuid": "36f68322-0e93-11e9-aed0-0050568eddbe"
      },
      "cluster": {
        "name": "node4",
        "uuid": "c32f16b8-0e90-11e9-aed0-0050568eddbe"
      }
    },
    {
      "ip_address": "10.140.103.179",
      "size": 4294967296,
      "create_time": "2019-01-02T19:24:14+05:30",
      "state": "online",
      "volume": {
        "name": "fc_32",
        "uuid": "ddb42bbc-0e95-11e9-8180-0050568e0b79"
      },
      "svm": {
        "name": "vs_1",
        "uuid": "e708fbe2-0e92-11e9-8180-0050568e0b79"
      },
      "cluster": {
        "name": "node3",
        "uuid": "8eb21b3b-0e90-11e9-8180-0050568e0b79"
      }
    },
    {
      "ip_address": "10.140.103.179",
      "size": 4294967296,
      "create_time": "2019-01-02T21:07:23+05:30",
      "state": "online",
      "volume": {
        "name": "fc_321",
        "uuid": "47902654-0ea4-11e9-8180-0050568e0b79"
      },
      "svm": {
        "name": "vs_1",
```

```
        "uuid": "e708fbe2-0e92-11e9-8180-0050568e0b79"
      },
      "cluster": {
        "name": "node3",
        "uuid": "8eb21b3b-0e90-11e9-8180-0050568e0b79"
      }
    },
    {
      "ip_address": "10.140.103.179",
      "size": 4294967296,
      "create_time": "2019-01-03T00:11:38+05:30",
      "state": "online",
      "volume": {
        "name": "fc_322",
        "uuid": "04d5e07b-0ebe-11e9-8180-0050568e0b79"
      },
      "svm": {
        "name": "vs_1",
        "uuid": "e708fbe2-0e92-11e9-8180-0050568e0b79"
      },
      "cluster": {
        "name": "node3",
        "uuid": "8eb21b3b-0e90-11e9-8180-0050568e0b79"
      }
    },
    {
      "ip_address": "10.140.103.179",
      "size": 4294967296,
      "create_time": "2019-01-03T00:14:52+05:30",
      "state": "online",
      "volume": {
        "name": "fc_323",
        "uuid": "77e911ff-0ebe-11e9-8180-0050568e0b79"
      },
      "svm": {
        "name": "vs_1",
        "uuid": "e708fbe2-0e92-11e9-8180-0050568e0b79"
      },
      "cluster": {
        "name": "node3",
        "uuid": "8eb21b3b-0e90-11e9-8180-0050568e0b79"
      }
    }
  ],
  "_links": {
    "self": {
```

```
      "href": "/api/storage/flexcache/origins/80fcaee4-0dc2-488b-afb8-
86d28a34cda8"
    }
  }
}
```

Modifying origin options of an origin volume

Use the PATCH request to update options of an origin volume.

```
# the API:
/api/storage/flexcache/origins/{uuid}

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/flexcache/origins/1fbc0ebb-
2440-11eb-a86c-005056ac8ca0"  -H  "accept: application/json" -H  "Content-
Type: application/json" -d "{ \"block_level_invalidation\": \"true\" } "

# The response:
{
"job": {
  "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79"
    }
  }
}
}
```

Retrieve the origin of a FlexCache in the cluster

GET `/storage/flexcache/origins`

Introduced In: 9.6

Retrieves origin of FlexCache in the cluster.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `flexcaches.ip_address` - IP address of FlexCache.
- `flexcaches.size` - Physical size of FlexCache.

- `flexcaches.guarantee.type` - Space guarantee style of FlexCache.
- `flexcaches.state` - State of FlexCache.

Related ONTAP commands

- `volume flexcache origin show-caches`

Learn more

- DOC /storage/flexcache/origins

Parameters

Name	Type	In	Required	Description
name	string	query	False	Filter by name
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
flexcaches.state	string	query	False	Filter by flexcaches.state
flexcaches.svm.uuid	string	query	False	Filter by flexcaches.svm.uuid
flexcaches.svm.name	string	query	False	Filter by flexcaches.svm.name
flexcaches.size	integer	query	False	Filter by flexcaches.size
flexcaches.ip_address	string	query	False	Filter by flexcaches.ip_address
flexcaches.create_time	string	query	False	Filter by flexcaches.create_time
flexcaches.cluster.name	string	query	False	Filter by flexcaches.cluster.name

Name	Type	In	Required	Description
flexcaches.cluster.uuid	string	query	False	Filter by flexcaches.cluster.uuid
flexcaches.volume.uuid	string	query	False	Filter by flexcaches.volume.uuid
flexcaches.volume.name	string	query	False	Filter by flexcaches.volume.name
global_file_locking_enabled	boolean	query	False	Filter by global_file_locking_enabled • Introduced in: 9.9
block_level_invalidation	boolean	query	False	Filter by block_level_invalidation • Introduced in: 9.9
uuid	string	query	False	Filter by uuid
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
fields	array[string]	query	False	Specify the fields to return.

Name	Type	In	Required	Description
max_records	integer	query	False	Limit the number of records returned.
order_by	array[string]	query	False	Order results by specified fields and optional [asc
desc] direction. Default direction is 'asc' for ascending.	return_records	boolean	query	False

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[flexcache_origin]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "flexcaches": [
        {
          "cluster": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "cluster1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          },
          "create_time": "2018-06-04T19:00:00Z",
          "ip_address": "10.10.10.7",
          "size": 0,
          "state": "string",
          "svm": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "svm1",
            "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
          },
          "volume": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
```

```
              }
            },
            "name": "volume1",
            "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
          }
        }
      ],
      "name": "vol1, vol_2",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563512"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.

Name	Type	Description
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

svm

Origin volume SVM

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

flexcache_origin

Defines the origin endpoint of FlexCache.

Name	Type	Description
_links	_links	

Name	Type	Description
block_level_invalidation	boolean	Block level invalidation enables the FlexCache volume to retain blocks that are not changed at the FlexCache volume without having to evict them. This means that the FlexCache volume does not have to again incur the cost of fetching blocks over the WAN from the FlexCache volume origin on the next client access. Block level invalidation is a property of the origin volume. Without block level invalidation, any write at the origin volume would evict the whole file at the FlexCache volume, since by default, origin volume does a file level invalidation.
flexcaches	array[flexcache_relationship]	
global_file_locking_enabled	boolean	Specifies whether a global file locking option is enabled for an origin volume of a FlexCache volume.
name	string	Origin volume name
svm	svm	Origin volume SVM
uuid	string	Origin volume UUID. Unique identifier for origin of FlexCache.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code

Name	Type	Description
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve attributes of the origin of a FlexCache volume in the cluster

GET `/storage/flexcache/origins/{uuid}`

Introduced In: 9.6

Retrieves attributes of the origin of a FlexCache in the cluster.

Expensive properties

There is an added cost to retrieving values for these properties. They are included by default in GET results. The recommended method to use this API is to filter and retrieve only the required fields. See Requesting specific fields to learn more.

- `flexcaches.ip_address` - IP address of FlexCache.
- `flexcaches.size` - Physical size of FlexCache.
- `flexcaches.guarantee.type` - Space guarantee style of FlexCache.
- `flexcaches.state` - State of FlexCache.
- `flexcaches.dr_cache` - True if the cache is a DR cache.

Related ONTAP commands

- `volume flexcache origin show-caches`

Learn more

- DOC /storage/flexcache/origins

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Unique identifier of origin of FlexCache.
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
block_level_invalidation	boolean	Block level invalidation enables the FlexCache volume to retain blocks that are not changed at the FlexCache volume without having to evict them. This means that the FlexCache volume does not have to again incur the cost of fetching blocks over the WAN from the FlexCache volume origin on the next client access. Block level invalidation is a property of the origin volume. Without block level invalidation, any write at the origin volume would evict the whole file at the FlexCache volume, since by default, origin volume does a file level invalidation.
flexcaches	array[flexcache_relationship]	
global_file_locking_enabled	boolean	Specifies whether a global file locking option is enabled for an origin volume of a FlexCache volume.
name	string	Origin volume name
svm	svm	Origin volume SVM
uuid	string	Origin volume UUID. Unique identifier for origin of FlexCache.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "flexcaches": [
    {
      "cluster": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "cluster1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "create_time": "2018-06-04T19:00:00Z",
      "ip_address": "10.10.10.7",
      "size": 0,
      "state": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ],
  "name": "vol1, vol_2",
  "svm": {
    "_links": {
```

```
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563512"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

svm

Origin volume SVM

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Modify origin options for a FlexCache origin volume in the cluster

PATCH `/storage/flexcache/origins/{uuid}`

Introduced In: 9.9

Modifies origin options for a origin volume in the cluster.

Required properties

- `uuid` - Origin volume UUID.
- `block_level_invalidation` - Value for the Block Level Invalidation flag - options {true\|false}.

Related ONTAP commands

- `volume flexcache origin config modify`

Learn more

- DOC /storage/flexcache/origins

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Unique identifier of the origin of the FlexCache volume.

Request Body

Name	Type	Description
_links	_links	
block_level_invalidation	boolean	Block level invalidation enables the FlexCache volume to retain blocks that are not changed at the FlexCache volume without having to evict them. This means that the FlexCache volume does not have to again incur the cost of fetching blocks over the WAN from the FlexCache volume origin on the next client access. Block level invalidation is a property of the origin volume. Without block level invalidation, any write at the origin volume would evict the whole file at the FlexCache volume, since by default, origin volume does a file level invalidation.

Name	Type	Description
flexcaches	array[flexcache_relationship]	
global_file_locking_enabled	boolean	Specifies whether a global file locking option is enabled for an origin volume of a FlexCache volume.
name	string	Origin volume name
svm	svm	Origin volume SVM
uuid	string	Origin volume UUID. Unique identifier for origin of FlexCache.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "flexcaches": [
    {
      "cluster": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "cluster1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "create_time": "2018-06-04T19:00:00Z",
      "ip_address": "10.10.10.7",
      "size": 0,
      "state": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ],
  "name": "vol1, vol_2",
  "svm": {
    "_links": {
```

```
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563512"
}
```


Response

```
Status: 200, Ok
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
66846870	Either origin volume uuid or BLI option value is missing
66847020	Failed to get origin volume details using volume uuid

Error Code	Description
66847021	Failed to modify origin volume options

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

svm

Origin volume SVM

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

flexcache_origin

Defines the origin endpoint of FlexCache.

Name	Type	Description
_links	_links	

Name	Type	Description
block_level_invalidation	boolean	Block level invalidation enables the FlexCache volume to retain blocks that are not changed at the FlexCache volume without having to evict them. This means that the FlexCache volume does not have to again incur the cost of fetching blocks over the WAN from the FlexCache volume origin on the next client access. Block level invalidation is a property of the origin volume. Without block level invalidation, any write at the origin volume would evict the whole file at the FlexCache volume, since by default, origin volume does a file level invalidation.
flexcaches	array[flexcache_relationship]	
global_file_locking_enabled	boolean	Specifies whether a global file locking option is enabled for an origin volume of a FlexCache volume.
name	string	Origin volume name
svm	svm	Origin volume SVM
uuid	string	Origin volume UUID. Unique identifier for origin of FlexCache.

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage montiored files

Storage monitored-files endpoint overview

Retrieving all monitored files

```
# The API:
GET /api/storage/monitored-files

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/monitored-files"
```

Provisioning a monitored file

```
# The API:
POST /api/storage/monitored-files

# The call:
curl -d "@test_mfiles_post.txt" -X POST "https://<mgmt-
ip>/api/storage/monitored-files"
test_mfiles_post.txt(body):
{
"svm": {
   "name": "vs0"
},
"volume": {
  "name": "vol1"
},
"path": "/a/b/c/file.txt"
}
```

Removing a file from the monitored files list

```
# The API:
DELETE /api/storage/monitored-files/{uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/monitored-files/6f68c85b-
45e1-11e9-8fc7-005056bbc848"
```

Alternate method for removing files from the monitored files list

Monitored files can also be deleted via a combination of any of (uuid, svm.name, svm.uuid, volume.name, volume.uuid, path). For example, to remove all monitored-files from monitoring in a single svm named vs0, use the following

```
# The API:
DELETE /api/storage/monitored-files

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/monitored-
files?svm.name=vs0"
```

Performance monitoring

Performance of the monitored file can be monitored by the `metric.*` and `statistics.*` properties. These fields show the performance of the monitored file in terms of IOPS, latency and throughput. The `metric.*` properties denote an average whereas `statistics.*` properties denote a real-time monotonically increasing

value aggregated across all nodes.

Retrieve all monitored files

GET `/storage/monitored-files`

Introduced In: 9.8

Retrieves all monitored files.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `statistics.*`
- `metric.*`

Learn more

- DOC /storage/monitored-files

Parameters

Name	Type	In	Required	Description
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
statistics.throughput_raw.total	integer	query	False	Filter by statistics.throughput_raw.total
statistics.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write
statistics.throughput_raw.other	integer	query	False	Filter by statistics.throughput_raw.other
statistics.throughput_raw.read	integer	query	False	Filter by statistics.throughput_raw.read
statistics.timestamp	string	query	False	Filter by statistics.timestamp

Name	Type	In	Required	Description
statistics.status	string	query	False	Filter by statistics.status
statistics.iops_raw.total	integer	query	False	Filter by statistics.iops_raw.total
statistics.iops_raw.write	integer	query	False	Filter by statistics.iops_raw.write
statistics.iops_raw.other	integer	query	False	Filter by statistics.iops_raw.other
statistics.iops_raw.read	integer	query	False	Filter by statistics.iops_raw.read
statistics.latency_raw.total	integer	query	False	Filter by statistics.latency_raw.total
statistics.latency_raw.write	integer	query	False	Filter by statistics.latency_raw.write
statistics.latency_raw.other	integer	query	False	Filter by statistics.latency_raw.other
statistics.latency_raw.read	integer	query	False	Filter by statistics.latency_raw.read
volume.uuid	string	query	False	Filter by volume.uuid
volume.name	string	query	False	Filter by volume.name
metric.iops.total	integer	query	False	Filter by metric.iops.total
metric.iops.write	integer	query	False	Filter by metric.iops.write

Name	Type	In	Required	Description
metric.iops.other	integer	query	False	Filter by metric.iops.other
metric.iops.read	integer	query	False	Filter by metric.iops.read
metric.status	string	query	False	Filter by metric.status
metric.throughput.total	integer	query	False	Filter by metric.throughput.total
metric.throughput.write	integer	query	False	Filter by metric.throughput.write
metric.throughput.other	integer	query	False	Filter by metric.throughput.other
metric.throughput.read	integer	query	False	Filter by metric.throughput.read
metric.duration	string	query	False	Filter by metric.duration
metric.latency.total	integer	query	False	Filter by metric.latency.total
metric.latency.write	integer	query	False	Filter by metric.latency.write
metric.latency.other	integer	query	False	Filter by metric.latency.other
metric.latency.read	integer	query	False	Filter by metric.latency.read
metric.timestamp	string	query	False	Filter by metric.timestamp
uuid	string	query	False	Filter by uuid
path	string	query	False	Filter by path

Name	Type	In	Required	Description
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of files provisioned for monitoring.

Name	Type	Description
records	array[monitored_file]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "metric": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "duration": "PT15S",
        "iops": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "latency": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "throughput": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "path": "/a/b/c/file.txt",
      "statistics": {
        "iops_raw": {
```

```
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "latency_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "throughput_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

performance_metric

Performance numbers, such as IOPS latency and throughput.

Name	Type	Description
_links	_links	

Name	Type	Description
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

performance_metric_raw_reference

These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	

Name	Type	Description
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

monitored_file

Name	Type	Description
_links	_links	
metric	performance_metric	Performance numbers, such as IOPS latency and throughput.
path	string	Path of the file to be monitored.
statistics	performance_metric_raw_reference	These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	
uuid	string	Unique identifier created for identifying the file that is monitored.
volume	volume	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Create a monitored file

POST `/storage/monitored-files`

Introduced In: 9.8

Creates a monitored file.

Required properties

The required properties take the following options:

- path and volume.uuid or
- path and (svm.name or svm.uuid) and volume.name
- `path` - Path to the file to be monitored.
- `volume.uuid` - Volume where the file to be monitored exists
- `svm.name` or `svm.uuid` - SVM where the file to be monitored exists
- `volume.name` - Volume where the file to be monitored exists.

Learn more

- DOC /storage/monitored-files

Parameters

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
metric	performance_metric	Performance numbers, such as IOPS latency and throughput.
path	string	Path of the file to be monitored.
statistics	performance_metric_raw_reference	These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	
uuid	string	Unique identifier created for identifying the file that is monitored.
volume	volume	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "metric": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "duration": "PT15S",
    "iops": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "path": "/a/b/c/file.txt",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
```

```
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```


Response

```
Status: 201, Created
```

Name	Type	Description
_links	_links	
num_records	integer	Number of files provisioned for monitoring.
records	array[monitored_file]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "metric": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "duration": "PT15S",
        "iops": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "latency": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "throughput": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "path": "/a/b/c/file.txt",
      "statistics": {
        "iops_raw": {
```

```
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "latency_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "throughput_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.

Name	Type	Description
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

performance_metric

Performance numbers, such as IOPS latency and throughput.

Name	Type	Description
_links	_links	
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.

Name	Type	Description
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

iops_raw

The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.

Name	Type	Description
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency_raw

The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.

Name	Type	Description
write	integer	Peformance metric for write I/O operations.

performance_metric_raw_reference

These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.

Name	Type	Description
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This can be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

monitored_file

Name	Type	Description
_links	_links	
metric	performance_metric	Performance numbers, such as IOPS latency and throughput.
path	string	Path of the file to be monitored.

Name	Type	Description
statistics	performance_metric_raw_reference	These are raw performance numbers, such as IOPS latency and throughput. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	
uuid	string	Unique identifier created for identifying the file that is monitored.
volume	volume	

_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve historical performance metrics for a monitored file

GET `/storage/monitored-files/{monitored_file.uuid}/metrics`

Introduced In: 9.8

Retrieves historical performance metrics for the monitored file.

Parameters

Name	Type	In	Required	Description
throughput.total	integer	query	False	Filter by throughput.total
throughput.write	integer	query	False	Filter by throughput.write
throughput.other	integer	query	False	Filter by throughput.other
throughput.read	integer	query	False	Filter by throughput.read
iops.total	integer	query	False	Filter by iops.total
iops.write	integer	query	False	Filter by iops.write
iops.other	integer	query	False	Filter by iops.other
iops.read	integer	query	False	Filter by iops.read
status	string	query	False	Filter by status
timestamp	string	query	False	Filter by timestamp
latency.total	integer	query	False	Filter by latency.total
latency.write	integer	query	False	Filter by latency.write
latency.other	integer	query	False	Filter by latency.other
latency.read	integer	query	False	Filter by latency.read
duration	string	query	False	Filter by duration
monitored_file.uuid	string	path	True	Unique identifier of the monitored file.

Name	Type	In	Required	Description
interval	string	query	False	The time range for the data. Examples can be 1w, 1m, 1y. The period for each time range is as follows: • 1w: Metrics over the most recent week sampled over 30 minutes. • 1m: Metrics over the most recent month sampled over 2 hours. • 1y: Metrics over the most recent year sampled over a day. • Default value: 1 • enum: ["1w", "1m", "1y"]
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
order_by	array[string]	query	False	Order results by specified fields and optional [asc
desc] direction. Default direction is 'asc' for ascending.	return_records	boolean	query	False

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[records]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "throughput": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "timestamp": "2017-01-25T11:20:13Z"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

iops

The rate of I/O operations observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

latency

The round trip latency in microseconds observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput

The rate of throughput bytes per second observed at the storage object.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

records

Performance numbers, such as IOPS latency and throughput.

Name	Type	Description
_links	_links	

Name	Type	Description
duration	string	The duration over which this sample is calculated. The time durations are represented in the ISO-8601 standard format. Samples can be calculated over the following durations:
iops	iops	The rate of I/O operations observed at the storage object.
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.
throughput	throughput	The rate of throughput bytes per second observed at the storage object.
timestamp	string	The timestamp of the performance data.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Removes the file from the monitored file list

DELETE `/storage/monitored-files/{uuid}`

Introduced In: 9.8

Removes the file from the list of monitored files.

Learn more

- DOC /storage/monitored-files

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Response

```
Status: 200, Ok
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage ports

Storage ports endpoint overview

Retrieving storage port information

The storage port GET API retrieves all of the storage ports in the cluster.

Examples

1) Retrieve a list of storage ports from the cluster

The following example shows the response with a list of storage ports in the cluster:

```
# The API:
/api/storage/ports

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/ports" -H "accept:
application/hal+json"
```

```
# The response:
{
"records": [
  {
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "name": "0a",
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0a"
      }
    }
  },
  {
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "name": "0b",
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0b"
      }
    }
  },
  {
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
```

```
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "name": "0c",
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0c"
      }
    }
  },
  {
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "name": "0d",
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0d"
      }
    }
  },
  {
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "name": "0e",
```

```
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0e"
      }
    }
  },
  {
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "name": "0f",
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0f"
      }
    }
  },
  {
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "name": "0g",
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0g"
      }
    }
  },
],
```

```
"num_records": 7,
"_links": {
  "self": {
    "href": "/api/storage/ports"
  }
}
}
```

2) Retrieve a specific storage port from the cluster

The following example shows the response of the requested storage port. If there is no storage port with the requested node uuid and name, an error is returned.

```
# The API:
/api/storage/ports/{node.uuid}/{name}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0a" -H "accept: application/hal+json"

# The response:
{
"node": {
  "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
  "name": "node-1",
  "_links": {
    "self": {
      "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-00a0985a72ee"
    }
  }
},
"name": "0a",
"description": "SAS Host Adapter 0a (PMC-Sierra PM8001 rev. C)",
"wwn": "500a098003633df0",
"speed": 6,
"cable": {
  "part_number": "112-00429+A0",
  "serial_number": "629230774",
  "identifier": "500a0980066e2c01-500a098003633df0",
  "length": "0.5m"
},
"state": "online",
"enabled": true,
"firmware_version": "01.12.09.00",
"type": "sas",
"redundant": true,
"in_use": true,
"_links": {
  "self": {
    "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-00a0985a72ee/0a"
  }
}
}
```

Retrieve storage ports

GET `/storage/ports`

Introduced In: 9.6

Retrieves a collection of storage ports.

Related ONTAP commands

- `storage port show`

Learn more

- DOC /storage/ports

Parameters

Name	Type	In	Required	Description
cable.length	string	query	False	Filter by cable.length
cable.identifier	string	query	False	Filter by cable.identifier
cable.serial_number	string	query	False	Filter by cable.serial_number
cable.part_number	string	query	False	Filter by cable.part_number
description	string	query	False	Filter by description
speed	number	query	False	Filter by speed
state	string	query	False	Filter by state
board_name	string	query	False	Filter by board_name
type	string	query	False	Filter by type • Introduced in: 9.9
part_number	string	query	False	Filter by part_number

Name	Type	In	Required	Description
mode	string	query	False	Filter by mode • Introduced in: 9.8
mac_address	string	query	False	Filter by mac_address
serial_number	string	query	False	Filter by serial_number
node.uuid	string	query	False	Filter by node.uuid
node.name	string	query	False	Filter by node.name
firmware_version	string	query	False	Filter by firmware_version • Introduced in: 9.9
redundant	boolean	query	False	Filter by redundant • Introduced in: 9.9
in_use	boolean	query	False	Filter by in_use • Introduced in: 9.9
wwn	string	query	False	Filter by wwn
error.message	string	query	False	Filter by error.message
error.corrective_action	string	query	False	Filter by error.corrective_action
enabled	boolean	query	False	Filter by enabled • Introduced in: 9.9
name	string	query	False	Filter by name

Name	Type	In	Required	Description
wwpn	string	query	False	Filter by wwpn • Introduced in: 9.9
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[storage_port]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "board_name": "string",
      "cable": {
        "identifier": "500a0980000b6c3f-50000d1703544b80",
        "length": "2m",
        "part_number": "112-00431+A0",
        "serial_number": "616930439"
      },
      "description": "SAS Host Adapter 2a (PMC-Sierra PM8072 rev. C)",
      "error": {
        "corrective_action": "string",
        "message": "string"
      },
      "firmware_version": "03.08.09.00",
      "mac_address": "string",
      "mode": "storage",
      "name": "2a",
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "part_number": "111-03801",
      "serial_number": "7A2463CC45B",
      "speed": "6",
      "state": "online",
      "type": "sas",
      "wwn": "50000d1703544b80",
      "wwpn": "string"
    }
```

```
  ]
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

cable

Name	Type	Description
identifier	string	
length	string	
part_number	string	
serial_number	string	

error

Name	Type	Description
corrective_action	string	Error corrective action
message	string	Error message

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

storage_port

Name	Type	Description
board_name	string	
cable	cable	
description	string	
enabled	boolean	
error	error	
firmware_version	string	
in_use	boolean	Specifies whether any devices are connected through this port
mac_address	string	
mode	string	Operational mode of a non-dedicated Ethernet port
name	string	
node	node	
part_number	string	
redundant	boolean	Specifies whether all devices connected through this port have a redundant path from another port
serial_number	string	
speed	number	Operational port speed in Gbps
state	string	
type	string	
wwn	string	World Wide Name
wwpn	string	World Wide Port Name

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve a storage port

GET `/storage/ports/{node.uuid}/{name}`

Introduced In: 9.6

Retrieves a specific storage port.

Related ONTAP commands

- `storage port show`

Learn more

- DOC /storage/ports

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID
name	string	path	True	Port name
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
board_name	string	
cable	cable	

Name	Type	Description
description	string	
enabled	boolean	
error	error	
firmware_version	string	
in_use	boolean	Specifies whether any devices are connected through this port
mac_address	string	
mode	string	Operational mode of a non-dedicated Ethernet port
name	string	
node	node	
part_number	string	
redundant	boolean	Specifies whether all devices connected through this port have a redundant path from another port
serial_number	string	
speed	number	Operational port speed in Gbps
state	string	
type	string	
wwn	string	World Wide Name
wwpn	string	World Wide Port Name

Example response


```
{
  "board_name": "string",
  "cable": {
    "identifier": "500a0980000b6c3f-50000d1703544b80",
    "length": "2m",
    "part_number": "112-00431+A0",
    "serial_number": "616930439"
  },
  "description": "SAS Host Adapter 2a (PMC-Sierra PM8072 rev. C)",
  "error": {
    "corrective_action": "string",
    "message": "string"
  },
  "firmware_version": "03.08.09.00",
  "mac_address": "string",
  "mode": "storage",
  "name": "2a",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "part_number": "111-03801",
  "serial_number": "7A2463CC45B",
  "speed": "6",
  "state": "online",
  "type": "sas",
  "wwn": "50000d1703544b80",
  "wwpn": "string"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

cable

Name	Type	Description
identifier	string	
length	string	
part_number	string	
serial_number	string	

error

Name	Type	Description
corrective_action	string	Error corrective action
message	string	Error message

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage QoS policies

Storage Qos policies endpoint overview

Quality of Service Configuration

A QoS policy defines measurable service level objectives (SLOs) that apply to the storage objects with which the policy is associated. There are two types of policies that can be configured: fixed, which defines a fixed SLO, or adaptive which defines a variable SLO for a storage object. Adaptive policies vary the SLO depending on the space usage of the storage object. A policy can be either a fixed policy or an adaptive one, not both. Service level objectives include minimum and maximum limits on throughput in terms of IOPS. Only maximum limits can be set in terms of both IOPS and/or throughput (MB/s). A QoS policy can be used to enforce SLOs for multiple storage objects by specifying "capacity_shared" to true. For example, if a QoS policy with "capacity_shared" is set to true and it has maximum_throughput_iops set to 1000, and this policy is assigned to four volumes, then the combined throughput of all four volumes is limited to 1000 IOPS. If "capacity_shared" is set to false then, each storage object will have it’s SLOs enforced individually. For example, in the previous case if the same policy was applied to four volumes but with "capacity_shared" set to false, then each of the volumes would be limited to 1000 IOPS individually. Once "capacity_shared" is set, it cannot be modified. Adaptive parameters can specify the variable SLOs in terms of IOPS/TB. The actual IOPS enforced on the storage object can be calculated using the allocated space on the storage object. The policies are enforced individually amongst storage objects.

Examples

1) Create a fixed QoS policy

The following example shows how to create a fixed QoS policy to limit throughput for a storage object between 5000 IOPS and 10000 IOPS which has capacity_shared set to false. This QoS policy can be used as a template to apply on multiple storage objects to provide individual SLOs to each object.

```
curl -X POST
"https://172.21.69.245/api/storage/qos/policies?return_timeout=0" -H
"accept: application/json" -H "Content-Type: application/json" -d "{
\"fixed\": { \"capacity_shared\": false, \"max_throughput_iops\": 10000,
\"min_throughput_iops\": 5000 }, \"name\":
\"qos_policy_5000_to_10000_iops\", \"svm\": { \"name\": \"vs0\" }}"
```

2) Create an adaptive QoS policy

The following example shows how to create an adaptive QoS policy which provides 5000 IOPS per GB of allocated space for a storage object with a peak of 6000 IOPS. Minimum IOPS regardless of allocated space are 1000 IOPS.

```
curl -X POST
"https://172.21.69.245/api/storage/qos/policies?return_timeout=0" -H
"accept: application/json" -H "Content-Type: application/json" -d "{
\"adaptive\": { \"absolute_min_iops\": 1000, \"expected_iops\": 5000,
\"expected_iops_allocation\": \"used_space\", \"peak_iops\": 6000,
\"peak_iops_allocation\": \"allocated_space\" }, \"name\":
\"adaptive_pg_5k_to_6k\", \"svm\": { \"name\": \"vs0\" }}"
```

-

3) Update an existing QoS policy

The following example shows how to update SLOs of an existing QoS policy and also rename it.

```
curl -X PATCH "https://172.21.69.245/api/storage/qos/policies/d38bafc0-
5a51-11e9-bd5b-005056ac6f1f?return_timeout=0" -H "accept:
application/json" -H "Content-Type: application/json" -d "{ \"fixed\": {
\"max_throughput_iops\": 15000, \"min_throughput_iops\": 10000 },
\"name\": \"qos_policy_10k_to_15k_iops\"}"
```

4) Delete an existing QoS policy

When a QoS policy is deleted any associations of the policy with a storage objects are also removed.

```
curl -X DELETE "https://172.21.69.245/api/storage/qos/policies/d38bafc0-
5a51-11e9-bd5b-005056ac6f1f?return_timeout=0" -H "accept:
application/json"
```

Retrieve QoS policies

GET `/storage/qos/policies`

Introduced In: 9.6

Retrieves a collection of QoS policies.

Parameters

Name	Type	In	Required	Description
pgid	integer	query	False	Filter by pgid • Introduced in: 9.10
uuid	string	query	False	Filter by uuid
object_count	integer	query	False	Filter by object_count
policy_class	string	query	False	Filter by policy_class • Introduced in: 9.10
adaptive.peak_iops_allocation	string	query	False	Filter by adaptive.peak_iops_allocation • Introduced in: 9.10
adaptive.block_size	string	query	False	Filter by adaptive.block_size • Introduced in: 9.10
adaptive.absolute_min_iops	integer	query	False	Filter by adaptive.absolute_min_iops

Name	Type	In	Required	Description
adaptive.peak_iops	integer	query	False	Filter by adaptive.peak_iops
adaptive.expected_iops	integer	query	False	Filter by adaptive.expected_iops
adaptive.expected_iops_allocation	string	query	False	Filter by adaptive.expected_iops_allocation • Introduced in: 9.10
name	string	query	False	Filter by name
fixed.min_throughput_mbps	integer	query	False	Filter by fixed.min_throughput_mbps • Introduced in: 9.8
fixed.max_throughput_mbps	integer	query	False	Filter by fixed.max_throughput_mbps
fixed.capacity_shared	boolean	query	False	Filter by fixed.capacity_shared
fixed.min_throughput_iops	integer	query	False	Filter by fixed.min_throughput_iops
fixed.max_throughput_iops	integer	query	False	Filter by fixed.max_throughput_iops
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
fields	array[string]	query	False	Specify the fields to return.

Name	Type	In	Required	Description
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
error	error	
num_records	integer	Number of records
records	array[qos_policy]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "adaptive": {
        "block_size": "string",
        "expected_iops_allocation": "string",
        "peak_iops_allocation": "string"
      },
      "name": "extreme",
      "object_count": 0,
      "pgid": 0,
      "policy_class": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
```

```
        },
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

_links

Name	Type	Description
self	href	

adaptive

Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.

Name	Type	Description
absolute_min_iops	integer	Specifies the absolute minimum IOPS that is used as an override when the expected_iops is less than this value. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
block_size	string	Specifies the block size
expected_iops	integer	Expected IOPS. Specifies the minimum expected IOPS per TB allocated based on the storage object allocated size. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
expected_iops_allocation	string	Specifies the size to be used to calculate expected IOPS per TB. The size options are either the storage object allocated space or the storage object used space.
peak_iops	integer	Peak IOPS. Specifies the maximum possible IOPS per TB allocated based on the storage object allocated size or the storage object used size.
peak_iops_allocation	string	Specifies the size to be used to calculate peak IOPS per TB. The size options are either the storage object allocated space or the storage object used space.

fixed

QoS policy-groups define a fixed service level objective (SLO) for a storage object.

Name	Type	Description
capacity_shared	boolean	Specifies whether the capacities are shared across all objects that use this QoS policy-group. Default is false.

Name	Type	Description
max_throughput_iops	integer	Maximum throughput defined by this policy. It is specified in terms of IOPS. 0 means no maximum throughput is enforced.
max_throughput_mbps	integer	Maximum throughput defined by this policy. It is specified in terms of Mbps. 0 means no maximum throughput is enforced.
min_throughput_iops	integer	Minimum throughput defined by this policy. It is specified in terms of IOPS. 0 means no minimum throughput is enforced. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
min_throughput_mbps	integer	Minimum throughput defined by this policy. It is specified in terms of Mbps. 0 means no minimum throughput is enforced.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

qos_policy

Name	Type	Description
_links	_links	
adaptive	adaptive	Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.
fixed	fixed	QoS policy-groups define a fixed service level objective (SLO) for a storage object.

Name	Type	Description
name	string	Name of the QoS policy.
object_count	integer	Number of objects attached to this policy.
pgid	integer	Policy group ID of the QoS policy.
policy_class	string	Class of the QoS policy.
svm	svm	
uuid	string	

Create a QoS policy

POST `/storage/qos/policies`

Introduced In: 9.6

Creates a QoS policy.

Required properties

- `svm.uuid` or `svm.name` - The existing SVM owning the QoS policy.
- `name` - The name of the QoS policy.
- `fixed.*` or `adaptive.*` - Either of the fixed or adaptive parameters.

Default property values

- If `fixed.*` parameters are specified, then capacity.shared is set to false by default.

Related ONTAP commands

- `qos policy-group create`
- `qos adaptive-policy-group create`

Parameters

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
adaptive	adaptive	Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.
fixed	fixed	QoS policy-groups define a fixed service level objective (SLO) for a storage object.

Name	Type	Description
name	string	Name of the QoS policy.
object_count	integer	Number of objects attached to this policy.
pgid	integer	Policy group ID of the QoS policy.
policy_class	string	Class of the QoS policy.
svm	svm	
uuid	string	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "adaptive": {
    "block_size": "string",
    "expected_iops_allocation": "string",
    "peak_iops_allocation": "string"
  },
  "name": "extreme",
  "object_count": 0,
  "pgid": 0,
  "policy_class": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
8454147	The maximum limit for QoS policies has been reached.
8454154	The name specified for creating conflicts with an existing QoS policy name.
8454260	Invalid value for maximum and minimum fields. Valid values for max_throughput_iops and max_throughput_mbps combination is for the ratio of max_throughput_mbps and max_throughput_iops to be within 1 to 4096.
8454273	Invalid value for an adaptive field. Value should be non-zero.
8454277	The name specified for creating an adaptive QoS policy conflicts with an existing fixed QoS policy name.

Error Code	Description
8454278	The name specified for creating a fixed QoS policy conflicts with an existing adaptive QoS policy name.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

adaptive

Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.

Name	Type	Description
absolute_min_iops	integer	Specifies the absolute minimum IOPS that is used as an override when the expected_iops is less than this value. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
block_size	string	Specifies the block size
expected_iops	integer	Expected IOPS. Specifies the minimum expected IOPS per TB allocated based on the storage object allocated size. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
expected_iops_allocation	string	Specifies the size to be used to calculate expected IOPS per TB. The size options are either the storage object allocated space or the storage object used space.
peak_iops	integer	Peak IOPS. Specifies the maximum possible IOPS per TB allocated based on the storage object allocated size or the storage object used size.

Name	Type	Description
peak_iops_allocation	string	Specifies the size to be used to calculate peak IOPS per TB. The size options are either the storage object allocated space or the storage object used space.

fixed

QoS policy-groups define a fixed service level objective (SLO) for a storage object.

Name	Type	Description
capacity_shared	boolean	Specifies whether the capacities are shared across all objects that use this QoS policy-group. Default is false.
max_throughput_iops	integer	Maximum throughput defined by this policy. It is specified in terms of IOPS. 0 means no maximum throughput is enforced.
max_throughput_mbps	integer	Maximum throughput defined by this policy. It is specified in terms of Mbps. 0 means no maximum throughput is enforced.
min_throughput_iops	integer	Minimum throughput defined by this policy. It is specified in terms of IOPS. 0 means no minimum throughput is enforced. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
min_throughput_mbps	integer	Minimum throughput defined by this policy. It is specified in terms of Mbps. 0 means no minimum throughput is enforced.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

qos_policy

Name	Type	Description
_links	_links	
adaptive	adaptive	Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.
fixed	fixed	QoS policy-groups define a fixed service level objective (SLO) for a storage object.
name	string	Name of the QoS policy.
object_count	integer	Number of objects attached to this policy.
pgid	integer	Policy group ID of the QoS policy.
policy_class	string	Class of the QoS policy.
svm	svm	
uuid	string	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Delete a QoS policy

DELETE `/storage/qos/policies/{uuid}`

Introduced In: 9.6

Deletes a QoS policy. All QoS workloads associated with the policy are removed.

Related ONTAP commands

- `qos policy-group delete`
- `qos adaptive-policy-group delete`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	• Introduced in: 9.8

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve a QoS policy

GET `/storage/qos/policies/{uuid}`

Introduced In: 9.6

Retrieves a specific QoS policy.

Related ONTAP commands

- `qos policy-group show`
- `qos adaptive-policy-group show`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	• Introduced in: 9.8
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
adaptive	adaptive	Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.
fixed	fixed	QoS policy-groups define a fixed service level objective (SLO) for a storage object.
name	string	Name of the QoS policy.
object_count	integer	Number of objects attached to this policy.
pgid	integer	Policy group ID of the QoS policy.
policy_class	string	Class of the QoS policy.
svm	svm	
uuid	string	

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "adaptive": {
    "block_size": "string",
    "expected_iops_allocation": "string",
    "peak_iops_allocation": "string"
  },
  "name": "extreme",
  "object_count": 0,
  "pgid": 0,
  "policy_class": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

adaptive

Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.

Name	Type	Description
absolute_min_iops	integer	Specifies the absolute minimum IOPS that is used as an override when the expected_iops is less than this value. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
block_size	string	Specifies the block size
expected_iops	integer	Expected IOPS. Specifies the minimum expected IOPS per TB allocated based on the storage object allocated size. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
expected_iops_allocation	string	Specifies the size to be used to calculate expected IOPS per TB. The size options are either the storage object allocated space or the storage object used space.
peak_iops	integer	Peak IOPS. Specifies the maximum possible IOPS per TB allocated based on the storage object allocated size or the storage object used size.

Name	Type	Description
peak_iops_allocation	string	Specifies the size to be used to calculate peak IOPS per TB. The size options are either the storage object allocated space or the storage object used space.

fixed

QoS policy-groups define a fixed service level objective (SLO) for a storage object.

Name	Type	Description
capacity_shared	boolean	Specifies whether the capacities are shared across all objects that use this QoS policy-group. Default is false.
max_throughput_iops	integer	Maximum throughput defined by this policy. It is specified in terms of IOPS. 0 means no maximum throughput is enforced.
max_throughput_mbps	integer	Maximum throughput defined by this policy. It is specified in terms of Mbps. 0 means no maximum throughput is enforced.
min_throughput_iops	integer	Minimum throughput defined by this policy. It is specified in terms of IOPS. 0 means no minimum throughput is enforced. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
min_throughput_mbps	integer	Minimum throughput defined by this policy. It is specified in terms of Mbps. 0 means no minimum throughput is enforced.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update a QoS policy

PATCH `/storage/qos/policies/{uuid}`

Introduced In: 9.6

Update a specific QoS policy.

Related ONTAP commands

- `qos policy-group modify`
- `qos adaptive-policy-group modify`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	• Introduced in: 9.8

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
adaptive	adaptive	Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.
fixed	fixed	QoS policy-groups define a fixed service level objective (SLO) for a storage object.

Name	Type	Description
name	string	Name of the QoS policy.
object_count	integer	Number of objects attached to this policy.
pgid	integer	Policy group ID of the QoS policy.
policy_class	string	Class of the QoS policy.
svm	svm	
uuid	string	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "adaptive": {
    "block_size": "string",
    "expected_iops_allocation": "string",
    "peak_iops_allocation": "string"
  },
  "name": "extreme",
  "object_count": 0,
  "pgid": 0,
  "policy_class": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
8454147	The maximum limit for QoS policies has been reached.
8454154	The name specified for creating conflicts with an existing QoS policy name.
8454260	Invalid value for maximum and minimum fields. Valid values for max_throughput_iops and max_throughput_mbps combination is for the ratio of max_throughput_mbps and max_throughput_iops to be within 1 to 4096.
8454273	Invalid value for an adaptive field. Value should be non-zero.
8454277	The name specified for creating an adaptive QoS policy conflicts with an existing fixed QoS policy name.

Error Code	Description
8454278	The name specified for creating a fixed QoS policy conflicts with an existing adaptive QoS policy name.
8454286	Modifications on these cluster scoped preset policies is prohibited.
8454327	The existing fixed QoS policy cannot be modified to an adaptive QoS policy.
8454328	The existing adaptive QoS policy cannot be modified to a fixed QoS policy.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

adaptive

Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.

Name	Type	Description
absolute_min_iops	integer	Specifies the absolute minimum IOPS that is used as an override when the expected_iops is less than this value. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
block_size	string	Specifies the block size
expected_iops	integer	Expected IOPS. Specifies the minimum expected IOPS per TB allocated based on the storage object allocated size. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
expected_iops_allocation	string	Specifies the size to be used to calculate expected IOPS per TB. The size options are either the storage object allocated space or the storage object used space.
peak_iops	integer	Peak IOPS. Specifies the maximum possible IOPS per TB allocated based on the storage object allocated size or the storage object used size.

Name	Type	Description
peak_iops_allocation	string	Specifies the size to be used to calculate peak IOPS per TB. The size options are either the storage object allocated space or the storage object used space.

fixed

QoS policy-groups define a fixed service level objective (SLO) for a storage object.

Name	Type	Description
capacity_shared	boolean	Specifies whether the capacities are shared across all objects that use this QoS policy-group. Default is false.
max_throughput_iops	integer	Maximum throughput defined by this policy. It is specified in terms of IOPS. 0 means no maximum throughput is enforced.
max_throughput_mbps	integer	Maximum throughput defined by this policy. It is specified in terms of Mbps. 0 means no maximum throughput is enforced.
min_throughput_iops	integer	Minimum throughput defined by this policy. It is specified in terms of IOPS. 0 means no minimum throughput is enforced. These floors are not guaranteed on non-AFF platforms or when FabricPool tiering policies are set.
min_throughput_mbps	integer	Minimum throughput defined by this policy. It is specified in terms of Mbps. 0 means no minimum throughput is enforced.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

qos_policy

Name	Type	Description
_links	_links	
adaptive	adaptive	Adaptive QoS policy-groups define measurable service level objectives (SLOs) that adjust based on the storage object used space and the storage object allocated space.
fixed	fixed	QoS policy-groups define a fixed service level objective (SLO) for a storage object.
name	string	Name of the QoS policy.
object_count	integer	Number of objects attached to this policy.
pgid	integer	Policy group ID of the QoS policy.
policy_class	string	Class of the QoS policy.
svm	svm	
uuid	string	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage QoS workloads

Storage Qos workloads endpoint overview

Quality of Service Workloads

A QoS workload represents a storage object that is tracked by QoS.

Examples

Retrieving a list of QoS workloads from the cluster

The following example retrieves all the workloads in the cluster.

```
curl -X GET "https://<mgmt-ip>/api/storage/qos/workloads" -H "accept:
application/hal+json"
```

Retrieving a specific QoS workload from the cluster

The following example retrieves a requested workload from the cluster.

```
curl -X GET "https://<mgmt-ip>/api/storage/qos/workloads/77b68b1c-a458-
11eb-baaa-005056bb873e" -H "accept: application/hal+json"
```

Retrieve QoS workloads

GET `/storage/qos/workloads`

Introduced In: 9.10

Retrieves a collection of QoS workloads.

Parameters

Name	Type	In	Required	Description
file	string	query	False	Filter by file
name	string	query	False	Filter by name
qtree	string	query	False	Filter by qtree
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
policy.uuid	string	query	False	Filter by policy.uuid
policy.name	string	query	False	Filter by policy.name
wid	integer	query	False	Filter by wid
volume	string	query	False	Filter by volume
uuid	string	query	False	Filter by uuid
lun	string	query	False	Filter by lun
workload_class	string	query	False	Filter by workload_class
fields	array[string]	query	False	Specify the fields to return.

Name	Type	In	Required	Description
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
error	error	
num_records	integer	Number of records
records	array[qos_workload]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "file": "string",
      "lun": "string",
      "name": "volume1-wid123",
      "policy": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "performance",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "qtree": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
```

```
            }
          },
          "name": "svm1",
          "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
        },
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
        "volume": "volume1",
        "wid": 123,
        "workload_class": "autovolume"
      }
    ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

_links

Name	Type	Description
self	href	

policy

QoS policy group reference.

Name	Type	Description
_links	_links	

Name	Type	Description
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

qos_workload

Name	Type	Description
_links	_links	
file	string	Name of the file.
lun	string	Name of the LUN. The name of the LUN will be displayed as "(unknown)" if the name cannot be retrieved.
name	string	Name of the QoS workload.
policy	policy	QoS policy group reference.
qtree	string	Name of the Qtree.
svm	svm	
uuid	string	
volume	string	Name of the volume. The name of the volume will be displayed as "(unknown)" if the name cannot be retrieved.

Name	Type	Description
wid	integer	Workload ID of the QoS workload.
workload_class	string	Class of the QoS workload.

Retrieve a QoS workload

GET `/storage/qos/workloads/{uuid}`

Introduced In: 9.10

Retrieves a specific QoS workload.

Related ONTAP command

- `qos workload show`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
file	string	Name of the file.
lun	string	Name of the LUN. The name of the LUN will be displayed as "(unknown)" if the name cannot be retrieved.
name	string	Name of the QoS workload.
policy	policy	QoS policy group reference.

Name	Type	Description
qtree	string	Name of the Qtree.
svm	svm	
uuid	string	
volume	string	Name of the volume. The name of the volume will be displayed as "(unknown)" if the name cannot be retrieved.
wid	integer	Workload ID of the QoS workload.
workload_class	string	Class of the QoS workload.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "file": "string",
  "lun": "string",
  "name": "volume1-wid123",
  "policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "qtree": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
  "volume": "volume1",
  "wid": 123,
  "workload_class": "autovolume"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

policy

QoS policy group reference.

Name	Type	Description
_links	_links	
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage qtrees

Storage qtrees endpoint overview

Overview

A qtree is a logically defined file system that can exist as a special subdirectory of the root directory within a FlexVol volume or a FlexGroup volume.

Qtree QoS policy

Qtree QoS policy and settings enforce Service Level Objectives (SLOs) on a qtree. SLOs can be set by specifying "qos_policy.max_throughput_iops" and/or "qos_policy.max_throughput_mbps" or "qos_policy.min_throughput_iops" and/or "qos_policy.min_throughput_mbps". Specifying "min_throughput_iops" or "min_throughput_mbps" is only supported on volumes hosted on a node that is flash optimized. A pre-created QoS policy can also be used by specifying "qos_policy.name" or "qos_policy.uuid" properties. Setting or assigning a QoS policy to a qtree is not supported if its containing volume or SVM has a QoS policy attached, or a file or LUN in its containing volume already has a QoS policy attached.

Qtree APIs

The following APIs are used to create, retrieve, modify, and delete qtrees.

– POST /api/storage/qtrees

– GET /api/storage/qtrees

– GET /api/storage/qtrees/{volume-uuid}/{qtree-id}

– PATCH /api/storage/qtrees/{volume-uuid}/{qtree-id}

– DELETE /api/storage/qtrees/{volume-uuid}/{qtree-id}

Examples

Creating a qtree inside a volume for an SVM

This API is used to create a qtree inside a volume for an SVM.

The following example shows how to create a qtree in a FlexVol volume with a given security style, user,

group, UNIX permissions, an export policy, and a QoS policy.

```
# The API:
POST /api/storage/qtrees

# The call:
curl -X POST 'https://<mgmt-ip>/api/storage/qtrees?return_records=true' -H
'accept: application/hal+json' -d @test_qtree_post.txt
test_qtree_post.txt(body):
{
"svm": {
  "name": "svm1"
},
"volume": {
  "name": "fv"
},
"name": "qt1",
"security_style": "unix",
"user": {
  "name": "unix_user1"
},
"group": {
  "name": "unix_group1"
},
"unix_permissions": 744,
"export_policy": {
    "name": "default"
},
"qos_policy": {
    "max_throughput_iops": 1000
}
}

# The response:
{
  "num_records": 1,
  "records": [
    {
      "svm": {
        "name": "svm1"
      },
      "volume": {
        "name": "fv"
      },
```

```
      "name": "qt1",
      "security_style": "unix",
      "user": {
        "name": "unix_user1"
      },
      "group": {
        "name": "unix_group1"
      },
      "unix_permissions": 744,
      "export_policy": {
        "name": "default"
      },
      "qos_policy": {
        "min_throughput_iops": 0,
        "min_throughput_mbps": 0,
        "max_throughput_iops": 1000,
        "max_throughput_mbps": 0,
        "uuid": "39ac471f-ff35-11e9-b0f9-005056a7ab52",
        "name": "vs0_auto_gen_policy_39a9522f_ff35_11e9_b0f9_005056a7ab52"
      },
      "_links": {
        "self": {
          "href": "/api/storage/qtrees/?volume.name=fv&name=qt1"
        }
      }
    }
  ],
  "job": {
    "uuid": "84edef3c-4f6d-11e9-9a71-005056a7f717",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/84edef3c-4f6d-11e9-9a71-005056a7f717"
      }
    }
  }
}
```


Retrieving qtrees

This API is used to retrieve qtrees.

The following example shows how to retrieve qtrees belonging to SVM *svm1* and volume *fv*. The `svm.name` and `volume.name` query parameters are used to find the required qtrees.

```
# The API:
GET /api/storage/qtrees

# The call:
curl -X GET "https://<mgmt-
ip>/api/storage/qtrees/?svm.name=svm1&volume.name=fv" -H 'accept:
application/hal+json'

# The response
{
  "records": [
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "id": 0,
      "name": "",
      "_links": {
        "self": {
          "href": "/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-
005056a7f717/0"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
```

```
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "id": 1,
      "name": "qt1",
      "_links": {
        "self": {
          "href": "/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-
005056a7f717/1"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "id": 2,
      "name": "qt2",
```

```
      "_links": {
        "self": {
          "href": "/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-
005056a7f717/2"
        }
      }
    }
  ],
  "num_records": 3,
  "_links": {
    "self": {
      "href": "/api/storage/qtrees/?svm.name=svm1&volume.name=fv"
    }
  }
}
```

Retrieving properties of a specific qtree using a qtree identifier

This API is used to retrieve properties of a specific qtree using qtree.id.

The following example shows how to use the qtree identifier to retrieve all properties of the qtree using the `fields` query parameter.

```
# The API:
GET /api/storage/qtrees/{volume.uuid}/{id}

# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-
005056a7f717/2?fields=*' -H 'accept: application/hal+json'
{
  "svm": {
    "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
      }
    }
  },
  "volume": {
    "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
    "name": "fv",
    "_links": {
```

```
      "self": {
        "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
      }
    }
  },
  "id": 2,
  "name": "qt2",
  "security_style": "unix",
  "user": {
    "name": "unix_user1"
  },
  "group": {
    "name": "unix_group1"
  },
  "unix_permissions": 744,
  "export_policy": {
    "name": "default",
    "id": 12884901889,
    "_links": {
      "self": {
        "href": "/api/protocols/nfs/export-policies/12884901889"
      }
    }
  },
  "qos_policy": {
    "min_throughput_iops": 0,
    "min_throughput_mbps": 0,
    "max_throughput_iops": 1000,
    "max_throughput_mbps": 0,
    "uuid": "39ac471f-ff35-11e9-b0f9-005056a7ab52",
    "name": "vs0_auto_gen_policy_39a9522f_ff35_11e9_b0f9_005056a7ab52",
    "_links": {
      "self": {
        "href": "/api/storage/qos/policies/39ac471f-ff35-11e9-b0f9-
005056a7ab52"
      }
    }
  },
  "statistics": {
    "timestamp": "2019-04-09T05:50:42Z",
    "status": "ok",
    "iops_raw": {
      "read": 0,
      "write": 0,
      "other": 3,
```

```
      "total": 3
    },
    "throughput_raw": {
      "read": 0,
      "write": 0,
      "other": 0,
      "total": 0
    }
  },
  "path": "/fv/qt2",
  "nas": {
    "path": "/fv/qt2",
  },
  "_links": {
    "self": {
      "href": "/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-005056a7f717/2"
    }
  }
}
```

Retrieving properties of a specific qtree using the qtree name

This API is used to retrieve properties of a specific qtree using "qtree.name". The following example shows how to retrieve all of the properties belonging to qtree "qt2". The `svm.name` and `volume.name` query parameters are used here along with the qtree name.

```
# The API:
GET /api/storage/qtrees/

# The call:
curl -X GET 'https://<mgmt-
ip>/api/storage/qtrees/?svm.name=svm1&volume.name=fv&name=qt2&fields=*' -H
'accept: application/hal+json'
{
  "svm": {
    "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
      }
    }
  },
```

```
  "volume": {
    "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
    "name": "fv",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
      }
    }
  },
  "id": 2,
  "name": "qt2",
  "security_style": "unix",
  "user": {
    "name": "unix_user1"
  },
  "group": {
    "name": "unix_group1"
  },
  "unix_permissions": 744,
  "export_policy": {
    "name": "default",
    "id": 12884901889,
    "_links": {
      "self": {
        "href": "/api/protocols/nfs/export-policies/12884901889"
      }
    }
  },
  "qos_policy": {
    "min_throughput_iops": 0,
    "min_throughput_mbps": 0,
    "max_throughput_iops": 1000,
    "max_throughput_mbps": 0,
    "uuid": "39ac471f-ff35-11e9-b0f9-005056a7ab52",
    "name": "vs0_auto_gen_policy_39a9522f_ff35_11e9_b0f9_005056a7ab52",
    "_links": {
      "self": {
        "href": "/api/storage/qos/policies/39ac471f-ff35-11e9-b0f9-
005056a7ab52"
      }
    }
  },
  "statistics": {
    "timestamp": "2019-04-09T05:50:42Z",
    "status": "ok",
```

```
    "iops_raw": {
      "read": 0,
      "write": 0,
      "other": 3,
      "total": 3
    },
    "throughput_raw": {
      "read": 0,
      "write": 0,
      "other": 0,
      "total": 0
    }
  },
  "_links": {
    "self": {
      "href": "/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-005056a7f717/2"
    }
  }
}
```

Updating a qtree

This API is used to update a qtree.

The following example shows how to update properties in a qtree.

```
# The API:
PATCH /api/storage/qtrees/{volume.uuid}/{id}

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/storage/qtrees/cb20da45-4f6b-11e9-
9a71-005056a7f717/2' -H 'accept: application/hal+json' -d
'@test_qtree_patch.txt'
test_qtree_patch.txt(body):
{
"security_style": "mixed",
"user": {
  "name": "unix_user1"
},
"group": {
  "name": "unix_group1"
},
"unix_permissions": 777,
"export_policy": {
    "id": "9",
    "name": "exp1"
},
"qos_policy": {
    "uuid": "39ac471f-ff35-11e9-b0f9-005056a7ab53"
}
}
```

Renaming a qtree

This API is used to rename a qtree.

The following example below shows how to rename a qtree with a new name.

```
# The API:
PATCH /api/storage/qtrees/{volume.uuid}/{id}

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/storage/qtrees/cb20da45-4f6b-11e9-
9a71-005056a7f717/1' -H 'accept: application/hal+json' -d '{ "name":
"new_qt1" }'
```

Deleting a qtree inside a volume of an SVM

This API is used to delete a qtree inside a volume of an SVM.

The following example shows how to delete a qtree.

```
# The API:
DELETE /api/storage/qtrees/{volume.uuid}/{id}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/qtrees/cb20da45-4f6b-11e9-
9a71-005056a7f717/2" -H 'accept: application/hal+json'
```

Retrieve qtrees

GET `/storage/qtrees`

Introduced In: 9.6

Retrieves qtrees configured for all FlexVol volumes or FlexGroup volumes.

Use the `fields` query parameter to retrieve all properties of the qtree. If the `fields` query parameter is not used, then GET returns the qtree `name` and qtree `id` only.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `statistics.*`

Related ONTAP commands

- `qtree show`

Parameters

Name	Type	In	Required	Description
path	string	query	False	Filter by path
volume.uuid	string	query	False	Filter by volume.uuid
volume.name	string	query	False	Filter by volume.name

Name	Type	In	Required	Description
user.id	string	query	False	Filter by user.id • Introduced in: 9.9
user.name	string	query	False	Filter by user.name • Introduced in: 9.9
id	integer	query	False	Filter by id
unix_permissions	integer	query	False	Filter by unix_permissions
security_style	string	query	False	Filter by security_style
group.id	string	query	False	Filter by group.id • Introduced in: 9.9
group.name	string	query	False	Filter by group.name • Introduced in: 9.9
export_policy.name	string	query	False	Filter by export_policy.name
export_policy.id	integer	query	False	Filter by export_policy.id
qos_policy.uuid	string	query	False	Filter by qos_policy.uuid • Introduced in: 9.8
qos_policy.min_throughput_iops	integer	query	False	Filter by qos_policy.min_throughput_iops • Introduced in: 9.8

Name	Type	In	Required	Description
qos_policy.max_throughput_iops	integer	query	False	Filter by qos_policy.max_throughput_iops • Introduced in: 9.8
qos_policy.min_throughput_mbps	integer	query	False	Filter by qos_policy.min_throughput_mbps • Introduced in: 9.8
qos_policy.name	string	query	False	Filter by qos_policy.name • Introduced in: 9.8
qos_policy.max_throughput_mbps	integer	query	False	Filter by qos_policy.max_throughput_mbps • Introduced in: 9.8
nas.path	string	query	False	Filter by nas.path • Introduced in: 9.9
statistics.throughput_raw.total	integer	query	False	Filter by statistics.throughput_raw.total • Introduced in: 9.8
statistics.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write • Introduced in: 9.8

Name	Type	In	Required	Description
statistics.throughput_raw.other	integer	query	False	Filter by statistics.throughput_raw.other • Introduced in: 9.8
statistics.throughput_raw.read	integer	query	False	Filter by statistics.throughput_raw.read • Introduced in: 9.8
statistics.timestamp	string	query	False	Filter by statistics.timestamp • Introduced in: 9.8
statistics.iops_raw.total	integer	query	False	Filter by statistics.iops_raw.total • Introduced in: 9.8
statistics.iops_raw.write	integer	query	False	Filter by statistics.iops_raw.write • Introduced in: 9.8
statistics.iops_raw.other	integer	query	False	Filter by statistics.iops_raw.other • Introduced in: 9.8
statistics.iops_raw.read	integer	query	False	Filter by statistics.iops_raw.read • Introduced in: 9.8

Name	Type	In	Required	Description
statistics.status	string	query	False	Filter by statistics.status • Introduced in: 9.8
filesystem_path	string	query	False	Filter by filesystem_path • Introduced in: 9.10
name	string	query	False	Filter by name
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[qtree]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "export_policy": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "id": 100,
        "name": "default"
      },
      "filesystem_path": "/dir1/qtree1",
      "group": {
        "id": "20001",
        "name": "unix_group1"
      },
      "id": 1,
      "name": "string",
      "nas": {
        "path": "/volume3/qtree1"
      },
      "path": "/volume3/qtree1",
      "qos_policy": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "max_throughput_iops": 10000,
        "max_throughput_mbps": 500,
```

```
        "min_throughput_iops": 2000,
        "min_throughput_mbps": 500,
        "name": "performance",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "security_style": "string",
      "statistics": {
        "iops_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "throughput_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "unix_permissions": 755,
      "user": {
        "id": "10001",
        "name": "unix_user1"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

export_policy

Export Policy

Name	Type	Description
_links	_links	
id	integer	
name	string	

group

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the group that owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric group name of group that owns the qtree. Valid in POST or PATCH.

nas

Name	Type	Description
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH.

qos_policy

Name	Type	Description
_links	_links	
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

iops_raw

The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled with the next closest collection and tagged with "backfilled_data". "inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "negative_delta" is returned when an expected monotonically increasing value has decreased in value. "inconsistent_old_data" is returned when one or more nodes does not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

user

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the user who owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric username of user who owns the qtree. Valid in POST or PATCH.

volume

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

qtree

A qtree is a directory at the top level of a volume to which a custom export policy (for fine-grained access control) and a quota rule can be applied, if required.

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy

Name	Type	Description
filesystem_path	string	Path of the qtree directory. This path is relative to the volume root directory.
group	group	The user set as owner of the qtree.
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree. Required in POST; optional in PATCH.
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	
security_style	string	Security style. Valid in POST or PATCH.
statistics	statistics	These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	Required in POST
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.
volume	volume	Required in POST

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Create a qtree in a FlexVol or FlexGroup volume

POST `/storage/qtrees`

Introduced In: 9.6

Creates a qtree in a FlexVol volume or a FlexGroup volume.

After a qtree is created, the new qtree is assigned an identifier. This identifier is obtained using a qtree GET request. This identifier is used in the API path for the qtree PATCH and DELETE operations.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create the qtree.
- `volume.uuid` or `volume.name` - Existing volume in which to create the qtree.
- `name` - Name for the qtree.

Recommended optional properties

If not specified in POST, the values are inherited from the volume.

- `security_style` - Security style for the qtree.
- `unix_permissions` - UNIX permissions for the qtree.
- `export_policy.name or export_policy.id` - Export policy of the SVM for the qtree.

Related ONTAP commands

- `qtree create`

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy

Name	Type	Description
filesystem_path	string	Path of the qtree directory. This path is relative to the volume root directory.
group	group	The user set as owner of the qtree.
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree. Required in POST; optional in PATCH.
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	
security_style	string	Security style. Valid in POST or PATCH.
statistics	statistics	These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	Required in POST
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.
volume	volume	Required in POST

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "export_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "id": 100,
    "name": "default"
  },
  "filesystem_path": "/dir1/qtree1",
  "group": {
    "id": "20001",
    "name": "unix_group1"
  },
  "id": 1,
  "name": "string",
  "nas": {
    "path": "/volume3/qtree1"
  },
  "path": "/volume3/qtree1",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "max_throughput_iops": 10000,
    "max_throughput_mbps": 500,
    "min_throughput_iops": 2000,
    "min_throughput_mbps": 500,
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "security_style": "string",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
```

```
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "unix_permissions": 755,
  "user": {
    "id": "10001",
    "name": "unix_user1"
  },
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```


Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
917927	The specified volume was not found.
918232	Either `volume.name` or `volume.uuid` must be provided.
918236	The specified `volume.uuid` and `volume.name` refer to different volumes.
2621462	The specified SVM does not exist.
2621706	The specified `svm.uuid` and `svm.name` do not refer to the same SVM.
2621707	No SVM was specified. Either `svm.name` or `svm.uuid` must be provided.
5242886	Failed to create qtree.
5242951	Export Policy supplied does not belong to the specified Export Policy ID.
5242952	Export Policy ID specified is invalid.
5242953	Qtree name must be provided.
5242967	UNIX user or group ID must be 32-bit unsigned integer.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

export_policy

Export Policy

Name	Type	Description
_links	_links	
id	integer	
name	string	

group

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the group that owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric group name of group that owns the qtree. Valid in POST or PATCH.

nas

Name	Type	Description
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH.

qos_policy

Name	Type	Description
_links	_links	
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

iops_raw

The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled with the next closest collection and tagged with "backfilled_data". "inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "negative_delta" is returned when an expected monotonically increasing value has decreased in value. "inconsistent_old_data" is returned when one or more nodes does not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

user

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the user who owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric username of user who owns the qtree. Valid in POST or PATCH.

volume

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

qtree

A qtree is a directory at the top level of a volume to which a custom export policy (for fine-grained access control) and a quota rule can be applied, if required.

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy

Name	Type	Description
filesystem_path	string	Path of the qtree directory. This path is relative to the volume root directory.
group	group	The user set as owner of the qtree.
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree. Required in POST; optional in PATCH.
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	
security_style	string	Security style. Valid in POST or PATCH.
statistics	statistics	These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	Required in POST
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.
volume	volume	Required in POST

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Delete a qtree

DELETE `/storage/qtrees/{volume.uuid}/{id}`

Introduced In: 9.6

Deletes a qtree.

Related ONTAP commands

- `qtree delete`

Parameters

Name	Type	In	Required	Description
volume.uuid	string	path	True	Volume UUID
id	string	path	True	Qtree ID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
918235	A volume with UUID was not found.
5242955	The UUID of the volume is required.
5242957	Failed to delete qtree with ID in the volume and SVM.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve qtree properties

GET `/storage/qtrees/{volume.uuid}/{id}`

Introduced In: 9.6

Retrieves properties for a specific qtree identified by the `volume.uuid` and the `id` in the API path.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `statistics.*`

Related ONTAP commands

- `qtree show`

Parameters

Name	Type	In	Required	Description
volume.uuid	string	path	True	Volume UUID
id	string	path	True	Qtree ID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy
filesystem_path	string	Path of the qtree directory. This path is relative to the volume root directory.
group	group	The user set as owner of the qtree.
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree. Required in POST; optional in PATCH.

Name	Type	Description
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	
security_style	string	Security style. Valid in POST or PATCH.
statistics	statistics	These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	Required in POST
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.
volume	volume	Required in POST

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "export_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "id": 100,
    "name": "default"
  },
  "filesystem_path": "/dir1/qtree1",
  "group": {
    "id": "20001",
    "name": "unix_group1"
  },
  "id": 1,
  "name": "string",
  "nas": {
    "path": "/volume3/qtree1"
  },
  "path": "/volume3/qtree1",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "max_throughput_iops": 10000,
    "max_throughput_mbps": 500,
    "min_throughput_iops": 2000,
    "min_throughput_mbps": 500,
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "security_style": "string",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
```

```
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "unix_permissions": 755,
  "user": {
    "id": "10001",
    "name": "unix_user1"
  },
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
918235	A volume with UUID was not found.

Error Code	Description
5242956	Failed to obtain a qtree with ID.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

export_policy

Export Policy

Name	Type	Description
_links	_links	
id	integer	
name	string	

group

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the group that owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric group name of group that owns the qtree. Valid in POST or PATCH.

nas

Name	Type	Description
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH.

qos_policy

Name	Type	Description
_links	_links	
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

iops_raw

The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled with the next closest collection and tagged with "backfilled_data". "inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "negative_delta" is returned when an expected monotonically increasing value has decreased in value. "inconsistent_old_data" is returned when one or more nodes does not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

user

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the user who owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric username of user who owns the qtree. Valid in POST or PATCH.

volume

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update properties for a qtree

PATCH `/storage/qtrees/{volume.uuid}/{id}`

Introduced In: 9.6

Updates properties for a specific qtree.

Related ONTAP commands

- `qtree modify`
- `qtree rename`

Parameters

Name	Type	In	Required	Description
volume.uuid	string	path	True	Volume UUID
id	string	path	True	Qtree ID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy
filesystem_path	string	Path of the qtree directory. This path is relative to the volume root directory.
group	group	The user set as owner of the qtree.
id	integer	The identifier for the qtree, unique within the qtree's volume.

Name	Type	Description
name	string	The name of the qtree. Required in POST; optional in PATCH.
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	
security_style	string	Security style. Valid in POST or PATCH.
statistics	statistics	These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	Required in POST
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.
volume	volume	Required in POST

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "export_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "id": 100,
    "name": "default"
  },
  "filesystem_path": "/dir1/qtree1",
  "group": {
    "id": "20001",
    "name": "unix_group1"
  },
  "id": 1,
  "name": "string",
  "nas": {
    "path": "/volume3/qtree1"
  },
  "path": "/volume3/qtree1",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "max_throughput_iops": 10000,
    "max_throughput_mbps": 500,
    "min_throughput_iops": 2000,
    "min_throughput_mbps": 500,
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "security_style": "string",
  "statistics": {
    "iops_raw": {
      "read": 200,
      "total": 1000,
```

```
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "unix_permissions": 755,
  "user": {
    "id": "10001",
    "name": "unix_user1"
  },
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```


Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
918235	A volume with UUID was not found.
5242951	Export policy supplied does not belong to the specified export policy ID.
5242955	The UUID of the volume is required.
5242956	Failed to obtain a qtree with ID.
5242958	Failed to rename the qtree with ID in the volume and SVM.
5242959	Successfully renamed qtree but the modify operation failed.
5242967	UNIX user or group ID must be 32-bit unsigned integer.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

export_policy

Export Policy

Name	Type	Description
_links	_links	
id	integer	
name	string	

group

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the group that owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric group name of group that owns the qtree. Valid in POST or PATCH.

nas

Name	Type	Description
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH.

qos_policy

Name	Type	Description
_links	_links	
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

iops_raw

The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Peformance metric for write I/O operations.

statistics

These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled with the next closest collection and tagged with "backfilled_data". "inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "negative_delta" is returned when an expected monotonically increasing value has decreased in value. "inconsistent_old_data" is returned when one or more nodes does not have the latest data.
throughput_raw	throughput_raw	Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

svm

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

user

The user set as owner of the qtree.

Name	Type	Description
id	string	The numeric ID of the user who owns the qtree. Valid in POST or PATCH.
name	string	Alphanumeric username of user who owns the qtree. Valid in POST or PATCH.

volume

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

qtree

A qtree is a directory at the top level of a volume to which a custom export policy (for fine-grained access control) and a quota rule can be applied, if required.

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy

Name	Type	Description
filesystem_path	string	Path of the qtree directory. This path is relative to the volume root directory.
group	group	The user set as owner of the qtree.
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree. Required in POST; optional in PATCH.
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	
security_style	string	Security style. Valid in POST or PATCH.
statistics	statistics	These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	Required in POST
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.
volume	volume	Required in POST

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Storage quota

Storage quota endpoint overview

Overview

Quotas provide a way to restrict or track the files and space usage by a user, group, or qtree. Quotas are enabled for a specific FlexVol or a FlexGroup volume.

Quotas can have soft or hard limits. Soft limits cause ONTAP to send a notification when specified limits are exceeded. Hard limits prevent a write operation from succeeding when specified limits are exceeded.

Quota policy rule APIs

Quotas are defined as quota policy rules specific to FlexVol or FlexGroup volumes. Each quota rule has a type. The type can be either "user", "group", or "tree".

The following APIs can be used to perform create, retrieve, modify, and delete operations related to quota policy rules for a FlexVol or a FlexGroup volume.

– POST /api/storage/quota/rules

– GET /api/storage/quota/rules

– GET /api/storage/quota/rules/{rule-uuid}

– PATCH /api/storage/quota/rules/{rule-uuid}

– DELETE /api/storage/quota/rules/{rule-uuid}

Enabling and disabling quotas

After the quota rules are created, the quota rules need to be enabled on each FlexVol or FlexGroup volume for soft or hard limits to take effect in the filesystem. Enabling quotas can be done on a volume-by-volume basis.

The following APIs can be used to enable and disable and obtain the quota state for a FlexVol or a FlexGroup volume.

– PATCH /api/storage/volumes/{volume-uuid} -d '{"quota.enabled":"true"}'

– PATCH /api/storage/volumes/{volume-uuid} -d '{"quota.enabled":"false"}'

– GET /api/storage/volumes/{volume-uuid}/?fields=quota.state

Quota report APIs

Quota report records provide usage information for a user, group, or qtree against the quota limits configured on a FlexVol or a FlexGroup volume. The following APIs can be used to retrieve quota reports associated with a FlexVol or a FlexGroup volume.

– GET /api/storage/quota/reports

– GET /api/storage/quota/reports/{volume-uuid}/{index}

Quota resize

Quota resize allows you to modify the quota limits directly in the filesystem.

It is important to note that quota must be enabled on a FlexVol or a FlexGroup volume for `quota resize` to take effect. You can perform a `quota resize` using the quota policy rule PATCH API. If the quota is disabled on the volume, the quota policy rule PATCH API modifies the rule, but this does not affect the limits in the filesystem. The following API can be used to perform `quota resize` provided quota is enabled on the volume.

– PATCH /api/storage/quota/rules/{rule-uuid} The changed limits in the filesystem can be confirmed using the quota report REST API.

– GET /api/storage/quota/reports

Manage storage quota reports

Storage quota reports endpoint overview

Overview

Quota reports provide the current file and space consumption for a user, group, or qtree in a FlexVol or a FlexGroup volume.

Quota report APIs

The following APIs can be used to retrieve quota reports associated with a volume in ONTAP.

– GET /api/storage/quota/reports

– GET /api/storage/quota/reports/{volume_uuid}/{index}

Examples

Retrieving all the quota report records

This API is used to retrieve all the quota report records.

The following example shows how to retrieve quota report records for all FlexVol volumes and FlexGroup volumes.

```
# The API:
GET /api/storage/quota/reports

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/quota/reports"  -H 'accept:
application/hal+json'

# The response:
{
  "records": [
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "314a328f-502d-11e9-8771-005056a7f717",
        "name": "fg",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/314a328f-502d-11e9-8771-
```

```
005056a7f717"
          }
        }
      },
      "index": 0,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/314a328f-502d-11e9-8771-
005056a7f717/0"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "314a328f-502d-11e9-8771-005056a7f717",
        "name": "fg",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/314a328f-502d-11e9-8771-
005056a7f717"
          }
        }
      },
      "index": 1152921504606846976,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/314a328f-502d-11e9-8771-
005056a7f717/1152921504606846976"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
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```
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "314a328f-502d-11e9-8771-005056a7f717",
        "name": "fg",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/314a328f-502d-11e9-8771-
005056a7f717"
          }
        }
      },
      "index": 3458764513820540928,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/314a328f-502d-11e9-8771-
005056a7f717/3458764513820540928"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "314a328f-502d-11e9-8771-005056a7f717",
        "name": "fg",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/314a328f-502d-11e9-8771-
005056a7f717"
          }
        }
      },
      "index": 4611686018427387904,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/314a328f-502d-11e9-8771-
```

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005056a7f717/4611686018427387904"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "314a328f-502d-11e9-8771-005056a7f717",
        "name": "fg",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/314a328f-502d-11e9-8771-
005056a7f717"
          }
        }
      },
      "index": 5764607523034234880,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/314a328f-502d-11e9-8771-
005056a7f717/5764607523034234880"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
```

```
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 0,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/0"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 281474976710656,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/281474976710656"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
```

```
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 1152921504606846976,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/1152921504606846976"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 1153202979583557632,
      "_links": {
```

```
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/1153202979583557632"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 2305843013508661248,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/2305843013508661248"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
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```
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 3458764513820540928,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/3458764513820540928"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 3459045988797251584,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/3459045988797251584"
        }
      }
    },
    {
      "svm": {
```

```
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 4611686018427387904,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/4611686018427387904"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
```

```
      "index": 4611967493404098560,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/4611967493404098560"
        }
      }
    },
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
          }
        }
      },
      "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
          }
        }
      },
      "index": 5764607523034234880,
      "_links": {
        "self": {
          "href": "/api/storage/quota/reports/cb20da45-4f6b-11e9-9a71-
005056a7f717/5764607523034234880"
        }
      }
    }
  ],
  "num_records": 15,
  "_links": {
    "self": {
      "href": "/api/storage/quota/reports/"
    }
  }
}
```

Retrieving a specific quota report record

This API is used to retrieve a specific quota report record.

The following example shows how to retrieve a single quota report user record.

```
# The API:
GET /api/storage/quota/reports/{volume.uuid}/{index}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/quota/reports/cf480c37-2a6b-
11e9-8513-005056a7657c/281474976710656"  -H 'accept: application/hal+json'

# Response for quota report user record:
{
"svm": {
  "uuid": "5093e722-248e-11e9-96ee-005056a7657c",
  "name": "svm1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/5093e722-248e-11e9-96ee-005056a7657c"
    }
  }
},
"volume": {
  "uuid": "cf480c37-2a6b-11e9-8513-005056a7657c",
  "name": "fv",
  "_links": {
    "self": {
      "href": "/api/storage/volumes/cf480c37-2a6b-11e9-8513-005056a7657c"
    }
  }
},
"index": 281474976710656,
"type": "user",
"users": [
  {
    "name": "fred",
    "id"  : "300008"
  }
],
"qtree": {
  "name": "qt1",
  "id": 1,
  "_links": {
```

```
    "self": {
      "href": "/api/storage/qtrees/cf480c37-2a6b-11e9-8513-005056a7657c/1"
    }
  }
},
"space": {
  "hard_limit": 41943040,
  "soft_limit": 31457280,
  "used": {
    "total": 10567680,
    "soft_limit_percent": 34,
    "hard_limit_percent": 25
  }
},
"files": {
  "soft_limit": 30,
  "hard_limit": 40,
  "used": {
    "total": 11,
    "soft_limit_percent": 37,
    "hard_limit_percent": 28
  }
},
"_links": {
  "self": {
    "href": "/api/storage/quota/reports/cf480c37-2a6b-11e9-8513-
005056a7657c/281474976710656"
  }
}
}
```

Retrieving a single quota report multi-user record

```
# The API:
GET /api/storage/quota/reports/{volume.uuid}/{index}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/quota/reports/cf480c37-2a6b-
11e9-8513-005056a7657c/281474976710656"  -H 'accept: application/hal+json'

# Response for quota report multi-user record:
{
```

```
"svm": {
  "uuid": "5093e722-248e-11e9-96ee-005056a7657c",
  "name": "svm1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/5093e722-248e-11e9-96ee-005056a7657c"
    }
  }
},
"volume": {
  "uuid": "cf480c37-2a6b-11e9-8513-005056a7657c",
  "name": "fv",
  "_links": {
    "self": {
      "href": "/api/storage/volumes/cf480c37-2a6b-11e9-8513-005056a7657c"
    }
  }
},
"index": 1153484454560268288,
"type": "user",
"users": [
  {
    "name": "fred",
    "id"  : "300008"
  },
  {
    "name": "john",
    "id"  : "300009"
  },
  {
    "name": "smith",
    "id"  : "300010"
  }
],
"qtree": {
  "name": "qt1",
  "id": 1,
  "_links": {
    "self": {
      "href": "/api/storage/qtrees/cf480c37-2a6b-11e9-8513-005056a7657c/1"
    }
  }
},
"space": {
  "hard_limit": 41943040,
  "soft_limit": 31457280,
```

```
  "used": {
    "total": 10567680,
    "soft_limit_percent": 34,
    "hard_limit_percent": 25
  }
},
"files": {
  "soft_limit": 30,
  "hard_limit": 40,
  "used": {
    "total": 11,
    "soft_limit_percent": 37,
    "hard_limit_percent": 28
  }
},
"_links": {
  "self": {
    "href": "/api/storage/quota/reports/cf480c37-2a6b-11e9-8513-
005056a7657c/1153484454560268288"
  }
}
}
```

Retrieving a single quota report group record

```
# The API:
GET /api/storage/quota/reports/{volume.uuid}/{index}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/quota/reports/cf480c37-2a6b-
11e9-8513-005056a7657c/3459045988797251584"  -H 'accept:
application/hal+json'

# Response for quota report group record:
{
"svm": {
  "uuid": "5093e722-248e-11e9-96ee-005056a7657c",
  "name": "svm1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/5093e722-248e-11e9-96ee-005056a7657c"
    }
```

```
    }
  },
  "volume": {
    "uuid": "cf480c37-2a6b-11e9-8513-005056a7657c",
    "name": "fv",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cf480c37-2a6b-11e9-8513-005056a7657c"
      }
    }
  },
  "index": 3459045988797251584,
  "type": "group",
  "group": {
    "name"  : "test_group",
    "id"    : "500009"
  },
  "qtree": {
    "name": "qt1",
    "id": 1,
    "_links": {
      "self": {
        "href": "/api/storage/qtrees/cf480c37-2a6b-11e9-8513-005056a7657c/1"
      }
    }
  },
  "space": {
    "hard_limit": 41943040,
    "soft_limit": 31457280,
    "used": {
      "total": 10567680,
      "soft_limit_percent": 34,
      "hard_limit_percent": 25
    }
  },
  "files": {
    "soft_limit": 30,
    "hard_limit": 40,
    "used": {
      "total": 11,
      "soft_limit_percent": 37,
      "hard_limit_percent": 28
    }
  },
  "_links": {
    "self": {
```

```
    "href": "/api/storage/quota/reports/cf480c37-2a6b-11e9-8513-
005056a7657c/3459045988797251584"
  }
}
}
```

Retrieving a single quota report tree record

```
# The API:
GET /api/storage/quota/reports/{volume.uuid}/{index}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/quota/reports/cf480c37-2a6b-
11e9-8513-005056a7657c/4612248968380809216"  -H 'accept:
application/hal+json'

# Response for quota report tree record:
{
"svm": {
  "uuid": "5093e722-248e-11e9-96ee-005056a7657c",
  "name": "svm1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/5093e722-248e-11e9-96ee-005056a7657c"
    }
  }
},
"volume": {
  "uuid": "cf480c37-2a6b-11e9-8513-005056a7657c",
  "name": "fv",
  "_links": {
    "self": {
      "href": "/api/storage/volumes/cf480c37-2a6b-11e9-8513-005056a7657c"
    }
  }
},
"index": 4612248968380809216,
"type": "tree",
"qtree": {
  "name": "qt1",
  "id": 1,
  "_links": {
```

```
    "self": {
      "href": "/api/storage/qtrees/cf480c37-2a6b-11e9-8513-005056a7657c/1"
    }
  }
},
"space": {
  "hard_limit": 41943040,
  "soft_limit": 31457280,
  "used": {
    "total": 10567680,
    "soft_limit_percent": 34,
    "hard_limit_percent": 25
  }
},
"files": {
  "soft_limit": 30,
  "hard_limit": 40,
  "used": {
    "total": 11,
    "soft_limit_percent": 37,
    "hard_limit_percent": 28
  }
},
"_links": {
  "self": {
    "href": "/api/storage/quota/reports/cf480c37-2a6b-11e9-8513-
005056a7657c/46122489683808092l6"
  }
}
}
```

Retrieving only records enforced by non-default rules

```
# The call:
curl -X GET "https://<mgmt-
ip>/api/storage/quota/reports?show_default_records=false"  -H 'accept:
application/hal+json'

# Response from only  non-default records
{
"records": [
  {
```

```
    "svm": {
      "uuid": "5093e722-248e-11e9-96ee-005056a7657c",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/5093e722-248e-11e9-96ee-005056a7657c"
        }
      }
    },
    "volume": {
      "uuid": "cf480c37-2a6b-11e9-8513-005056a7657c",
      "name": "fv",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/cf480c37-2a6b-11e9-8513-
005056a7657c"
        }
      }
    },
    "index": 4612248968380809216,
    "type": "tree",
    "qtree": {
      "name": "qt1",
      "id": 1,
      "_links": {
        "self": {
          "href": "/api/storage/qtrees/cf480c37-2a6b-11e9-8513-
005056a7657c/1"
        }
      }
    },
    "space": {
      "hard_limit": 41943040,
      "soft_limit": 31457280,
      "used": {
        "total": 10567680,
        "soft_limit_percent": 34,
        "hard_limit_percent": 25
      }
    },
    "files": {
      "soft_limit": 30,
      "hard_limit": 40,
      "used": {
        "total": 11,
        "soft_limit_percent": 37,
```

```
        "hard_limit_percent": 28
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/quota/reports/cf480c37-2a6b-11e9-8513-
005056a7657c/4612248968380809216"
      }
    }
  },
  {
    "svm": {
      "uuid": "5093e722-248e-11e9-96ee-005056a7657c",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/5093e722-248e-11e9-96ee-005056a7657c"
        }
      }
    },
    "volume": {
      "uuid": "cf480c37-2a6b-11e9-8513-005056a7657c",
      "name": "fv",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/cf480c37-2a6b-11e9-8513-
005056a7657c"
        }
      }
    },
    "index": 1153484454560268288,
    "type": "user",
    "users": [
      {
        "name": "fred",
        "id"  : "300008"
      },
      {
        "name": "john",
        "id"  : "300009"
      },
      {
        "name": "smith",
        "id"  : "300010"
      }
    ],
```

```
    "qtree": {
      "name": "qt1",
      "id": 1,
      "_links": {
        "self": {
          "href": "/api/storage/qtrees/cf480c37-2a6b-11e9-8513-
005056a7657c/1"
        }
      }
    },
    "space": {
      "hard_limit": 41943040,
      "soft_limit": 31457280,
      "used": {
        "total": 10567680,
        "soft_limit_percent": 34,
        "hard_limit_percent": 25
      }
    },
    "files": {
      "soft_limit": 30,
      "hard_limit": 40,
      "used": {
        "total": 11,
        "soft_limit_percent": 37,
        "hard_limit_percent": 28
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/quota/reports/cf480c37-2a6b-11e9-8513-
005056a7657c/1153484454560268288"
      }
    }
  }
],
"num_records": 2,
"_links": {
  "self": {
    "href": "/api/storage/quota/reports?show_default_records=false"
  }
}
}
```

Retrieving quota report records with query parameters

The following example shows how to retrieve tree type quota report records.

```
# The API:
GET /api/storage/quota/reports

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/quota/reports?type=tree"  -H
'accept: application/hal+json'

# The response:
{
"records": [
  {
    "svm": {
      "uuid": "903e54ee-6ccf-11ea-bc35-005056823577",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/903e54ee-6ccf-11ea-bc35-005056823577"
        }
      }
    },
    "volume": {
      "uuid": "8812b000-6e1e-11ea-9bad-00505682cd5c",
      "name": "fv",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/8812b000-6e1e-11ea-9bad-
00505682cd5c"
        }
      }
    },
    "index": 2305843013508661248,
    "type": "tree",
    "_links": {
      "self": {
        "href": "/api/storage/quota/reports/8812b000-6e1e-11ea-9bad-
00505682cd5c/2305843013508661248"
      }
    }
  },
  {
    "svm": {
```

```
      "uuid": "903e54ee-6ccf-11ea-bc35-005056823577",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/903e54ee-6ccf-11ea-bc35-005056823577"
        }
      }
    },
    "volume": {
      "uuid": "a5ceebd2-6ccf-11ea-bc35-005056823577",
      "name": "fg",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/a5ceebd2-6ccf-11ea-bc35-
005056823577"
        }
      }
    },
    "index": 2305843013508661248,
    "type": "tree",
    "_links": {
      "self": {
        "href": "/api/storage/quota/reports/a5ceebd2-6ccf-11ea-bc35-
005056823577/2305843013508661248"
      }
    }
  }
],
"num_records": 2,
"_links": {
  "self": {
    "href": "/api/storage/quota/reports?type=tree"
  }
}
}
```


Retrieving all the quota reports of a specific volume and the files fields

```
# The API:
GET /api/storage/quota/reports

# The call:
```

```
curl -X GET "https://<mgmt-
ip>/api/storage/quota/reports?volume.name=fv&fields=files"  -H 'accept:
application/hal+json'

# The response:
{
"records": [
  {
    "svm": {
      "uuid": "903e54ee-6ccf-11ea-bc35-005056823577",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/903e54ee-6ccf-11ea-bc35-005056823577"
        }
      }
    },
    "volume": {
      "uuid": "8812b000-6e1e-11ea-9bad-00505682cd5c",
      "name": "fv",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/8812b000-6e1e-11ea-9bad-
00505682cd5c"
        }
      }
    },
    "index": 410328290557952,
    "files": {
      "soft_limit": 20,
      "hard_limit": 30,
      "used": {
        "total": 0,
        "soft_limit_percent": 0,
        "hard_limit_percent": 0
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/quota/reports/8812b000-6e1e-11ea-9bad-
00505682cd5c/410328290557952"
      }
    }
  },
  {
    "svm": {
```

```
      "uuid": "903e54ee-6ccf-11ea-bc35-005056823577",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/903e54ee-6ccf-11ea-bc35-005056823577"
        }
      }
    },
    "volume": {
      "uuid": "8812b000-6e1e-11ea-9bad-00505682cd5c",
      "name": "fv",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/8812b000-6e1e-11ea-9bad-
00505682cd5c"
        }
      }
    },
    "index": 2305843013508661248,
    "files": {
      "soft_limit": 200,
      "hard_limit": 400,
      "used": {
        "total": 4,
        "soft_limit_percent": 2,
        "hard_limit_percent": 1
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/quota/reports/8812b000-6e1e-11ea-9bad-
00505682cd5c/2305843013508661248"
      }
    }
  }
],
"num_records": 2,
"_links": {
  "self": {
    "href": "/api/storage/quota/reports?volume.name=fv&fields=files"
  }
}
}
```

Retrieve the quota report records for all FlexVol and FlexGroup volumes

GET `/storage/quota/reports`

Introduced In: 9.6

Retrieves the quota report records for all FlexVol volumes and FlexGroup volumes.

Related ONTAP commands

- `quota report`

Parameters

Name	Type	In	Required	Description
users.name	string	query	False	Filter by users.name
users.id	string	query	False	Filter by users.id
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
qtree.name	string	query	False	Filter by qtree.name
qtree.id	integer	query	False	Filter by qtree.id
specifier	string	query	False	Filter by specifier
index	integer	query	False	Filter by index
space.used.total	integer	query	False	Filter by space.used.total
space.used.hard_limit_percent	integer	query	False	Filter by space.used.hard_limit_percent
space.used.soft_limit_percent	integer	query	False	Filter by space.used.soft_limit_percent
space.soft_limit	integer	query	False	Filter by space.soft_limit
space.hard_limit	integer	query	False	Filter by space.hard_limit

Name	Type	In	Required	Description
files.soft_limit	integer	query	False	Filter by files.soft_limit
files.used.total	integer	query	False	Filter by files.used.total
files.used.hard_limit_percent	integer	query	False	Filter by files.used.hard_limit_percent
files.used.soft_limit_percent	integer	query	False	Filter by files.used.soft_limit_percent
files.hard_limit	integer	query	False	Filter by files.hard_limit
type	string	query	False	Filter by type
group.name	string	query	False	Filter by group.name
group.id	string	query	False	Filter by group.id
volume.uuid	string	query	False	Filter by volume.uuid
volume.name	string	query	False	Filter by volume.name
show_default_records	boolean	query	False	The default is true for GET calls. When set to false, the default records are not reported. • Introduced in: 9.7 • Default value: 1
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[quota_report]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "files": {
        "hard_limit": 0,
        "soft_limit": 0,
        "used": {
          "hard_limit_percent": 0,
          "soft_limit_percent": 0,
          "total": 0
        }
      },
      "group": {
        "id": "string",
        "name": "string"
      },
      "index": 0,
      "qtree": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "id": 1,
        "name": "qt1"
      },
      "space": {
        "hard_limit": 0,
        "soft_limit": 0,
        "used": {
          "hard_limit_percent": 0,
```

```
          "soft_limit_percent": 0,
          "total": 0
        }
      },
      "specifier": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "type": "string",
      "users": [
        {
          "id": "string",
          "name": "string"
        }
      ],
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

used

Name	Type	Description
hard_limit_percent	integer	Total files used as a percentage of file hard limit
soft_limit_percent	integer	Total files used as a percentage of file soft limit
total	integer	Total files used

files

Name	Type	Description
hard_limit	integer	File hard limit
soft_limit	integer	File soft limit
used	used	

group

This parameter specifies the target group associated with the given quota report record. This parameter is available for group quota records and is not available for user or tree quota records. The target group is identified by a UNIX group name and UNIX group identifer.

Name	Type	Description
id	string	Quota target group ID
name	string	Quota target group name

qtree

This parameter specifies the target qtree associated with the user, group, or tree record. For a user/group quota policy rule at volume level, this parameter is not valid. For a default tree quota policy rule, this parameter is specified as "" or "*". For a tree quota policy rule at qtree level, this parameter specifies a qtree name and a qtree identifier.

Name	Type	Description
_links	_links	
id	integer	The unique identifier for a qtree.
name	string	The name of the qtree.

used

Name	Type	Description
hard_limit_percent	integer	Total space used as a percentage of space hard limit
soft_limit_percent	integer	Total space used as a percentage of space soft limit
total	integer	Total space used

space

Name	Type	Description
hard_limit	integer	Space hard limit in bytes
soft_limit	integer	Space soft limit in bytes
used	used	

svm

Name	Type	Description
_links	_links	

Name	Type	Description
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

users

Name	Type	Description
id	string	Quota target user ID
name	string	Quota target user name

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

quota_report

Name	Type	Description
_links	_links	
files	files	
group	group	This parameter specifies the target group associated with the given quota report record. This parameter is available for group quota records and is not available for user or tree quota records. The target group is identified by a UNIX group name and UNIX group identifer.

Name	Type	Description
index	integer	Index that identifies a unique quota record. Valid in URL.
qtree	qtree	This parameter specifies the target qtree associated with the user, group, or tree record. For a user/group quota policy rule at volume level, this parameter is not valid. For a default tree quota policy rule, this parameter is specified as "" or "*". For a tree quota policy rule at qtree level, this parameter specifies a qtree name and a qtree identifier.
space	space	
specifier	string	Quota specifier
svm	svm	
type	string	Quota type associated with the quota record.
users	array[users]	This parameter specifies the target user or users associated with the given quota report record. This parameter is available for user quota records and is not available for group or tree quota records. The target user or users are identified by a user name and user identifier. The user name can be a UNIX user name or a Windows user name, and the identifer can be a UNIX user identifier or a Windows security identifier.
volume	volume	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve a specific quota report record

GET `/storage/quota/reports/{volume.uuid}/{index}`

Introduced In: 9.6

Retrieves a specific quota report record.

Related ONTAP commands

- `quota report`

Parameters

Name	Type	In	Required	Description
volume.uuid	string	path	True	Volume UUID
index	integer	path	True	Quota report index
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
files	files	

Name	Type	Description
group	group	This parameter specifies the target group associated with the given quota report record. This parameter is available for group quota records and is not available for user or tree quota records. The target group is identified by a UNIX group name and UNIX group identifer.
index	integer	Index that identifies a unique quota record. Valid in URL.
qtree	qtree	This parameter specifies the target qtree associated with the user, group, or tree record. For a user/group quota policy rule at volume level, this parameter is not valid. For a default tree quota policy rule, this parameter is specified as "" or "*". For a tree quota policy rule at qtree level, this parameter specifies a qtree name and a qtree identifier.
space	space	
specifier	string	Quota specifier
svm	svm	
type	string	Quota type associated with the quota record.
users	array[users]	This parameter specifies the target user or users associated with the given quota report record. This parameter is available for user quota records and is not available for group or tree quota records. The target user or users are identified by a user name and user identifier. The user name can be a UNIX user name or a Windows user name, and the identifer can be a UNIX user identifier or a Windows security identifier.
volume	volume	

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "files": {
    "hard_limit": 0,
    "soft_limit": 0,
    "used": {
      "hard_limit_percent": 0,
      "soft_limit_percent": 0,
      "total": 0
    }
  },
  "group": {
    "id": "string",
    "name": "string"
  },
  "index": 0,
  "qtree": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "id": 1,
    "name": "qt1"
  },
  "space": {
    "hard_limit": 0,
    "soft_limit": 0,
    "used": {
      "hard_limit_percent": 0,
      "soft_limit_percent": 0,
      "total": 0
    }
  },
  "specifier": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
```

```
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "string",
  "users": [
    {
      "id": "string",
      "name": "string"
    }
  ],
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
918235	A volume with UUID was not found.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

used

Name	Type	Description
hard_limit_percent	integer	Total files used as a percentage of file hard limit
soft_limit_percent	integer	Total files used as a percentage of file soft limit
total	integer	Total files used

files

Name	Type	Description
hard_limit	integer	File hard limit
soft_limit	integer	File soft limit
used	used	

group

This parameter specifies the target group associated with the given quota report record. This parameter is available for group quota records and is not available for user or tree quota records. The target group is identified by a UNIX group name and UNIX group identifer.

Name	Type	Description
id	string	Quota target group ID
name	string	Quota target group name

qtree

This parameter specifies the target qtree associated with the user, group, or tree record. For a user/group

quota policy rule at volume level, this parameter is not valid. For a default tree quota policy rule, this parameter is specified as "" or "*". For a tree quota policy rule at qtree level, this parameter specifies a qtree name and a qtree identifier.

Name	Type	Description
_links	_links	
id	integer	The unique identifier for a qtree.
name	string	The name of the qtree.

used

Name	Type	Description
hard_limit_percent	integer	Total space used as a percentage of space hard limit
soft_limit_percent	integer	Total space used as a percentage of space soft limit
total	integer	Total space used

space

Name	Type	Description
hard_limit	integer	Space hard limit in bytes
soft_limit	integer	Space soft limit in bytes
used	used	

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

users

Name	Type	Description
id	string	Quota target user ID

Name	Type	Description
name	string	Quota target user name

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage quota policy rules

Storage quota rules endpoint overview

Overview

Quotas are defined in quota rules specific to FlexVol volumes or FlexGroup volumes. Each quota rule has a type. The type can be "user", "group", or "tree".

– User rules must have the user property and qtree property.

– Group rules must have the group property and qtree property.

– Tree rules must have the qtree property and not have the user or group property.

Quota policy rule APIs

The following APIs can be used to perform create, retrieve, modify, and delete operations related to quota policy rules.

– POST /api/storage/quota/rules

– GET /api/storage/quota/rules

– GET /api/storage/quota/rules/{rule-uuid}

– PATCH /api/storage/quota/rules/{rule-uuid}

– DELETE /api/storage/quota/rules/{rule-uuid}

Examples

Retrieving all quota policy rules

This API is used to retrieve all quota policy rules.

The following example shows how to retrieve quota policy rules for FlexVol volumes and FlexGroup volumes.

```
# The API:
GET /api/storage/quota/rules

# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/quota/rules' -H 'accept:
application/hal+json'

# The response:
{
  "records": [
    {
      "svm": {
        "uuid": "038545f8-9ff8-11e8-bce6-005056a73bed",
        "name": "svm1",
```

```
        "_links": {
          "self": {
            "href": "/api/svm/svms/038545f8-9ff8-11e8-bce6-005056a73bed"
          }
        }
      },
      "volume": {
        "uuid": "ab3df793-0f02-43c6-9514-4f142fc8cc92",
        "name": "vol1",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/ab3df793-0f02-43c6-9514-
4f142fc8cc92"
          }
        }
      },
      "uuid": "66319cbe-b837-11e8-9c5a-005056a7e88c",
      "_links": {
        "self": {
          "href": "/api/storage/quota/rules/66319cbe-b837-11e8-9c5a-
005056a7e88c"
        }
      }
    },
    {
      "svm": {
        "uuid": "038545f8-9ff8-11e8-bce6-005056a73bed",
        "name": "svm1",
        "_links": {
          "self": {
            "href": "/api/svm/svms/038545f8-9ff8-11e8-bce6-005056a73bed"
          }
        }
      },
      "volume": {
        "uuid": "ab3df793-0f02-43c6-9514-4f142fc8cc92",
        "name": "vol1",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/ab3df793-0f02-43c6-9514-
4f142fc8cc92"
          }
        }
      },
      "uuid": "dbd5b443-b7a4-11e8-bc58-005056a7e88c",
      "_links": {
```

```
        "self": {
          "href": "/api/storage/quota/rules/dbd5b443-b7a4-11e8-bc58-
005056a7e88c"
        }
      }
    }
  ],
  "num_records": 2,
  "_links": {
    "self": {
      "href": "/api/storage/quota/rules"
    }
  }
}
```

Retrieving a specific quota policy rule

This API is used to retrieve a quota policy rule for a specific qtree.

The following example shows how to retrieve a quota policy user rule for a specific qtree.

```
# The API:
GET /api/storage/quota/rules/{uuid}

# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/quota/rules/264a9e0b-2e03-11e9-
a610-005056a7b72d' -H 'accept: application/hal+json'

# Response for a user rule at a qtree level:
{
  "svm": {
    "uuid": "fd5db15a-15b9-11e9-a6ad-005056a760e0",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/fd5db15a-15b9-11e9-a6ad-005056a760e0"
      }
    }
  },
  "volume": {
    "uuid": "c1b64eea-ca8b-45ec-9397-ab489830d268",
    "name": "vol1",
    "_links": {
```

```
      "self": {
        "href": "/api/storage/volumes/c1b64eea-ca8b-45ec-9397-
ab489830d268"
      }
    }
  },
  "uuid": "264a9e0b-2e03-11e9-a610-005056a7b72d",
  "type": "user",
  "users": [ {"name" : "fred"} ],
  "qtree": {
    "name": "qt1",
    "id": 1,
    "_links": {
      "self": {
        "href": "/api/storage/qtrees/c1b64eea-ca8b-45ec-9397-
ab489830d268/1"
      }
    }
  },
  "user_mapping": on,
  "space": {
    "hard_limit": 1222800,
    "soft_limit": 51200
  },
  "files": {
    "hard_limit": 100,
    "soft_limit": 80
  },
  "_links": {
    "self": {
      "href": "/api/storage/quota/rules/264a9e0b-2e03-11e9-a610-
005056a7b72d"
    }
  }
}
```

Retrieving a quota policy multi-user rule at the volume level

```
# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/quota/rules/0ab84fba-19aa-11e9-
a04d-005056a72f42' -H 'accept: application/hal+json'
```

```
# Response for a multi-user rule at volume level:
{
  "svm": {
    "uuid": "fd5db15a-15b9-11e9-a6ad-005056a760e0",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/fd5db15a-15b9-11e9-a6ad-005056a760e0"
      }
    }
  },
  "volume": {
    "uuid": "c1b64eea-ca8b-45ec-9397-ab489830d268",
    "name": "vol1",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/c1b64eea-ca8b-45ec-9397-
ab489830d268"
      }
    }
  },
  "uuid": "0ab84fba-19aa-11e9-a04d-005056a72f42",
  "type": "user",
  "users": [
    {
      "name": "sam",
    },
    {
      "name": "smith",
    },
    {
      "id": "300010",
    },
  ],
  "space": {
    "hard_limit": 1222800,
    "soft_limit": 51200
  },
  "files": {
    "hard_limit": 100,
    "soft_limit": 80
  },
  "_links": {
    "self": {
      "href": "/api/storage/quota/rules/0ab84fba-19aa-11e9-a04d-
005056a72f42"
```

```
        }
    }
}
```

Retrieving a quota policy default tree rule

```
# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/quota/rules/4a276b8c-1753-11e9-
8101-005056a760e0' -H 'accept: application/hal+json'

# Response for a default tree rule:
{
  "svm": {
    "uuid": "fd5db15a-15b9-11e9-a6ad-005056a760e0",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/fd5db15a-15b9-11e9-a6ad-005056a760e0"
      }
    }
  },
  "volume": {
    "uuid": "c1b64eea-ca8b-45ec-9397-ab489830d268",
    "name": "vol1",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/c1b64eea-ca8b-45ec-9397-
ab489830d268"
      }
    }
  },
  "uuid": "4a276b8c-1753-11e9-8101-005056a760e0",
  "type": "tree",
  "qtree": {
    "name": ""
  },
  "space": {
    "hard_limit": 1034000,
    "soft_limit": 51200
  },
  "files": {
    "hard_limit": 20,
    "soft_limit": 10
  },
  "_links": {
    "self": {
      "href": "/api/storage/quota/rules/4a276b8c-1753-11e9-8101-
005056a760e0"
    }
  }
}
```

Retrieving a quota policy tree rule for a specific qtree

```
# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/quota/rules/49b1134f-19ab-11e9-
a04d-005056a72f42' -H 'accept: application/hal+json'

# Response for a tree rule for a specific qtree:
{
  "svm": {
    "uuid": "fd5db15a-15b9-11e9-a6ad-005056a760e0",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/fd5db15a-15b9-11e9-a6ad-005056a760e0"
      }
    }
  },
  "volume": {
    "uuid": "c1b64eea-ca8b-45ec-9397-ab489830d268",
    "name": "vol1",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/c1b64eea-ca8b-45ec-9397-
ab489830d268"
      }
    }
  },
  "uuid": "49b1134f-19ab-11e9-a04d-005056a72f42",
  "type": "tree",
  "qtree": {
    "name": "qt1",
    "id": 1,
    "_links": {
      "self": {
        "href": "/api/storage/qtrees/c1b64eea-ca8b-45ec-9397-
ab489830d268/1"
      }
    }
  },
  "space": {
    "hard_limit": 1048576,
    "soft_limit": 838861
  },
  "files": {
    "hard_limit": 100,
```

```
    "soft_limit": 40
  },
  "_links": {
    "self": {
      "href": "/api/storage/quota/rules/49b1134f-19ab-11e9-a04d-
005056a72f42"
    }
  }
}
```

Retrieving a quota policy group rule for a specific qtree

```
# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/quota/rules/b9236852-19ab-11e9-
a04d-005056a72f42' -H 'accept: application/hal+json'

# Response for a group rule:
{
  "svm": {
    "uuid": "fd5db15a-15b9-11e9-a6ad-005056a760e0",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/fd5db15a-15b9-11e9-a6ad-005056a760e0"
      }
    }
  },
  "volume": {
    "uuid": "c1b64eea-ca8b-45ec-9397-ab489830d268",
    "name": "vol1",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/c1b64eea-ca8b-45ec-9397-
ab489830d268"
      }
    }
  },
  "uuid": "b9236852-19ab-11e9-a04d-005056a72f42",
  "type": "group",
  "group": {"name" : "group1"},
  "qtree": {
    "name": "qt1",
```

```
    "id": 1,
    "_links": {
      "self": {
        "href": "/api/storage/qtrees/c1b64eea-ca8b-45ec-9397-
ab489830d268/1"
      }
    }
  },
  "space": {
    "hard_limit": 2097152,
    "soft_limit": 1572864
  },
  "files": {
    "hard_limit": 250,
    "soft_limit": 200
  },
  "_links": {
    "self": {
      "href": "/api/storage/quota/rules/b9236852-19ab-11e9-a04d-
005056a72f42"
    }
  }
}
```

Creating a quota policy rule

This API is used to create a new quota policy rule. When an explicit rule or a qtree-scoped rule of a type is created on a volume, a default rule of the same type is automatically added if it does not already exist on the volume.

The following example shows how to create a quota policy user rule using POST.

```
# The API:
POST /api/storage/quota/rules

# The call:
curl -X POST 'https://<mgmt-
ip>/api/storage/quota/rules?return_records=true' -H 'accept:
application/hal+json' -d @test_quota_post.txt
test_quota_post.txt(body):
{
"svm": {
  "name": "svm1"
```

```
},
"volume": {
  "name": "vol1"
},
"type": "user",
"users": [ {"name" : "jsmith"} ],
"qtree": {
  "name":"qt1"
},
"user_mapping": "on",
"space": {
  "hard_limit": 8192,
  "soft_limit": 1024
},
"files": {
  "hard_limit": 20,
  "soft_limit": 10
}
}

# The response
{
  "num_records": 1,
  "records": [
    {
      "svm": {
        "name": "svm1"
      },
      "volume": {
        "name": "fv"
      },
      "uuid": "3220eea6-5049-11e9-bfb7-005056a7f717",
      "type": "user",
      "users": [
        {
          "name" : "jsmith"
        }
      ],
      "qtree": {
        "name": "qt1"
      },
      "user_mapping": "on",
      "space": {
        "hard_limit": 8192,
        "soft_limit": 1024
      },
```

```
      "files": {
        "hard_limit": 20,
        "soft_limit": 10
      },
      "_links": {
        "self": {
          "href": "/api/storage/quota/rules/3220eea6-5049-11e9-bfb7-
005056a7f717"
        }
      }
    }
  ],
  "job": {
    "uuid": "32223924-5049-11e9-bfb7-005056a7f717",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/32223924-5049-11e9-bfb7-005056a7f717"
      }
    }
  }
}
```

Creating a quota policy group rule using POST.

```
# The API:
POST /api/storage/quota/rules

# The call:
curl -X POST 'https://<mgmt-
ip>/api/storage/quota/rules?return_records=true' -H 'accept:
application/hal+json' -d @test_quota_post.txt
test_quota_post.txt(body):
{
"svm": {
  "name": "svm1"
},
"volume": {
  "name": "vol1"
},
"type": "group",
"group": {
  "name" : "test_group1"
```

```
},
"qtree": {
  "name":"qt1"
},
"space": {
  "hard_limit": 8192,
  "soft_limit": 1024
},
"files": {
  "hard_limit": 20,
  "soft_limit": 10
}
}

# The response
{
  "num_records": 1,
  "records": [
    {
      "svm": {
        "name": "svm1"
      },
      "volume": {
        "name": "fv"
      },
      "uuid": "3b130f7d-504a-11e9-bfb7-005056a7f717",
      "type": "group",
      "group": {
          "name" : "test_group1"
      },
      "qtree": {
        "name": "qt1"
      },
      "space": {
        "hard_limit": 8192,
        "soft_limit": 1024
      },
      "files": {
        "hard_limit": 20,
        "soft_limit": 10
      },
      "_links": {
        "self": {
          "href": "/api/storage/quota/rules/3b130f7d-504a-11e9-bfb7-
005056a7f717"
        }
```

```
      }
    }
  ],
  "job": {
    "uuid": "32223924-5049-11e9-bfb7-005056a7f717",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/32223924-5049-11e9-bfb7-005056a7f717"
      }
    }
  }
}
```

Creating a quota policy tree rule using POST

```
# The API:
POST /api/storage/quota/rules

# The call:
curl -X POST 'https://<mgmt-
ip>/api/storage/quota/rules?return_records=true' -H 'accept:
application/hal+json' -d @test_quota_post.txt
test_quota_post.txt(body):
{
"svm": {
  "name": "svm1"
},
"volume": {
  "name": "vol1"
},
"type": "tree",
"qtree": {
  "name":"qt1"
},
"space": {
  "hard_limit": 8192,
  "soft_limit": 1024
},
"files": {
  "hard_limit": 20,
  "soft_limit": 10
}
```

```
}

# The response
{
  "num_records": 1,
  "records": [
    {
      "svm": {
        "name": "svm1"
      },
      "volume": {
        "name": "fv"
      },
      "uuid": "e5eb03be-504a-11e9-bfb7-005056a7f717",
      "type": "tree",
      "qtree": {
        "name": "qt1"
      },
      "space": {
        "hard_limit": 8192,
        "soft_limit": 1024
      },
      "files": {
        "hard_limit": 20,
        "soft_limit": 10
      },
      "_links": {
        "self": {
          "href": "/api/storage/quota/rules/e5eb03be-504a-11e9-bfb7-
005056a7f717"
        }
      }
    }
  ],
  "job": {
    "uuid": "32223924-5049-11e9-bfb7-005056a7f717",
    "_links": {
      "self": {
        "href": "/api/cluster/jobs/32223924-5049-11e9-bfb7-005056a7f717"
      }
    }
  }
}
```

Updating the quota policy rule

This API is used to update a quota policy rule.

The following example shows how to update a quota policy rule.

```
# The API:
PATCH /storage/quota/rules/{uuid}

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/quota/rules/364d38eb-8e87-
11e8-a806-005056a7e73a" -H 'accept: application/hal+json' -d
"@test_quota_patch.txt"
test_quota_patch.txt(body):
{
"space": {
  "hard_limit": 16554,
  "soft_limit": 8192
},
"files": {
  "hard_limit": 40,
  "soft_limit": 20
}
}
```

Deleting the quota policy rule

This API is used to delete a quota policy rule.

The following example shows how to delete a quota policy rule.

```
# The API:
DELETE /storage/quota/rules/{uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/quota/rules/364d38eb-8e87-
11e8-a806-005056a7e73a" -H 'accept: application/hal+json'
```

Retrieve quota policy rules for all FlexVol and FlexGroup volumes

GET `/storage/quota/rules`

Introduced In: 9.6

Retrieves quota policy rules configured for all FlexVol volumes and FlexGroup volumes.

Related ONTAP commands

- `quota policy rule show`

Parameters

Name	Type	In	Required	Description
group.id	string	query	False	Filter by group.id
group.name	string	query	False	Filter by group.name
volume.uuid	string	query	False	Filter by volume.uuid
volume.name	string	query	False	Filter by volume.name
uuid	string	query	False	Filter by uuid
user_mapping	boolean	query	False	Filter by user_mapping
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
users.id	string	query	False	Filter by users.id
users.name	string	query	False	Filter by users.name
qtree.id	integer	query	False	Filter by qtree.id
qtree.name	string	query	False	Filter by qtree.name
type	string	query	False	Filter by type
files.soft_limit	integer	query	False	Filter by files.soft_limit

Name	Type	In	Required	Description
files.hard_limit	integer	query	False	Filter by files.hard_limit
space.soft_limit	integer	query	False	Filter by space.soft_limit
space.hard_limit	integer	query	False	Filter by space.hard_limit
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[quota_rule]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "group": {
        "id": "string",
        "name": "string"
      },
      "qtree": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "id": 1,
        "name": "qt1"
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "type": "string",
      "users": [
        {
          "id": "string",
          "name": "string"
        }
```

```
      ],
      "uuid": "5f1d13a7-f401-11e8-ac1a-005056a7c3b9",
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

files

Name	Type	Description
hard_limit	integer	This parameter specifies the hard limit for files. This is valid in POST or PATCH.
soft_limit	integer	This parameter specifies the soft limit for files. This is valid in POST or PATCH.

group

This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
id	string	Quota target group ID
name	string	Quota target group name

qtree

This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.

Name	Type	Description
_links	_links	
id	integer	The unique identifier for a qtree.
name	string	The name of the qtree.

space

Name	Type	Description
hard_limit	integer	This parameter specifies the space hard limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.
soft_limit	integer	This parameter specifies the space soft limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

users

Name	Type	Description
id	string	Quota target user ID
name	string	Quota target user name

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

quota_rule

Name	Type	Description
_links	_links	
files	files	

Name	Type	Description
group	group	This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.
qtree	qtree	This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.
space	space	
svm	svm	
type	string	This parameter specifies the quota policy rule type. This is required in POST only and can take either one of the "user", "group" or "tree" values.

Name	Type	Description
user_mapping	boolean	This parameter enables user mapping for user quota policy rules. This is valid in POST or PATCH for user quota policy rules only.
users	array[users]	This parameter specifies the target user to which the user quota policy rule applies. This parameter takes single or multiple user names or identifiers. This parameter is valid only for the POST operation of a user quota policy rule. If this parameter is used as an input to create a group or a tree quota policy rule, the POST operation will fail with an appropriate error. For POST, this input parameter takes either a user name or a user identifier, not both. For default quota rules, the user name must be chosen and specified as "". For explicit user quota rules, this parameter can indicate either a user name or user identifier. The user name can be a UNIX user name or a Windows user name. If a name contains a space, enclose the entire value in quotes. A UNIX user name cannot include a backslash () or an @ sign; user names with these characters are treated as Windows names. The user identifer can be a UNIX user identifier or a Windows security identifier. For multi-user quota, this parameter can contain multiple user targets separated by a comma.
uuid	string	Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.
volume	volume	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Create a quota policy rule for a FlexVol or a FlexGroup volume

POST `/storage/quota/rules`

Introduced In: 9.6

Creates a quota policy rule for a FlexVol or a FlexGroup volume.

Important notes:

- Unlike CLI/ONTAPI, the `quota policy` input is not needed for POST.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create the qtree.
- `volume.uuid` or `volume.name` - Existing volume in which to create the qtree.
- `type` - Quota type for the rule. This type can be `user`, `group`, or `tree`.
- `users.name` or `user.id` - If the quota type is user, this property takes the user name or user ID. For default user quota rules, the user name must be specified as "".
- `group.name` or `group.id` - If the quota type is group, this property takes the group name or group ID. For default group quota rules, the group name must be specified as "".
- `qtree.name` - Qtree for which to create the rule. For default tree rules, the qtree name must be specified as "".

Recommended optional properties

- `space.hard_limit` - Specifies the space hard limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes.

- `space.soft_limit` - Specifies the space soft limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes.
- `files.hard_limit` - Specifies the hard limit for files.
- `files.soft_limit` - Specifies the soft limit for files.
- `user_mapping` - Specifies the user_mapping. This property is valid only for quota policy rules of type `user`.

Related ONTAP commands

- `quota policy rule create`

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
files	files	
group	group	This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
qtree	qtree	This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.
space	space	
svm	svm	
type	string	This parameter specifies the quota policy rule type. This is required in POST only and can take either one of the "user", "group" or "tree" values.
user_mapping	boolean	This parameter enables user mapping for user quota policy rules. This is valid in POST or PATCH for user quota policy rules only.

Name	Type	Description
users	array[users]	This parameter specifies the target user to which the user quota policy rule applies. This parameter takes single or multiple user names or identifiers. This parameter is valid only for the POST operation of a user quota policy rule. If this parameter is used as an input to create a group or a tree quota policy rule, the POST operation will fail with an appropriate error. For POST, this input parameter takes either a user name or a user identifier, not both. For default quota rules, the user name must be chosen and specified as "". For explicit user quota rules, this parameter can indicate either a user name or user identifier. The user name can be a UNIX user name or a Windows user name. If a name contains a space, enclose the entire value in quotes. A UNIX user name cannot include a backslash () or an @ sign; user names with these characters are treated as Windows names. The user identifer can be a UNIX user identifier or a Windows security identifier. For multi-user quota, this parameter can contain multiple user targets separated by a comma.
uuid	string	Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.
volume	volume	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "group": {
    "id": "string",
    "name": "string"
  },
  "qtree": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "id": 1,
    "name": "qt1"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "string",
  "users": [
    {
      "id": "string",
      "name": "string"
    }
  ],
  "uuid": "5f1d13a7-f401-11e8-ac1a-005056a7c3b9",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
```

```
    }
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
917927	The specified volume was not found.
918232	Either `volume.name` or `volume.uuid` must be provided.
918236	The specified `volume.uuid` and `volume.name` refer to different volumes.
2621462	The specified SVM does not exist.
2621706	The specified `svm.uuid` and `svm.name` do not refer to the same SVM.

Error Code	Description
2621707	No SVM was specified. Either `svm.name` or `svm.uuid` must be supplied.
5308501	Mapping from Windows user to UNIX user for user rule was unsuccessful.
5308502	Mapping from UNIX user to Windows user for user rule was unsuccessful.
5308552	Failed to get default quota policy name for SVM.
5308561	Failed to obtain volume quota state or invalid quota state obtained for volume.
5308562	users is a required input for creating a user rule and group is not allowed.
5308563	group is a required input for creating a group rule and users is not allowed.
5308564	qtree.name is a required input for creating a tree rule and users and group are not allowed.
5308565	Only one of name or id is allowed for each entry in the users array.
5308566	Only one of name or id is allowed for group.
5308568	Quota policy rule create operation succeeded, but quota resize failed due to internal error. To activate the rule, disable and enable quotas for this volume.
5308571	Quota policy rule create operation succeeded, but quota resize is skipped. To activate the rule, disable and enable quotas for this volume.
5308573	Input value is greater than limit for field.
5308574	Input value is out of range for field.
5308575	Input value is incorrectly larger than listed field.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

files

Name	Type	Description
hard_limit	integer	This parameter specifies the hard limit for files. This is valid in POST or PATCH.
soft_limit	integer	This parameter specifies the soft limit for files. This is valid in POST or PATCH.

group

This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
id	string	Quota target group ID
name	string	Quota target group name

qtree

This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.

Name	Type	Description
_links	_links	
id	integer	The unique identifier for a qtree.
name	string	The name of the qtree.

space

Name	Type	Description
hard_limit	integer	This parameter specifies the space hard limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.
soft_limit	integer	This parameter specifies the space soft limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

users

Name	Type	Description
id	string	Quota target user ID
name	string	Quota target user name

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

quota_rule

Name	Type	Description
_links	_links	
files	files	
group	group	This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
qtree	qtree	This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.
space	space	
svm	svm	
type	string	This parameter specifies the quota policy rule type. This is required in POST only and can take either one of the "user", "group" or "tree" values.
user_mapping	boolean	This parameter enables user mapping for user quota policy rules. This is valid in POST or PATCH for user quota policy rules only.

Name	Type	Description
users	array[users]	This parameter specifies the target user to which the user quota policy rule applies. This parameter takes single or multiple user names or identifiers. This parameter is valid only for the POST operation of a user quota policy rule. If this parameter is used as an input to create a group or a tree quota policy rule, the POST operation will fail with an appropriate error. For POST, this input parameter takes either a user name or a user identifier, not both. For default quota rules, the user name must be chosen and specified as "". For explicit user quota rules, this parameter can indicate either a user name or user identifier. The user name can be a UNIX user name or a Windows user name. If a name contains a space, enclose the entire value in quotes. A UNIX user name cannot include a backslash () or an @ sign; user names with these characters are treated as Windows names. The user identifer can be a UNIX user identifier or a Windows security identifier. For multi-user quota, this parameter can contain multiple user targets separated by a comma.
uuid	string	Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.
volume	volume	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Delete a quota policy rule

DELETE `/storage/quota/rules/{uuid}`

Introduced In: 9.7

Deletes a quota policy rule.

Related ONTAP commands

- `quota policy rule delete`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Rule UUID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5308545	The specified quota rule UUID is invalid.
5308561	Failed to obtain volume quota state or invalid quota state obtained for volume.
5308569	Quota policy rule delete operation succeeded, but quota resize failed due to internal error.
5308572	Quota policy rule delete operation succeeded, however the rule is still being enforced. To stop enforcing the rule, disable quotas and enable them again for this volume.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve quota policy rule properties

GET `/storage/quota/rules/{uuid}`

Introduced In: 9.7

Retrieves properties for a specific quota policy rule.

Related ONTAP commands

- `quota policy rule show`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Rule UUID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
files	files	
group	group	This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
qtree	qtree	This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.
space	space	
svm	svm	
type	string	This parameter specifies the quota policy rule type. This is required in POST only and can take either one of the "user", "group" or "tree" values.
user_mapping	boolean	This parameter enables user mapping for user quota policy rules. This is valid in POST or PATCH for user quota policy rules only.

Name	Type	Description
users	array[users]	This parameter specifies the target user to which the user quota policy rule applies. This parameter takes single or multiple user names or identifiers. This parameter is valid only for the POST operation of a user quota policy rule. If this parameter is used as an input to create a group or a tree quota policy rule, the POST operation will fail with an appropriate error. For POST, this input parameter takes either a user name or a user identifier, not both. For default quota rules, the user name must be chosen and specified as "". For explicit user quota rules, this parameter can indicate either a user name or user identifier. The user name can be a UNIX user name or a Windows user name. If a name contains a space, enclose the entire value in quotes. A UNIX user name cannot include a backslash () or an @ sign; user names with these characters are treated as Windows names. The user identifer can be a UNIX user identifier or a Windows security identifier. For multi-user quota, this parameter can contain multiple user targets separated by a comma.
uuid	string	Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.
volume	volume	

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "group": {
    "id": "string",
    "name": "string"
  },
  "qtree": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "id": 1,
    "name": "qt1"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "string",
  "users": [
    {
      "id": "string",
      "name": "string"
    }
  ],
  "uuid": "5f1d13a7-f401-11e8-ac1a-005056a7c3b9",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
```

```
    }
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5308544	The specified quota rule UUID is invalid.
5308545	Unable to retrieve rule for the specified quota rule UUID.
5308576	Parameter `show_default_records` only allowed for GET collection.

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

files

Name	Type	Description
hard_limit	integer	This parameter specifies the hard limit for files. This is valid in POST or PATCH.
soft_limit	integer	This parameter specifies the soft limit for files. This is valid in POST or PATCH.

group

This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
id	string	Quota target group ID
name	string	Quota target group name

qtree

This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.

Name	Type	Description
_links	_links	
id	integer	The unique identifier for a qtree.
name	string	The name of the qtree.

space

Name	Type	Description
hard_limit	integer	This parameter specifies the space hard limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.
soft_limit	integer	This parameter specifies the space soft limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

users

Name	Type	Description
id	string	Quota target user ID
name	string	Quota target user name

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update quota policy rule properties

PATCH `/storage/quota/rules/{uuid}`

Introduced In: 9.7

Updates properties of a specific quota policy rule.

Important notes:

- The quota resize functionality is supported with the PATCH operation.
- Quota resize allows you to modify the quota limits, directly in the filesystem.
- The quota must be enabled on a FlexVol or a FlexGroup volume for `quota resize` to take effect.
- If the quota is disabled on the volume, the quota policy rule PATCH API modifies the rule, but this does not affect the limits in the filesystem.

Related ONTAP commands

- `quota policy rule modify`
- `quota resize`

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Rule UUID

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
files	files	

Name	Type	Description
group	group	This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.
qtree	qtree	This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.
space	space	
svm	svm	
type	string	This parameter specifies the quota policy rule type. This is required in POST only and can take either one of the "user", "group" or "tree" values.

Name	Type	Description
user_mapping	boolean	This parameter enables user mapping for user quota policy rules. This is valid in POST or PATCH for user quota policy rules only.
users	array[users]	This parameter specifies the target user to which the user quota policy rule applies. This parameter takes single or multiple user names or identifiers. This parameter is valid only for the POST operation of a user quota policy rule. If this parameter is used as an input to create a group or a tree quota policy rule, the POST operation will fail with an appropriate error. For POST, this input parameter takes either a user name or a user identifier, not both. For default quota rules, the user name must be chosen and specified as "". For explicit user quota rules, this parameter can indicate either a user name or user identifier. The user name can be a UNIX user name or a Windows user name. If a name contains a space, enclose the entire value in quotes. A UNIX user name cannot include a backslash () or an @ sign; user names with these characters are treated as Windows names. The user identifer can be a UNIX user identifier or a Windows security identifier. For multi-user quota, this parameter can contain multiple user targets separated by a comma.
uuid	string	Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.
volume	volume	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "group": {
    "id": "string",
    "name": "string"
  },
  "qtree": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "id": 1,
    "name": "qt1"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "string",
  "users": [
    {
      "id": "string",
      "name": "string"
    }
  ],
  "uuid": "5f1d13a7-f401-11e8-ac1a-005056a7c3b9",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
```

```
    }
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5308501	Mapping from Windows user to UNIX user for user rule was unsuccessful.
5308502	Mapping from UNIX user to Windows user for user rule was unsuccessful.
5308545	The specified quota rule UUID is invalid.
5308561	Failed to obtain volume quota state or invalid quota state obtained for volume.
5308567	Quota policy rule modify operation succeeded, but quota resize failed due to internal error.

Error Code	Description
5308573	Input value is greater than limit for field.
5308574	Input value is out of range for field.
5308575	Input value is incorrectly larger than listed field.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

files

Name	Type	Description
hard_limit	integer	This parameter specifies the hard limit for files. This is valid in POST or PATCH.
soft_limit	integer	This parameter specifies the soft limit for files. This is valid in POST or PATCH.

group

This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
id	string	Quota target group ID
name	string	Quota target group name

qtree

This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.

Name	Type	Description
_links	_links	
id	integer	The unique identifier for a qtree.
name	string	The name of the qtree.

space

Name	Type	Description
hard_limit	integer	This parameter specifies the space hard limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.
soft_limit	integer	This parameter specifies the space soft limit, in bytes. If less than 1024 bytes, the value is rounded up to 1024 bytes. Valid in POST or PATCH. For a POST operation where the parameter is either empty or set to -1, no limit is applied. For a PATCH operation where a limit is configured, use a value of -1 to clear the limit.

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

users

Name	Type	Description
id	string	Quota target user ID
name	string	Quota target user name

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

quota_rule

Name	Type	Description
_links	_links	
files	files	
group	group	This parameter specifies the target group to which the group quota policy rule applies. This parameter takes a group name or identifier. This parameter is only valid for the POST operation of a group quota policy rule. The POST operation will fail with an appropriate error if this parameter is used as an input to create a user or a tree quota policy rule. This input parameter for POST takes either a group name or a group identifier, but not both. For default quota rules, the group name must be chosen and should be specified as "". For explicit group quota rules, this parameter can contain a UNIX group name or a UNIX group identifier.

Name	Type	Description
qtree	qtree	This parameter specifies the target qtree to which the user/group/tree quota policy rule applies. For a user/group quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST. For a user/group quota policy rule at volume level, this parameter is not valid in GET or POST. For a tree quota policy rule, this parameter is mandatory and is valid in both POST and GET. For a default tree quota policy rule, this parameter needs to be specified as "". For a tree quota policy rule at qtree level, this parameter takes a qtree name and is valid in GET or POST.
space	space	
svm	svm	
type	string	This parameter specifies the quota policy rule type. This is required in POST only and can take either one of the "user", "group" or "tree" values.
user_mapping	boolean	This parameter enables user mapping for user quota policy rules. This is valid in POST or PATCH for user quota policy rules only.

Name	Type	Description
users	array[users]	This parameter specifies the target user to which the user quota policy rule applies. This parameter takes single or multiple user names or identifiers. This parameter is valid only for the POST operation of a user quota policy rule. If this parameter is used as an input to create a group or a tree quota policy rule, the POST operation will fail with an appropriate error. For POST, this input parameter takes either a user name or a user identifier, not both. For default quota rules, the user name must be chosen and specified as "". For explicit user quota rules, this parameter can indicate either a user name or user identifier. The user name can be a UNIX user name or a Windows user name. If a name contains a space, enclose the entire value in quotes. A UNIX user name cannot include a backslash () or an @ sign; user names with these characters are treated as Windows names. The user identifer can be a UNIX user identifier or a Windows security identifier. For multi-user quota, this parameter can contain multiple user targets separated by a comma.
uuid	string	Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.
volume	volume	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage shelves

Storage shelves endpoint overview

Retrieving storage shelf information

The storage shelf GET API retrieves all of the shelves in the cluster.

Examples

1) Retrieve a list of shelves from the cluster

The following example shows the response with a list of shelves in the cluster:

```
# The API:
/api/storage/shelves

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/shelves" -H "accept:
application/hal+json"

# The response:
```

```
{
"records": [
  {
    "uid": "3109174803597886800",
    "_links": {
      "self": {
        "href": "/api/storage/shelves/3109174803597886800"
      }
    }
  },
  {
    "uid": "9237728366621690448",
    "_links": {
      "self": {
        "href": "/api/storage/shelves/9237728366621690448"
      }
    }
  },
  {
    "uid": "9946762738829886800",
    "_links": {
      "self": {
        "href": "/api/storage/shelves/9946762738829886800"
      }
    }
  },
  {
    "uid": "10318311901725526608",
    "_links": {
      "self": {
        "href": "/api/storage/shelves/10318311901725526608"
      }
    }
  },
  {
    "uid": "13477584846688355664",
    "_links": {
      "self": {
        "href": "/api/storage/shelves/13477584846688355664"
      }
    }
  }
],
"num_records": 5,
"_links": {
  "self": {
```

```
    "href": "/api/storage/shelves/"
  }
}
}
```

2) Retrieve a specific shelf from the cluster

The following example shows the response of the requested shelf. If there is no shelf with the requested uid, an error is returned.

```
# The API:
/api/storage/shelves/{uid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/shelves/3109174803597886800" -H
"accept: application/hal+json"

# The response:
{
"uid": "3109174803597886800",
"name": "6.10",
"id": "10",
"serial_number": "SHU0954292N0HAH",
"model": "DS4246",
"module_type": "iom6",
"internal": false,
"local": true,
"manufacturer": {
  "name": "NETAPP"
},
"state": "ok",
"connection_type": "sas",
"disk_count": 24,
"location_led": "off",
"paths": [
  {
    "name": "0e",
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
```

```
00a0985a72ee"
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0e"
      }
    }
  },
  {
    "name": "0g",
    "node": {
      "uuid": "0530d6c1-8c6d-11e8-907f-00a0985a72ee",
      "name": "node-1",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/0530d6c1-8c6d-11e8-907f-
00a0985a72ee"
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/ports/0530d6c1-8c6d-11e8-907f-
00a0985a72ee/0g"
      }
    }
  }
],
"bays": [
  {
    "id": 0,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 1,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 2,
```

```
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 3,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 4,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 5,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 6,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 7,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 8,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 9,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
```

```
  {
    "id": 10,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 11,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 12,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 13,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 14,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 15,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 16,
    "has_disk": true,
    "type": "single_disk",
    "state": "ok"
  },
  {
    "id": 17,
    "has_disk": true,
    "type": "single_disk",
```

```
      "state": "ok"
    },
    {
      "id": 18,
      "has_disk": true,
      "type": "single_disk",
      "state": "ok"
    },
    {
      "id": 19,
      "has_disk": true,
      "type": "single_disk",
      "state": "ok"
    },
    {
      "id": 20,
      "has_disk": true,
      "type": "single_disk",
      "state": "ok"
    },
    {
      "id": 21,
      "has_disk": true,
      "type": "single_disk",
      "state": "ok"
    },
    {
      "id": 22,
      "has_disk": true,
      "type": "single_disk",
      "state": "ok"
    },
    {
      "id": 23,
      "has_disk": true,
      "type": "single_disk",
      "state": "ok"
    }
  ],
  "frus": [
    {
      "type": "module",
      "id": 0,
      "state": "ok",
      "part_number": "111-00690+B2",
      "serial_number": "8001900099",
```

```
    "firmware_version": "0191",
    "installed": true
  },
  {
    "type": "module",
    "id": 1,
    "state": "ok",
    "part_number": "111-00190+B0",
    "serial_number": "7903785183",
    "firmware_version": "0191",
    "installed": true
  },
  {
    "type": "psu",
    "id": 1,
    "state": "ok",
    "part_number": "0082562-12",
    "serial_number": "PMW82562007513E",
    "firmware_version": "0311",
    "installed": true,
    "psu": {
      "model": "9C"
    }
  },
  {
    "type": "psu",
    "id": 2,
    "state": "ok",
    "part_number": "0082562-12",
    "serial_number": "PMW825620075138",
    "firmware_version": "0311",
    "installed": true,
    "psu": {
      "model": "9C"
    }
  },
  {
    "type": "psu",
    "id": 3,
    "state": "ok",
    "part_number": "0082562-12",
    "serial_number": "PMW8256200750BA",
    "firmware_version": "0311",
    "installed": true,
    "psu": {
      "model": "9C"
```

```
    }
  },
  {
    "type": "psu",
    "id": 4,
    "state": "ok",
    "part_number": "0082562-12",
    "serial_number": "PMW8256200750A2",
    "firmware_version": "0311",
    "installed": true,
    "psu": {
      "model": "9C"
    }
  }
],
"ports": [
  {
    "id": 0,
    "module_id": "a",
    "designator": "square",
    "state": "connected",
    "internal": false,
    "wwn": "500A098000C9EDBF",
    "cable": {
      "identifier": "5001086000702488-500a098000c9edbf",
      "part_number": "112-00430+A0",
      "length": "2m",
      "serial_number": "APF16510229807"
    },
    "remote": {
      "wwn": "5001086000702488",
      "phy": "08"
    }
  },
  {
    "id": 1,
    "module_id": "a",
    "designator": "circle",
    "state": "connected",
    "internal": false,
    "wwn": "500A098000C9EDBF",
    "cable": {
      "identifier": "500a098000d5c4bf-500a098000c9edbf",
      "part_number": "112-00176+A0",
      "length": "0.5-1.0m",
      "serial_number": "APF133917610YT"
```

```
    },
    "remote": {
      "wwn": "500A098000D5C4BF",
      "phy": "00"
    }
  },
  {
    "id": 2,
    "module_id": "b",
    "designator": "square",
    "state": "connected",
    "internal": false,
    "wwn": "500A098004F208BF",
    "cable": {
      "identifier": "5001086000702648-500a098004f208bf",
      "part_number": "112-00430+A0",
      "length": "2m",
      "serial_number": "APF16510229540"
    },
    "remote": {
      "wwn": "5001086000702648",
      "phy": "08"
    }
  },
  {
    "id": 3,
    "module_id": "b",
    "designator": "circle",
    "state": "connected",
    "internal": false,
    "wwn": "500A098004F208BF",
    "cable": {
      "identifier": "500a0980062ba33f-500a098004f208bf",
      "part_number": "112-00176+20",
      "length": "0.5-1.0m",
      "serial_number": "832210017"
    },
    "remote": {
      "wwn": "500A0980062BA33F",
      "phy": "00"
    }
  }
],
"fans": [
  {
    "id": 1,
```

```
    "location": "rear of the shelf on the upper left power supply",
    "rpm": 3150,
    "state": "ok"
  },
  {
    "id": 2,
    "location": "rear of the shelf on the upper left power supply",
    "rpm": 3000,
    "state": "ok"
  },
  {
    "id": 3,
    "location": "rear of the shelf on the upper right power supply",
    "rpm": 3220,
    "state": "ok"
  },
  {
    "id": 4,
    "location": "rear of the shelf on the upper right power supply",
    "rpm": 3000,
    "state": "ok"
  },
  {
    "id": 5,
    "location": "rear of the shelf on the lower left power supply",
    "rpm": 3000,
    "state": "ok"
  },
  {
    "id": 6,
    "location": "rear of the shelf on the lower left power supply",
    "rpm": 3150,
    "state": "ok"
  },
  {
    "id": 7,
    "location": "rear of the shelf on the lower right power supply",
    "rpm": 3150,
    "state": "ok"
  },
  {
    "id": 8,
    "location": "rear of the shelf on the lower right power supply",
    "rpm": 3000,
    "state": "ok"
  }
```

```
],
"temperature_sensors": [
  {
    "id": 1,
    "location": "front of the shelf on the left, on the OPS panel",
    "temperature": 20,
    "ambient": true,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 42,
        "warning": 40
      },
      "low": {
        "critical": 0,
        "warning": 5
      }
    }
  },
  {
    "id": 2,
    "location": "inside of the shelf on the midplane",
    "temperature": 29,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 55,
        "warning": 50
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 3,
    "location": "rear of the shelf on the upper left power supply",
    "temperature": 33,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 55,
        "warning": 50
```

```
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 4,
    "location": "rear of the shelf on the upper left power supply",
    "temperature": 41,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 70,
        "warning": 65
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 5,
    "location": "rear of the shelf on the upper right power supply",
    "temperature": 32,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 55,
        "warning": 50
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 6,
    "location": "rear of the shelf on the upper right power supply",
    "temperature": 41,
    "ambient": false,
```

```
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 70,
        "warning": 65
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 7,
    "location": "rear of the shelf on the lower left power supply",
    "temperature": 34,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 55,
        "warning": 50
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 8,
    "location": "rear of the shelf on the lower left power supply",
    "temperature": 45,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 70,
        "warning": 65
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
```

```
  {
    "id": 9,
    "location": "rear of the shelf on the lower right power supply",
    "temperature": 30,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 55,
        "warning": 50
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 10,
    "location": "rear of the shelf on the lower right power supply",
    "temperature": 40,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 70,
        "warning": 65
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 11,
    "location": "rear of the shelf at the top left, on shelf module A",
    "temperature": 30,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 60,
        "warning": 55
      },
      "low": {
```

```
        "critical": 5,
        "warning": 10
      }
    }
  },
  {
    "id": 12,
    "location": "rear of the shelf at the top right, on shelf module B",
    "temperature": 33,
    "ambient": false,
    "state": "ok",
    "threshold": {
      "high": {
        "critical": 60,
        "warning": 55
      },
      "low": {
        "critical": 5,
        "warning": 10
      }
    }
  }
],
"voltage_sensors": [
  {
    "id": 1,
    "location": "rear of the shelf on the upper left power supply",
    "voltage": 5.11,
    "state": "ok"
  },
  {
    "id": 2,
    "location": "rear of the shelf on the upper left power supply",
    "voltage": 12.38,
    "state": "ok"
  },
  {
    "id": 3,
    "location": "rear of the shelf on the upper right power supply",
    "voltage": 5.11,
    "state": "ok"
  },
  {
    "id": 4,
    "location": "rear of the shelf on the upper right power supply",
    "voltage": 12.26,
```

```
      "state": "ok"
    },
    {
      "id": 5,
      "location": "rear of the shelf on the lower left power supply",
      "voltage": 5.7,
      "state": "ok"
    },
    {
      "id": 6,
      "location": "rear of the shelf on the lower left power supply",
      "voltage": 12.26,
      "state": "ok"
    },
    {
      "id": 7,
      "location": "rear of the shelf on the lower right power supply",
      "voltage": 5.15,
      "state": "ok"
    },
    {
      "id": 8,
      "location": "rear of the shelf on the lower right power supply",
      "voltage": 12.3,
      "state": "ok"
    }
  ],
  "current_sensors": [
    {
      "id": 1,
      "location": "rear of the shelf on the upper left power supply",
      "current": 6990,
      "state": "ok"
    },
    {
      "id": 2,
      "location": "rear of the shelf on the upper left power supply",
      "current": 5150,
      "state": "ok"
    },
    {
      "id": 3,
      "location": "rear of the shelf on the upper right power supply",
      "current": 4600,
      "state": "ok"
    },
```

```
    {
      "id": 4,
      "location": "rear of the shelf on the upper right power supply",
      "current": 4800,
      "state": "ok"
    },
    {
      "id": 5,
      "location": "rear of the shelf on the lower left power supply",
      "current": 4140,
      "state": "ok"
    },
    {
      "id": 6,
      "location": "rear of the shelf on the lower left power supply",
      "current": 7770,
      "state": "ok"
    },
    {
      "id": 7,
      "location": "rear of the shelf on the lower right power supply",
      "current": 4140,
      "state": "ok"
    },
    {
      "id": 8,
      "location": "rear of the shelf on the lower right power supply",
      "current": 4720,
      "state": "ok"
    }
  ],
  "acps": [
    {
      "enabled": true,
      "channel": "in_band",
      "connection_state": "active",
      "node": {
        "uuid": "cf62d23c-6100-11eb-9852-00a098fd725d",
        "name": "cat33-01",
        "_links": {
          "self": {
            "href": "/api/cluster/nodes/cf62d23c-6100-11eb-9852-
00a098fd725d"
          }
        }
      }
```

```
  },
  {
    "enabled": true,
    "channel": "in_band",
    "connection_state": "active",
    "node": {
      "uuid": "d0892dd7-6100-11eb-9cdb-d039ea010238",
      "name": "cat33-02",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/d0892dd7-6100-11eb-9cdb-
d039ea010238"
        }
      }
    }
  }
],
"_links": {
  "self": {
    "href": "/api/storage/shelves/3109174803597886800"
  }
}
}
```

Modifying storage shelf

The storage shelf PATCH API modifies the shelf location LED.

Example

```
# The API:
/api/storage/shelves

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/shelves/3109174803597886800"
-H "accept: application/hal+json" -H "Content-Type: application/hal+json"
-d '{"location_led": "on"}'

# The response:
{
}
```

Retrieve shelves

GET `/storage/shelves`

Introduced In: 9.6

Retrieves a collection of shelves.

Related ONTAP commands

- `storage shelf show`
- `storage shelf port show`
- `storage shelf drawer show`
- `storage shelf acp show`

Learn more

- DOC /storage/shelves

Parameters

Name	Type	In	Required	Description
bays.id	integer	query	False	Filter by bays.id
bays.state	string	query	False	Filter by bays.state
bays.has_disk	boolean	query	False	Filter by bays.has_disk
bays.type	string	query	False	Filter by bays.type

Name	Type	In	Required	Description
local	boolean	query	False	Filter by local • Introduced in: 9.8
location_led	string	query	False	Filter by location_led • Introduced in: 9.10
current_sensors.id	integer	query	False	Filter by current_sensors.id • Introduced in: 9.10
current_sensors.current	integer	query	False	Filter by current_sensors.current • Introduced in: 9.10
current_sensors.state	string	query	False	Filter by current_sensors.state • Introduced in: 9.10
current_sensors.location	string	query	False	Filter by current_sensors.location • Introduced in: 9.10
voltage_sensors.id	integer	query	False	Filter by voltage_sensors.id • Introduced in: 9.10
voltage_sensors.state	string	query	False	Filter by voltage_sensors.state • Introduced in: 9.10

Name	Type	In	Required	Description
voltage_sensors.voltage	number	query	False	Filter by voltage_sensors.voltage • Introduced in: 9.10
voltage_sensors.location	string	query	False	Filter by voltage_sensors.location • Introduced in: 9.10
errors.reason.arguments.message	string	query	False	Filter by errors.reason.arguments.message • Introduced in: 9.10
errors.reason.arguments.code	string	query	False	Filter by errors.reason.arguments.code • Introduced in: 9.10
errors.reason.message	string	query	False	Filter by errors.reason.message • Introduced in: 9.9
errors.reason.code	string	query	False	Filter by errors.reason.code • Introduced in: 9.9
errors.reason.target	string	query	False	Filter by errors.reason.target • Introduced in: 9.10
state	string	query	False	Filter by state

Name	Type	In	Required	Description
temperature_sensors.state	string	query	False	Filter by temperature_sensors.state • Introduced in: 9.10
temperature_sensors.threshold.high.warning	integer	query	False	Filter by temperature_sensors.threshold.high.warning • Introduced in: 9.10
temperature_sensors.threshold.high.critical	integer	query	False	Filter by temperature_sensors.threshold.high.critical • Introduced in: 9.10
temperature_sensors.threshold.low.critical	integer	query	False	Filter by temperature_sensors.threshold.low.critical • Introduced in: 9.10
temperature_sensors.threshold.low.warning	integer	query	False	Filter by temperature_sensors.threshold.low.warning • Introduced in: 9.10
temperature_sensors.temperature	integer	query	False	Filter by temperature_sensors.temperature • Introduced in: 9.10

Name	Type	In	Required	Description
temperature_sensors.id	integer	query	False	Filter by temperature_sensors.id • Introduced in: 9.10
temperature_sensors.ambient	boolean	query	False	Filter by temperature_sensors.ambient • Introduced in: 9.10
temperature_sensors.location	string	query	False	Filter by temperature_sensors.location • Introduced in: 9.10
paths.node.uuid	string	query	False	Filter by paths.node.uuid
paths.node.name	string	query	False	Filter by paths.node.name
paths.name	string	query	False	Filter by paths.name
frus.state	string	query	False	Filter by frus.state
frus.installed	boolean	query	False	Filter by frus.installed • Introduced in: 9.10
frus.id	integer	query	False	Filter by frus.id
frus.firmware_version	string	query	False	Filter by frus.firmware_version
frus.serial_number	string	query	False	Filter by frus.serial_number

Name	Type	In	Required	Description
frus.psu.power_drawn	integer	query	False	Filter by frus.psu.power_drawn • Introduced in: 9.10
frus.psu.model	string	query	False	Filter by frus.psu.model • Introduced in: 9.10
frus.psu.power_rating	integer	query	False	Filter by frus.psu.power_rating • Introduced in: 9.10
frus.psu.crest_factor	integer	query	False	Filter by frus.psu.crest_factor • Introduced in: 9.10
frus.type	string	query	False	Filter by frus.type
frus.part_number	string	query	False	Filter by frus.part_number
connection_type	string	query	False	Filter by connection_type
module_type	string	query	False	Filter by module_type
vendor.serial_number	string	query	False	Filter by vendor.serial_number • Introduced in: 9.8

Name	Type	In	Required	Description
vendor.manufacturer	string	query	False	Filter by vendor.manufacturer • Introduced in: 9.8
vendor.part_number	string	query	False	Filter by vendor.part_number • Introduced in: 9.8
vendor.product	string	query	False	Filter by vendor.product • Introduced in: 9.8
vendor.name	string	query	False	Filter by vendor.name • Introduced in: 9.10
acps.channel	string	query	False	Filter by acps.channel • Introduced in: 9.10
acps.address	string	query	False	Filter by acps.address • Introduced in: 9.10
acps.subnet	string	query	False	Filter by acps.subnet • Introduced in: 9.10
acps.node.uuid	string	query	False	Filter by acps.node.uuid • Introduced in: 9.10

Name	Type	In	Required	Description
acps.node.name	string	query	False	Filter by acps.node.name • Introduced in: 9.10
acps.netmask	string	query	False	Filter by acps.netmask • Introduced in: 9.10
acps.port	string	query	False	Filter by acps.port • Introduced in: 9.10
acps.enabled	boolean	query	False	Filter by acps.enabled • Introduced in: 9.10
acps.error.type	string	query	False	Filter by acps.error.type • Introduced in: 9.10
acps.error.reason.arguments.message	string	query	False	Filter by acps.error.reason.arguments.message • Introduced in: 9.10
acps.error.reason.arguments.code	string	query	False	Filter by acps.error.reason.arguments.code • Introduced in: 9.10
acps.error.reason.message	string	query	False	Filter by acps.error.reason.message • Introduced in: 9.10

Name	Type	In	Required	Description
acps.error.reason.code	string	query	False	Filter by acps.error.reason.code • Introduced in: 9.10
acps.error.reason.target	string	query	False	Filter by acps.error.reason.target • Introduced in: 9.10
acps.error.severity	string	query	False	Filter by acps.error.severity • Introduced in: 9.10
acps.connection_state	string	query	False	Filter by acps.connection_state • Introduced in: 9.10
uid	string	query	False	Filter by uid
fans.id	integer	query	False	Filter by fans.id • Introduced in: 9.9
fans.state	string	query	False	Filter by fans.state • Introduced in: 9.9
fans.rpm	integer	query	False	Filter by fans.rpm • Introduced in: 9.9
fans.location	string	query	False	Filter by fans.location • Introduced in: 9.9

Name	Type	In	Required	Description
model	string	query	False	Filter by model
name	string	query	False	Filter by name
drawers.serial_number	string	query	False	Filter by drawers.serial_number
drawers.error	string	query	False	Filter by drawers.error
drawers.part_number	string	query	False	Filter by drawers.part_number
drawers.disk_count	integer	query	False	Filter by drawers.disk_count
drawers.id	integer	query	False	Filter by drawers.id
drawers.closed	boolean	query	False	Filter by drawers.closed
drawers.state	string	query	False	Filter by drawers.state
ports.cable.part_number	string	query	False	Filter by ports.cable.part_number
ports.cable.identifier	string	query	False	Filter by ports.cable.identifier
ports.cable.serial_number	string	query	False	Filter by ports.cable.serial_number
ports.cable.length	string	query	False	Filter by ports.cable.length
ports.module_id	string	query	False	Filter by ports.module_id
ports.state	string	query	False	Filter by ports.state

Name	Type	In	Required	Description
ports.internal	boolean	query	False	Filter by ports.internal
ports.id	integer	query	False	Filter by ports.id
ports.wwn	string	query	False	Filter by ports.wwn
ports.designator	string	query	False	Filter by ports.designator
ports.remote.chassis	string	query	False	Filter by ports.remote.chassis
ports.remote.wwn	string	query	False	Filter by ports.remote.wwn
ports.remote.phy	string	query	False	Filter by ports.remote.phy
ports.remote.mac_address	string	query	False	Filter by ports.remote.mac_address
ports.remote.port	string	query	False	Filter by ports.remote.port
ports.remote.device	string	query	False	Filter by ports.remote.device • Introduced in: 9.8
ports.mac_address	string	query	False	Filter by ports.mac_address
disk_count	integer	query	False	Filter by disk_count
internal	boolean	query	False	Filter by internal
id	string	query	False	Filter by id
serial_number	string	query	False	Filter by serial_number

Name	Type	In	Required	Description
manufacturer.name	string	query	False	Filter by manufacturer.name • Introduced in: 9.10
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[shelf]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "acps": [
        {
          "address": "192.168.1.104",
          "channel": "out_of_band",
          "connection_state": "full_connectivity",
          "error": {
            "reason": {
              "arguments": [
                {
                  "code": "string",
                  "message": "string"
                }
              ],
              "code": "4",
              "message": "entry doesn't exist",
              "target": "uuid"
            },
            "severity": "string",
            "type": "string"
          },
          "netmask": "255.255.252.0",
          "node": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "node1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          },
          "port": "e0P",
          "subnet": "192.168.0.1"
        }
```

```
      ],
      "bays": [
        {
          "id": 0,
          "state": "ok",
          "type": "single_disk"
        }
      ],
      "connection_type": "sas",
      "current_sensors": [
        {
          "current": 14410,
          "id": 1,
          "location": "rear of the shelf on the lower left power
supply",
          "state": "ok"
        }
      ],
      "disk_count": 12,
      "drawers": [
        {
          "disk_count": 12,
          "error": "string",
          "part_number": "111-03071",
          "serial_number": "021604008263",
          "state": "ok"
        }
      ],
      "errors": [
        {
          "reason": {
            "arguments": [
              {
                "code": "string",
                "message": "string"
              }
            ],
            "code": "4",
            "message": "entry doesn't exist",
            "target": "uuid"
          }
        }
      ],
      "fans": [
        {
          "id": 1,
```

```
          "location": "rear of the shelf on the lower left power
supply",
          "rpm": 3020,
          "state": "ok"
        }
      ],
      "frus": [
        {
          "firmware_version": "0191",
          "installed": 1,
          "part_number": "111-00690+A2",
          "psu": {
            "crest_factor": 92,
            "model": "00",
            "power_drawn": 210,
            "power_rating": 1600
          },
          "serial_number": "8000166294",
          "state": "error",
          "type": "module"
        }
      ],
      "id": "1",
      "location_led": "off",
      "manufacturer": {
        "name": "NETAPP"
      },
      "model": "DS2246",
      "module_type": "iom6",
      "name": "1.1",
      "paths": [
        {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "2a",
          "node": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "node1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
```

```
        }
      }
    ],
    "ports": [
      {
        "cable": {
          "identifier": "500a0980000b6c3f-50000d1703544b80",
          "length": "2m",
          "part_number": "112-00431+A0",
          "serial_number": "616930439"
        },
        "designator": "square",
        "id": 0,
        "mac_address": "string",
        "module_id": "a",
        "remote": {
          "chassis": "string",
          "device": "string",
          "mac_address": "string",
          "phy": "12",
          "port": "string",
          "wwn": "50000D1703544B80"
        },
        "state": "connected",
        "wwn": "500A0980000B6C3F"
      }
    ],
    "serial_number": "SHFMS1514000895",
    "state": "ok",
    "temperature_sensors": [
      {
        "ambient": "",
        "id": 1,
        "location": "temp sensor on midplane left",
        "state": "ok",
        "temperature": 32,
        "threshold": {
          "high": {
            "critical": 60,
            "warning": 55
          },
          "low": {
            "critical": 0,
            "warning": 5
          }
        }
```

```
        }
      ],
      "uid": "7777841915827391056",
      "vendor": {
        "manufacturer": "XYZ",
        "name": "XYZ",
        "part_number": "A92831142733",
        "product": "LS2246",
        "serial_number": "891234572210221"
      },
      "voltage_sensors": [
        {
          "id": 1,
          "location": "rear of the shelf on the lower left power
supply",
          "state": "ok",
          "voltage": "12.18"
        }
      ]
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

error

Error object is populated when connection_state becomes non-optimal

Name	Type	Description
reason	error	
severity	string	
type	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

acps

Name	Type	Description
address	string	
channel	string	
connection_state	string	
enabled	boolean	
error	error	Error object is populated when connection_state becomes non-optimal
netmask	string	
node	node	
port	string	
subnet	string	

bays

Name	Type	Description
has_disk	boolean	
id	integer	
state	string	
type	string	

current_sensors

Name	Type	Description
current	integer	Current, in milliamps
id	integer	
location	string	

Name	Type	Description
state	string	

drawers

Name	Type	Description
closed	boolean	
disk_count	integer	
error	string	
id	integer	
part_number	string	
serial_number	string	
state	string	

errors

Name	Type	Description
reason	error	

fans

Name	Type	Description
id	integer	
location	string	
rpm	integer	
state	string	

psu

Name	Type	Description
crest_factor	integer	The ratio of the peak voltage to the root-mean-square voltage
model	string	
power_drawn	integer	Power drawn, in watts
power_rating	integer	Power rating, in watts

frus

Name	Type	Description
firmware_version	string	
id	integer	
installed	boolean	
part_number	string	
psu	psu	
serial_number	string	
state	string	
type	string	

manufacturer

Name	Type	Description
name	string	

paths

Storage port

Name	Type	Description
_links	_links	
name	string	
node	node	

cable

Name	Type	Description
identifier	string	
length	string	
part_number	string	
serial_number	string	

remote

Name	Type	Description
chassis	string	
device	string	
mac_address	string	
phy	string	
port	string	

Name	Type	Description
wwn	string	

ports

Name	Type	Description
cable	cable	
designator	string	
id	integer	
internal	boolean	
mac_address	string	
module_id	string	
remote	remote	
state	string	
wwn	string	

high

Name	Type	Description
critical	integer	High critical threshold, in degrees Celsius
warning	integer	High warning threshold, in degrees Celsius

low

Name	Type	Description
critical	integer	Low critical threshold, in degrees Celsius
warning	integer	Low warning threshold, in degrees Celsius

threshold

Name	Type	Description
high	high	
low	low	

temperature_sensors

Name	Type	Description
ambient	boolean	Sensor that measures the ambient temperature
id	integer	
location	string	
state	string	
temperature	integer	Temperature, in degrees Celsius
threshold	threshold	

vendor

Name	Type	Description
manufacturer	string	Support for this field will be removed in a future release. Please use vendor.name for this field.
name	string	
part_number	string	Part number
product	string	Product name
serial_number	string	Serial number

voltage_sensors

Name	Type	Description
id	integer	
location	string	
state	string	
voltage	number	Voltage, in volts

shelf

Name	Type	Description
acps	array[acps]	Alternate Control Paths to ACP processors/functions in shelf modules and expanders
bays	array[bays]	

Name	Type	Description
connection_type	string	
current_sensors	array[current_sensors]	
disk_count	integer	
drawers	array[drawers]	
errors	array[errors]	
fans	array[fans]	
frus	array[frus]	
id	string	
internal	boolean	
local	boolean	
location_led	string	
manufacturer	manufacturer	
model	string	
module_type	string	
name	string	
paths	array[paths]	
ports	array[ports]	
serial_number	string	
state	string	
temperature_sensors	array[temperature_sensors]	
uid	string	
vendor	vendor	
voltage_sensors	array[voltage_sensors]	

Retrieve a shelf

GET `/storage/shelves/{uid}`

Introduced In: 9.6

Retrieves a specific shelf.

Related ONTAP commands

- `storage shelf show`
- `storage shelf port show`
- `storage shelf drawer show`

- `storage shelf acp show`

Learn more

- DOC /storage/shelves

Parameters

Name	Type	In	Required	Description
uid	string	path	True	Shelf UID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
acps	array[acps]	Alternate Control Paths to ACP processors/functions in shelf modules and expanders
bays	array[bays]	
connection_type	string	
current_sensors	array[current_sensors]	
disk_count	integer	
drawers	array[drawers]	
errors	array[errors]	
fans	array[fans]	
frus	array[frus]	
id	string	
internal	boolean	
local	boolean	
location_led	string	
manufacturer	manufacturer	
model	string	
module_type	string	
name	string	

Name	Type	Description
paths	array[paths]	
ports	array[ports]	
serial_number	string	
state	string	
temperature_sensors	array[temperature_sensors]	
uid	string	
vendor	vendor	
voltage_sensors	array[voltage_sensors]	

Example response


```
{
  "acps": [
    {
      "address": "192.168.1.104",
      "channel": "out_of_band",
      "connection_state": "full_connectivity",
      "error": {
        "reason": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        },
        "severity": "string",
        "type": "string"
      },
      "netmask": "255.255.252.0",
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "port": "e0P",
      "subnet": "192.168.0.1"
    }
  ],
  "bays": [
    {
      "id": 0,
      "state": "ok",
      "type": "single_disk"
    }
  ],
  "connection_type": "sas",
  "current_sensors": [
```

```
    {
      "current": 14410,
      "id": 1,
      "location": "rear of the shelf on the lower left power supply",
      "state": "ok"
    }
  ],
  "disk_count": 12,
  "drawers": [
    {
      "disk_count": 12,
      "error": "string",
      "part_number": "111-03071",
      "serial_number": "021604008263",
      "state": "ok"
    }
  ],
  "errors": [
    {
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      }
    }
  ],
  "fans": [
    {
      "id": 1,
      "location": "rear of the shelf on the lower left power supply",
      "rpm": 3020,
      "state": "ok"
    }
  ],
  "frus": [
    {
      "firmware_version": "0191",
      "installed": 1,
      "part_number": "111-00690+A2",
      "psu": {
```

```
        "crest_factor": 92,
        "model": "00",
        "power_drawn": 210,
        "power_rating": 1600
      },
      "serial_number": "8000166294",
      "state": "error",
      "type": "module"
    }
  ],
  "id": "1",
  "location_led": "off",
  "manufacturer": {
    "name": "NETAPP"
  },
  "model": "DS2246",
  "module_type": "iom6",
  "name": "1.1",
  "paths": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "2a",
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "ports": [
    {
      "cable": {
        "identifier": "500a0980000b6c3f-50000d1703544b80",
        "length": "2m",
        "part_number": "112-00431+A0",
        "serial_number": "616930439"
      },
      "designator": "square",
```

```
      "id": 0,
      "mac_address": "string",
      "module_id": "a",
      "remote": {
        "chassis": "string",
        "device": "string",
        "mac_address": "string",
        "phy": "12",
        "port": "string",
        "wwn": "50000D1703544B80"
      },
      "state": "connected",
      "wwn": "500A0980000B6C3F"
    }
  ],
  "serial_number": "SHFMS1514000895",
  "state": "ok",
  "temperature_sensors": [
    {
      "ambient": "",
      "id": 1,
      "location": "temp sensor on midplane left",
      "state": "ok",
      "temperature": 32,
      "threshold": {
        "high": {
          "critical": 60,
          "warning": 55
        },
        "low": {
          "critical": 0,
          "warning": 5
        }
      }
    }
  ],
  "uid": "77778419158273910 56",
  "vendor": {
    "manufacturer": "XYZ",
    "name": "XYZ",
    "part_number": "A92831142733",
    "product": "LS2246",
    "serial_number": "891234572210221"
  },
  "voltage_sensors": [
    {
```

```
      "id": 1,
      "location": "rear of the shelf on the lower left power supply",
      "state": "ok",
      "voltage": "12.18"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

error

Error object is populated when connection_state becomes non-optimal

Name	Type	Description
reason	error	
severity	string	
type	string	

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	

Name	Type	Description
name	string	
uuid	string	

acps

Name	Type	Description
address	string	
channel	string	
connection_state	string	
enabled	boolean	
error	error	Error object is populated when connection_state becomes non-optimal
netmask	string	
node	node	
port	string	
subnet	string	

bays

Name	Type	Description
has_disk	boolean	
id	integer	
state	string	
type	string	

current_sensors

Name	Type	Description
current	integer	Current, in milliamps
id	integer	
location	string	
state	string	

drawers

Name	Type	Description
closed	boolean	

Name	Type	Description
disk_count	integer	
error	string	
id	integer	
part_number	string	
serial_number	string	
state	string	

errors

Name	Type	Description
reason	error	

fans

Name	Type	Description
id	integer	
location	string	
rpm	integer	
state	string	

psu

Name	Type	Description
crest_factor	integer	The ratio of the peak voltage to the root-mean-square voltage
model	string	
power_drawn	integer	Power drawn, in watts
power_rating	integer	Power rating, in watts

frus

Name	Type	Description
firmware_version	string	
id	integer	
installed	boolean	
part_number	string	
psu	psu	

Name	Type	Description
serial_number	string	
state	string	
type	string	

manufacturer

Name	Type	Description
name	string	

paths

Storage port

Name	Type	Description
_links	_links	
name	string	
node	node	

cable

Name	Type	Description
identifier	string	
length	string	
part_number	string	
serial_number	string	

remote

Name	Type	Description
chassis	string	
device	string	
mac_address	string	
phy	string	
port	string	
wwn	string	

ports

Name	Type	Description
cable	cable	

Name	Type	Description
designator	string	
id	integer	
internal	boolean	
mac_address	string	
module_id	string	
remote	remote	
state	string	
wwn	string	

high

Name	Type	Description
critical	integer	High critical threshold, in degrees Celsius
warning	integer	High warning threshold, in degrees Celsius

low

Name	Type	Description
critical	integer	Low critical threshold, in degrees Celsius
warning	integer	Low warning threshold, in degrees Celsius

threshold

Name	Type	Description
high	high	
low	low	

temperature_sensors

Name	Type	Description
ambient	boolean	Sensor that measures the ambient temperature
id	integer	

Name	Type	Description
location	string	
state	string	
temperature	integer	Temperature, in degrees Celsius
threshold	threshold	

vendor

Name	Type	Description
manufacturer	string	Support for this field will be removed in a future release. Please use vendor.name for this field.
name	string	
part_number	string	Part number
product	string	Product name
serial_number	string	Serial number

voltage_sensors

Name	Type	Description
id	integer	
location	string	
state	string	
voltage	number	Voltage, in volts

Update a shelf location LED

PATCH `/storage/shelves/{uid}`

Introduced In: 9.10

Updates a shelf location LED.

Related ONTAP commands

- `storage shelf location-led modify`

Learn more

- DOC /storage/shelves

Parameters

Name	Type	In	Required	Description
uid	string	path	True	Shelf UID

Request Body

Name	Type	Description
acps	array[acps]	Alternate Control Paths to ACP processors/functions in shelf modules and expanders
bays	array[bays]	
connection_type	string	
current_sensors	array[current_sensors]	
disk_count	integer	
drawers	array[drawers]	
errors	array[errors]	
fans	array[fans]	
frus	array[frus]	
id	string	
internal	boolean	
local	boolean	
location_led	string	
manufacturer	manufacturer	
model	string	
module_type	string	
name	string	
paths	array[paths]	
ports	array[ports]	
serial_number	string	
state	string	
temperature_sensors	array[temperature_sensors]	
uid	string	

Name	Type	Description
vendor	vendor	
voltage_sensors	array[voltage_sensors]	

Example request


```
{
  "acps": [
    {
      "address": "192.168.1.104",
      "channel": "out_of_band",
      "connection_state": "full_connectivity",
      "error": {
        "reason": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        },
        "severity": "string",
        "type": "string"
      },
      "netmask": "255.255.252.0",
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "port": "e0P",
      "subnet": "192.168.0.1"
    }
  ],
  "bays": [
    {
      "id": 0,
      "state": "ok",
      "type": "single_disk"
    }
  ],
  "connection_type": "sas",
  "current_sensors": [
```

```
    {
      "current": 14410,
      "id": 1,
      "location": "rear of the shelf on the lower left power supply",
      "state": "ok"
    }
  ],
  "disk_count": 12,
  "drawers": [
    {
      "disk_count": 12,
      "error": "string",
      "part_number": "111-03071",
      "serial_number": "021604008263",
      "state": "ok"
    }
  ],
  "errors": [
    {
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      }
    }
  ],
  "fans": [
    {
      "id": 1,
      "location": "rear of the shelf on the lower left power supply",
      "rpm": 3020,
      "state": "ok"
    }
  ],
  "frus": [
    {
      "firmware_version": "0191",
      "installed": 1,
      "part_number": "111-00690+A2",
      "psu": {
```

```
        "crest_factor": 92,
        "model": "00",
        "power_drawn": 210,
        "power_rating": 1600
      },
      "serial_number": "8000166294",
      "state": "error",
      "type": "module"
    }
  ],
  "id": "1",
  "location_led": "off",
  "manufacturer": {
    "name": "NETAPP"
  },
  "model": "DS2246",
  "module_type": "iom6",
  "name": "1.1",
  "paths": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "2a",
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "ports": [
    {
      "cable": {
        "identifier": "500a0980000b6c3f-50000d1703544b80",
        "length": "2m",
        "part_number": "112-00431+A0",
        "serial_number": "616930439"
      },
      "designator": "square",
```

```
      "id": 0,
      "mac_address": "string",
      "module_id": "a",
      "remote": {
        "chassis": "string",
        "device": "string",
        "mac_address": "string",
        "phy": "12",
        "port": "string",
        "wwn": "50000D1703544B80"
      },
      "state": "connected",
      "wwn": "500A0980000B6C3F"
    }
  ],
  "serial_number": "SHFMS1514000895",
  "state": "ok",
  "temperature_sensors": [
    {
      "ambient": "",
      "id": 1,
      "location": "temp sensor on midplane left",
      "state": "ok",
      "temperature": 32,
      "threshold": {
        "high": {
          "critical": 60,
          "warning": 55
        },
        "low": {
          "critical": 0,
          "warning": 5
        }
      }
    }
  ],
  "uid": "77778419158273910 56",
  "vendor": {
    "manufacturer": "XYZ",
    "name": "XYZ",
    "part_number": "A92831142733",
    "product": "LS2246",
    "serial_number": "891234572210221"
  },
  "voltage_sensors": [
    {
```

```
        "id": 1,
        "location": "rear of the shelf on the lower left power supply",
        "state": "ok",
        "voltage": "12.18"
      }
    ]
  }
```


Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
17825872	Shelf locate request failed because shelf "<name>\" was not found.</name>
17825873	Shelf locate request failed because shelf "<name>\" does not support this command.</name>
17825874	Shelf locate request failed for shelf "<name>\" with an unknown error.</name>
17825875	Shelf locate request failed for shelf "<name>\" because shelf modules are unreachable.</name>

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

error

Error object is populated when connection_state becomes non-optimal

Name	Type	Description
reason	error	
severity	string	
type	string	

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	

Name	Type	Description
name	string	
uuid	string	

acps

Name	Type	Description
address	string	
channel	string	
connection_state	string	
enabled	boolean	
error	error	Error object is populated when connection_state becomes non-optimal
netmask	string	
node	node	
port	string	
subnet	string	

bays

Name	Type	Description
has_disk	boolean	
id	integer	
state	string	
type	string	

current_sensors

Name	Type	Description
current	integer	Current, in milliamps
id	integer	
location	string	
state	string	

drawers

Name	Type	Description
closed	boolean	

Name	Type	Description
disk_count	integer	
error	string	
id	integer	
part_number	string	
serial_number	string	
state	string	

errors

Name	Type	Description
reason	error	

fans

Name	Type	Description
id	integer	
location	string	
rpm	integer	
state	string	

psu

Name	Type	Description
crest_factor	integer	The ratio of the peak voltage to the root-mean-square voltage
model	string	
power_drawn	integer	Power drawn, in watts
power_rating	integer	Power rating, in watts

frus

Name	Type	Description
firmware_version	string	
id	integer	
installed	boolean	
part_number	string	
psu	psu	

Name	Type	Description
serial_number	string	
state	string	
type	string	

manufacturer

Name	Type	Description
name	string	

paths

Storage port

Name	Type	Description
_links	_links	
name	string	
node	node	

cable

Name	Type	Description
identifier	string	
length	string	
part_number	string	
serial_number	string	

remote

Name	Type	Description
chassis	string	
device	string	
mac_address	string	
phy	string	
port	string	
wwn	string	

ports

Name	Type	Description
cable	cable	

Name	Type	Description
designator	string	
id	integer	
internal	boolean	
mac_address	string	
module_id	string	
remote	remote	
state	string	
wwn	string	

high

Name	Type	Description
critical	integer	High critical threshold, in degrees Celsius
warning	integer	High warning threshold, in degrees Celsius

low

Name	Type	Description
critical	integer	Low critical threshold, in degrees Celsius
warning	integer	Low warning threshold, in degrees Celsius

threshold

Name	Type	Description
high	high	
low	low	

temperature_sensors

Name	Type	Description
ambient	boolean	Sensor that measures the ambient temperature
id	integer	

Name	Type	Description
location	string	
state	string	
temperature	integer	Temperature, in degrees Celsius
threshold	threshold	

vendor

Name	Type	Description
manufacturer	string	Support for this field will be removed in a future release. Please use vendor.name for this field.
name	string	
part_number	string	Part number
product	string	Product name
serial_number	string	Serial number

voltage_sensors

Name	Type	Description
id	integer	
location	string	
state	string	
voltage	number	Voltage, in volts

shelf

Name	Type	Description
acps	array[acps]	Alternate Control Paths to ACP processors/functions in shelf modules and expanders
bays	array[bays]	
connection_type	string	
current_sensors	array[current_sensors]	
disk_count	integer	

Name	Type	Description
drawers	array[drawers]	
errors	array[errors]	
fans	array[fans]	
frus	array[frus]	
id	string	
internal	boolean	
local	boolean	
location_led	string	
manufacturer	manufacturer	
model	string	
module_type	string	
name	string	
paths	array[paths]	
ports	array[ports]	
serial_number	string	
state	string	
temperature_sensors	array[temperature_sensors]	
uid	string	
vendor	vendor	
voltage_sensors	array[voltage_sensors]	

Manage Snapshot copy policies

Storage snapshot-policies endpoint overview

Overview

In ONTAP, scheduled Snapshot copy creation works based on Snapshot copy policies. ONTAP provides three cluster-wide Snapshot copy policies: "default", "default-1weekly" and "none". A Snapshot copy policy can have more than one schedule associated with it. A Snapshot copy policy can be linked to a storage object and based on the schedule in the policy, Snapshot copies will be created on the object at that interval. Each schedule in a Snapshot copy policy has a Snapshot copy name prefix attached to it. Every Snapshot copy created using this policy will have this prefix in its name. There is also a retention count associated with every schedule. This count indicates the maximum number of Snapshot copies that can exist for a given schedule. Once the Snapshot copy count reaches the retention count, on the next create operation, the oldest Snapshot copy is deleted.

Snapshot copy policy APIs

The following APIs are used to perform operations related to Snapshot copy policy information:

– POST /api/storage/snapshot-policies

– GET /api/storage/snapshot-policies

– GET /api/storage/snapshot-policies/{uuid}

– PATCH /api/storage/snapshot-policies/{uuid}

– DELETE /api/storage/snapshot-policies/{uuid}

Examples

Creating a Snapshot copy policy

The POST operation is used to create a Snapshot copy policy with the specified attributes.

```
# The API:
/api/storage/snapshot-policies

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/snapshot-policies" -H
"accept: application/hal+json" -d '{"name": "new_policy", "enabled":
"true", "comment": "policy comment", "copies": [{ "schedule": { "name":
"5min" }, "count": "5", "prefix": "xyz" }], "svm": { "name": "vs0"}}'

# The response:
HTTP/1.1 201 Created
Date: Tue, 12 Mar 2019 21:20:24 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Location: /api/storage/snapshot-policies/a69d8173-450c-11e9-aa44-
005056bbc848
Content-Length: 369
Content-Type: application/json
{
"num_records": 1,
"records": [
  {
    "uuid": "a69d8173-450c-11e9-aa44-005056bbc848",
    "svm": {
      "name": "vs0"
    },
    "name": "new_policy",
    "comment": "This is a 5min schedule policy",
    "enabled": true,
    "copies": [
      {
        "count": 5,
        "schedule": {
          "name": "5min"
        }
      }
    ]
  }
]
}
```

Retrieving Snapshot copy policy attributes

The GET operation is used to retrieve Snapshot copy policy attributes.

```
# The API:
/api/storage/snapshot-policies

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/snapshot-policies/" -H "accept:
application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Tue, 12 Mar 2019 21:17:17 GMT
Server: libzapid-http
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 686
Content-Type: application/json
{
"records": [
  {
    "uuid": "0fa7a554-348d-11e9-b55e-005056bbf1c8",
    "name": "spsv0",
    "_links": {
      "self": {
        "href": "/api/storage/snapshot-policies/0fa7a554-348d-11e9-b55e-
005056bbf1c8"
      }
    }
  },
  {
    "uuid": "3c112527-2fe8-11e9-b55e-005056bbf1c8",
    "name": "default",
    "_links": {
      "self": {
        "href": "/api/storage/snapshot-policies/3c112527-2fe8-11e9-b55e-
005056bbf1c8"
      }
    }
  },
  {
    "uuid": "3c1c1656-2fe8-11e9-b55e-005056bbf1c8",
    "name": "default-1weekly",
    "_links": {
      "self": {
        "href": "/api/storage/snapshot-policies/3c1c1656-2fe8-11e9-b55e-
005056bbf1c8"
      }
    }
```

```
  },
  {
    "uuid": "3c228b82-2fe8-11e9-b55e-005056bbf1c8",
    "name": "none",
    "_links": {
      "self": {
        "href": "/api/storage/snapshot-policies/3c228b82-2fe8-11e9-b55e-
005056bbf1c8"
      }
    }
  }
],
"num_records": 4,
"_links": {
  "self": {
    "href": "/api/storage/snapshot-policies/"
  }
}
}
```

Retrieving the attributes of a specific Snapshot copy policy

The GET operation is used to retrieve the attributes of a specific Snapshot copy policy.

```
# The API:
/api/storage/snapshot-policies/{uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/snapshot-policies/3c112527-
2fe8-11e9-b55e-005056bbf1c8" -H "accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Tue, 12 Mar 2019 21:24:48 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 381
Content-Type: application/json
{
"uuid": "3c112527-2fe8-11e9-b55e-005056bbf1c8",
"name": "default",
"comment": "Default policy with hourly, daily & weekly schedules.",
"enabled": true,
"scope": "cluster",
"copies": [
```

```
    {
      "count": 6,
      "prefix": "hourly",
      "schedule": {
        "name": "hourly"
      }
    },
    {
      "count": 2,
      "prefix": "daily",
      "schedule": {
        "name": "daily"
      }
    },
    {
      "count": 2,
      "prefix": "weekly",
      "schedule": {
        "name": "weekly"
      }
    }
  ],
  "_links": {
    "self": {
      "href": "/api/storage/snapshot-policies/3c112527-2fe8-11e9-b55e-
005056bbf1c8"
    }
  }
}
```

Updating a Snapshot copy policy

The PATCH operation is used to update the specific attributes of a Snapshot copy policy.

```
# The API:
/api/storage/snapshot-policies/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/snapshot-policies/ae9e65c4-
4506-11e9-aa44-005056bbc848" -d '{"enabled": "false" }' -H "accept:
application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Tue, 12 Mar 2019 21:27:04 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 3
Content-Type: application/json
```

Deleting a Snapshot copy policy

The DELETE operation is used to delete a Snapshot copy policy.

```
# The API:
/api/storage/snapshot-policies/{uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/snapshot-policies/ae9e65c4-
4506-11e9-aa44-005056bbc848" -H "accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Tue, 12 Mar 2019 21:19:04 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 3
Content-Type: application/json
```

Retrieve Snapshot copy policies

GET `/storage/snapshot-policies`

Introduced In: 9.6

Retrieves a collection of Snapshot copy policies.

Related ONTAP commands

- `snapshot policy show`

Learn more

- DOC /storage/snapshot-policies

Parameters

Name	Type	In	Required	Description
name	string	query	False	Filter by name
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
enabled	boolean	query	False	Filter by enabled
comment	string	query	False	Filter by comment
copies.schedule.name	string	query	False	Filter by copies.schedule.name
copies.prefix	string	query	False	Filter by copies.prefix
copies.count	integer	query	False	Filter by copies.count
copies.snapmirror_label	string	query	False	Filter by copies.snapmirror_label
uuid	string	query	False	Filter by uuid
scope	string	query	False	Filter by scope
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[snapshot_policy]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
      "copies": [
        {
          "prefix": "string",
          "schedule": {
            "name": "hourly"
          },
          "snapmirror_label": "string"
        }
      ],
      "enabled": 1,
      "name": "default",
      "scope": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
name	string	Schedule at which Snapshot copies are captured on the volume. Some common schedules already defined in the system are hourly, daily, weekly, at 15 minute intervals, and at 5 minute intervals. Snapshot copy policies with custom schedules can be referenced.

copies

Name	Type	Description
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	
snapmirror_label	string	Label for SnapMirror operations

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.
uuid	string	The unique identifier of the SVM.

snapshot_policy

The Snapshot copy policy object is associated with a read-write volume used to create and delete Snapshot copies at regular intervals.

Name	Type	Description
_links	_links	
comment	string	A comment associated with the Snapshot copy policy.
copies	array[copies]	
enabled	boolean	Is the Snapshot copy policy enabled?
name	string	Name of the Snapshot copy policy.
scope	string	Set to "svm" when the request is on a data SVM, otherwise set to "cluster".
svm	svm	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code

Name	Type	Description
message	string	Error message
target	string	The target parameter that caused the error.

Create a Snapshot copy policy

POST `/storage/snapshot-policies`

Introduced In: 9.6

Creates a Snapshot copy policy.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create the Snapshot copy policy.
- `name` - Name for the Snapshot copy policy.
- `copies.schedule` - Schedule at which Snapshot copies are captured on the volume.
- `copies.count` - Number of Snapshot copies to maintain for this schedule.

Recommended optional properties

- `copies.prefix` - Prefix to use when creating Snapshot copies at regular intervals.

Default property values

If not specified in POST, the following default property values are assigned:

- `enabled` - *true*
- `copies.prefix` - Value of `schedule.name`

Related ONTAP commands

- `snapshot policy create`

Learn more

- DOC /storage/snapshot-policies

Parameters

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
comment	string	A comment associated with the Snapshot copy policy.
copies	array[copies]	
enabled	boolean	Is the Snapshot copy policy enabled?
name	string	Name of the Snapshot copy policy.
scope	string	Set to "svm" when the request is on a data SVM, otherwise set to "cluster".
svm	svm	
uuid	string	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "copies": [
    {
      "prefix": "string",
      "schedule": {
        "name": "hourly"
      },
      "snapmirror_label": "string"
    }
  ],
  "enabled": 1,
  "name": "default",
  "scope": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```


Response

```
Status: 201, Created
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1638407	When adding schedule to a Snapshot copy policy, the count for that schedule must be specified.
1638408	When adding schedule to a Snapshot copy policy, the schedule name must be specified.
1638413	Schedule not found.
1638417	Specified policy name is invalid.
1638451	This operation would result in total Snapshot copy count for the policy to exceed maximum supported count.
1638508	Another schedule has the same prefix within this policy.
1638526	This operation is not supported on a node Vserver.
1638527	Policy name already exists.
1638528	This operation is not supported in a mixed-version cluster.
1638531	This operation is not supported because specified policy is owned by the cluster admin.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
name	string	Schedule at which Snapshot copies are captured on the volume. Some common schedules already defined in the system are hourly, daily, weekly, at 15 minute intervals, and at 5 minute intervals. Snapshot copy policies with custom schedules can be referenced.

copies

Name	Type	Description
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	
snapmirror_label	string	Label for SnapMirror operations

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

snapshot_policy

The Snapshot copy policy object is associated with a read-write volume used to create and delete Snapshot copies at regular intervals.

Name	Type	Description
_links	_links	
comment	string	A comment associated with the Snapshot copy policy.
copies	array[copies]	
enabled	boolean	Is the Snapshot copy policy enabled?
name	string	Name of the Snapshot copy policy.
scope	string	Set to "svm" when the request is on a data SVM, otherwise set to "cluster".
svm	svm	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message

Name	Type	Description
target	string	The target parameter that caused the error.

Delete a Snapshot copy policy

DELETE `/storage/snapshot-policies/{uuid}`

Introduced In: 9.6

Deletes a Snapshot copy policy

Related ONTAP commands

- `snapshot policy delete`

Learn more

- DOC /storage/snapshot-policies

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Snapshot copy policy UUID

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Code

Error Code	Description
1638415	Cannot delete policy. Reason: Policy is in use by at least one volume.
1638416	Cannot delete policy. Reason: Cannot verify whether policy is in use.
1638430	Cannot delete policy. Reason: Policy is in use by at least one Vserver.

Error Code	Description
1638430	Cannot delete built-in policy.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve Snapshot copy policy details

GET `/storage/snapshot-policies/{uuid}`

Introduced In: 9.6

Retrieves details of a specific Snapshot copy policy.

Related ONTAP commands

- `snapshot policy show`

Learn more

- DOC /storage/snapshot-policies

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Snapshot copy policy UUID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
comment	string	A comment associated with the Snapshot copy policy.
copies	array[copies]	
enabled	boolean	Is the Snapshot copy policy enabled?
name	string	Name of the Snapshot copy policy.
scope	string	Set to "svm" when the request is on a data SVM, otherwise set to "cluster".
svm	svm	
uuid	string	

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "copies": [
    {
      "prefix": "string",
      "schedule": {
        "name": "hourly"
      },
      "snapmirror_label": "string"
    }
  ],
  "enabled": 1,
  "name": "default",
  "scope": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
name	string	Schedule at which Snapshot copies are captured on the volume. Some common schedules already defined in the system are hourly, daily, weekly, at 15 minute intervals, and at 5 minute intervals. Snapshot copy policies with custom schedules can be referenced.

copies

Name	Type	Description
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	
snapmirror_label	string	Label for SnapMirror operations

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Update a Snapshot copy policy

PATCH `/storage/snapshot-policies/{uuid}`

Introduced In: 9.6

Updates a Snapshot copy policy

Related ONTAP commands

- `snapshot policy modify`
- `snapshot policy modify-schedule`
- `snapshot policy add-schedule`

Learn more

- DOC /storage/snapshot-policies

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Snapshot copy policy UUID

Request Body

Name	Type	Description
_links	_links	
comment	string	A comment associated with the Snapshot copy policy.
copies	array[copies]	
enabled	boolean	Is the Snapshot copy policy enabled?
name	string	Name of the Snapshot copy policy.
scope	string	Set to "svm" when the request is on a data SVM, otherwise set to "cluster".
svm	svm	
uuid	string	

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "copies": [
    {
      "prefix": "string",
      "schedule": {
        "name": "hourly"
      },
      "snapmirror_label": "string"
    }
  ],
  "enabled": 1,
  "name": "default",
  "scope": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```


Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Code

Error Code	Description
1638414	Cannot enable policy. Reason: Specified schedule not found.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
name	string	Schedule at which Snapshot copies are captured on the volume. Some common schedules already defined in the system are hourly, daily, weekly, at 15 minute intervals, and at 5 minute intervals. Snapshot copy policies with custom schedules can be referenced.

copies

Name	Type	Description
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	
snapmirror_label	string	Label for SnapMirror operations

svm

Name	Type	Description
_links	_links	
name	string	The name of the SVM.

Name	Type	Description
uuid	string	The unique identifier of the SVM.

snapshot_policy

The Snapshot copy policy object is associated with a read-write volume used to create and delete Snapshot copies at regular intervals.

Name	Type	Description
_links	_links	
comment	string	A comment associated with the Snapshot copy policy.
copies	array[copies]	
enabled	boolean	Is the Snapshot copy policy enabled?
name	string	Name of the Snapshot copy policy.
scope	string	Set to "svm" when the request is on a data SVM, otherwise set to "cluster".
svm	svm	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message

Name	Type	Description
target	string	The target parameter that caused the error.

Manage Snapshot copy policies and schedules

Storage snapshot-policies snapshot_policy.uuid schedules endpoint overview

Overview

In ONTAP, scheduled Snapshot copy creation works based on the schedules associated with Snapshot copy policies. ONTAP provides six cluster-wide schedules: "5min", "8hour", "hourly", "daily", "weekly" and "monthly". A Snapshot copy policy is created using at least one of these schedules and up to 5 schedules can be associated with a Snapshot copy policy. A Snapshot copy policy can be linked to a storage object and based on the schedule in the policy, Snapshot copies are created on the object at that interval. Each schedule in a Snapshot copy policy has a Snapshot copy name prefix attached to it. Every Snapshot copy created using this policy has this prefix in its name. There is also a retention count associated with every schedule. This count indicates the maximum number of Snapshot copies that can exist for a given schedule. Once the Snapshot copy count reaches the retention count, on the next create operation, the oldest Snapshot copy is deleted. A schedule can be added, modified or deleted from a Snapshot copy policy.

Snapshot copy policy schedule APIs

The following APIs are used to perform operations related to Snapshot copy policy schedules:

– POST /api/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/

– GET /api/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/

– GET /api/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}

– PATCH /api/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}

– DELETE /api/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}

Examples

Adding schedule to a Snapshot copy policy

The POST operation is used to create a schedule for a Snapshot copy policy with the specified attributes.

```
# The API:
/api/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/snapshot-policies/32a0841a-
818e-11e9-b4f4-005056bbab9c/schedules" -H "accept: application/hal+json"
-d '{"schedule.uuid": "7c985d80-818a-11e9-b4f4-005056bbab9c", "count":
"5", "prefix": "new_hourly" }'

# The response:
HTTP/1.1 201 Created
Date: Wed, 29 May 2019 22:41:33 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Location: /api/storage/snapshot-policies/32a0841a-818e-11e9-b4f4-
005056bbab9c/schedules
Content-Length: 271
Content-Type: application/json
{
"num_records": 1,
"records": [
  {
    "snapshot_policy": {
      "uuid": "32a0841a-818e-11e9-b4f4-005056bbab9c"
    },
    "schedule": {
      "uuid": "7c985d80-818a-11e9-b4f4-005056bbab9c"
    },
    "count": 5,
    "prefix": "new_monthly"
  }
]
}
```

Retrieving Snapshot copy policy schedules

The GET operation is used to retrieve Snapshot copy policy schedules.

```
# The API:
/api/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/snapshot-policies/32a0841a-
818e-11e9-b4f4-005056bbab9c/schedules" -H "accept: application/hal+json"
```

```
# The response:
HTTP/1.1 200 OK
Date: Wed, 29 May 2019 22:49:58 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 898
Content-Type: application/json
{
"records": [
  {
    "snapshot_policy": {
      "uuid": "32a0841a-818e-11e9-b4f4-005056bbab9c"
    },
    "schedule": {
      "uuid": "63d017dc-818a-11e9-b4f4-005056bbab9c",
      "name": "5min"
    }
  },
  {
    "snapshot_policy": {
      "uuid": "32a0841a-818e-11e9-b4f4-005056bbab9c"
    },
    "schedule": {
      "uuid": "64a5c5da-818a-11e9-b4f4-005056bbab9c",
      "name": "8hour"
    }
  },
  {
    "snapshot_policy": {
      "uuid": "32a0841a-818e-11e9-b4f4-005056bbab9c"
    },
    "schedule": {
      "uuid": "63e21a3e-818a-11e9-b4f4-005056bbab9c",
      "name": "daily"
    }
  },
  {
    "snapshot_policy": {
      "uuid": "32a0841a-818e-11e9-b4f4-005056bbab9c"
    },
    "schedule": {
      "uuid": "7c985d80-818a-11e9-b4f4-005056bbab9c",
      "name": "monthly"
    }
```

```
  }
],
"num_records": 4
}
```

Retrieving the attributes of a specific Snapshot copy policy schedule

The GET operation is used to retrieve the attributes of a specific Snapshot copy policy schedule.

```
# The API:
/api/storage/snapshot-
policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/snapshot-policies/32a0841a-
818e-11e9-b4f4-005056bbab9c/schedules/7c985d80-818a-11e9-b4f4-
005056bbab9c" -H "accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Wed, 29 May 2019 22:54:06 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 238
Content-Type: application/json
{
"snapshot_policy": {
  "uuid": "32a0841a-818e-11e9-b4f4-005056bbab9c"
},
"schedule": {
  "uuid": "7c985d80-818a-11e9-b4f4-005056bbab9c",
  "name": "monthly"
},
"count": 5,
"prefix": "new_monthly",
"snapmirror_label": "-"
}
```

Updating a Snapshot copy policy schedule

The PATCH operation is used to update the specific attributes of a Snapshot copy policy.

```
# The API:
/api/storage/snapshot-
policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/snapshot-policies/32a0841a-
818e-11e9-b4f4-005056bbab9c/schedules/7c985d80-818a-11e9-b4f4-
005056bbab9c" -d '{"count": "10" }' -H "accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Wed, 29 May 2019 23:08:00 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 3
Content-Type: application/json
```

Deleting a Snapshot copy policy

The DELETE operation is used to delete a Snapshot copy policy.

```
# The API:
/api/storage/snapshot-
policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/snapshot-policies/32a0841a-
818e-11e9-b4f4-005056bbab9c/schedules/7c985d80-818a-11e9-b4f4-
005056bbab9c" -H "accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Wed, 29 May 2019 23:12:32 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 3
Content-Type: application/json
```

Retrieve Snapshot copy policy schedules

GET `/storage/snapshot-policies/{snapshot_policy.uuid}/schedules`

Introduced In: 9.8

Retrieves a collection of Snapshot copy policy schedules.

Related ONTAP commands

- `snapshot policy show`

Learn more

- DOC /storage/snapshot-policies/{snapshot_policy.uuid}/schedules

Parameters

Name	Type	In	Required	Description
snapshot_policy.uuid	string	path	True	Snapshot copy policy UUID
snapmirror_label	string	query	False	Filter by snapmirror_label
snapshot_policy.name	string	query	False	Filter by snapshot_policy.name
schedule.name	string	query	False	Filter by schedule.name
schedule.uuid	string	query	False	Filter by schedule.uuid
prefix	string	query	False	Filter by prefix
count	integer	query	False	Filter by count
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[snapshot_policy_schedule]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "prefix": "string",
      "schedule": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "weekly",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "snapmirror_label": "string",
      "snapshot_policy": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "default",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ]
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
_links	_links	
name	string	Job schedule name
uuid	string	Job schedule UUID

snapshot_policy

This is a reference to the Snapshot copy policy.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

snapshot_policy_schedule

The Snapshot copy policy schedule object is associated with a Snapshot copy policy and it defines the interval at which Snapshot copies are created and deleted.

Name	Type	Description
_links	_links	

Name	Type	Description
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	
snapmirror_label	string	Label for SnapMirror operations
snapshot_policy	snapshot_policy	This is a reference to the Snapshot copy policy.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Add a schedule to a Snapshot copy policy

POST `/storage/snapshot-policies/{snapshot_policy.uuid}/schedules`

Introduced In: 9.8

Adds a schedule to a Snapshot copy policy.

Required properties

- `schedule.uuid` or `schedule.name` - Schedule at which Snapshot copies are captured on the volume.

- `count` - Number of Snapshot copies to maintain for this schedule.

Recommended optional properties

- `prefix` - Prefix to use when creating Snapshot copies at regular intervals.

Default property values

If not specified in POST, the following default property values are assigned:

- `prefix` - Value of `schedule.name`

Related ONTAP commands

- `snapshot policy add-schedule`

Learn more

- DOC /storage/snapshot-policies/{snapshot_policy.uuid}/schedules

Parameters

Name	Type	In	Required	Description
snapshot_policy.uuid	string	path	True	Snapshot copy policy UUID
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
_links	_links	
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	
snapmirror_label	string	Label for SnapMirror operations

Name	Type	Description
snapshot_policy	snapshot_policy	This is a reference to the Snapshot copy policy.

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "prefix": "string",
  "schedule": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "weekly",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "snapmirror_label": "string",
  "snapshot_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  }
}
```

Response

```
Status: 201, Created
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1638407	When adding schedule to a Snapshot copy policy, the count for that schedule must be specified.
1638410	Specified schedule already exists in snapshot policy.
1638413	Schedule not found.
1638451	This operation would result in total Snapshot copy count for the policy to exceed maximum supported count.
1638508	Another schedule has the same prefix within this policy.
1638528	This operation is not supported in a mixed-version cluster.
1638531	This operation is not supported because specified policy is owned by the cluster admin.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
_links	_links	
name	string	Job schedule name
uuid	string	Job schedule UUID

snapshot_policy

This is a reference to the Snapshot copy policy.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

snapshot_policy_schedule

The Snapshot copy policy schedule object is associated with a Snapshot copy policy and it defines the interval at which Snapshot copies are created and deleted.

Name	Type	Description
_links	_links	
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	

Name	Type	Description
snapmirror_label	string	Label for SnapMirror operations
snapshot_policy	snapshot_policy	This is a reference to the Snapshot copy policy.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Delete a schedule from a Snapshot copy policy

DELETE `/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}`

Introduced In: 9.8

Deletes a schedule from a Snapshot copy policy

Related ONTAP commands

- `snapshot policy remove-schedule`

Learn more

- DOC /storage/snapshot-policies/{snapshot_policy.uuid}/schedules

Parameters

Name	Type	In	Required	Description
snapshot_policy.uuid	string	path	True	Snapshot copy policy UUID
schedule.uuid	string	path	True	Snapshot copy policy schedule UUID

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Code

Error Code	Description
1638412	Schedule does not exist in Snapshot policy.

Name	Type	Description
error	error	

Example error

```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve Snapshot copy policy schedule details

GET `/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}`

Introduced In: 9.8

Retrieves details of a specific Snapshot copy policy schedule.

Related ONTAP commands

- `snapshot policy show`

Learn more

- DOC /storage/snapshot-policies/{snapshot_policy.uuid}/schedules

Parameters

Name	Type	In	Required	Description
snapshot_policy.uuid	string	path	True	Snapshot copy policy UUID

Name	Type	In	Required	Description
schedule.uuid	string	path	True	Snapshot copy policy schedule ID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	
snapmirror_label	string	Label for SnapMirror operations
snapshot_policy	snapshot_policy	This is a reference to the Snapshot copy policy.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "prefix": "string",
  "schedule": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "weekly",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "snapmirror_label": "string",
  "snapshot_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
_links	_links	
name	string	Job schedule name
uuid	string	Job schedule UUID

snapshot_policy

This is a reference to the Snapshot copy policy.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code

Name	Type	Description
message	string	Error message
target	string	The target parameter that caused the error.

Update a Snapshot copy policy schedule

PATCH `/storage/snapshot-policies/{snapshot_policy.uuid}/schedules/{schedule.uuid}`

Introduced In: 9.8

Updates a Snapshot copy policy schedule

Related ONTAP commands

- `snapshot policy modify-schedule`

Learn more

- DOC /storage/snapshot-policies/{snapshot_policy.uuid}/schedules

Parameters

Name	Type	In	Required	Description
snapshot_policy.uuid	string	path	True	Snapshot copy policy UUID
schedule.uuid	string	path	True	Snapshot copy policy schedule UUID

Request Body

Name	Type	Description
_links	_links	
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	

Name	Type	Description
snapmirror_label	string	Label for SnapMirror operations
snapshot_policy	snapshot_policy	This is a reference to the Snapshot copy policy.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "prefix": "string",
  "schedule": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "weekly",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "snapmirror_label": "string",
  "snapshot_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  }
}
```


Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Code

Error Code	Description
1638451	This operation would result in total Snapshot copy count for the policy to exceed maximum supported count.

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

schedule

Name	Type	Description
_links	_links	
name	string	Job schedule name
uuid	string	Job schedule UUID

snapshot_policy

This is a reference to the Snapshot copy policy.

Name	Type	Description
_links	_links	
name	string	
uuid	string	

snapshot_policy_schedule

The Snapshot copy policy schedule object is associated with a Snapshot copy policy and it defines the interval at which Snapshot copies are created and deleted.

Name	Type	Description
_links	_links	
count	integer	The number of Snapshot copies to maintain for this schedule.
prefix	string	The prefix to use while creating Snapshot copies at regular intervals.
schedule	schedule	

Name	Type	Description
snapmirror_label	string	Label for SnapMirror operations
snapshot_policy	snapshot_policy	This is a reference to the Snapshot copy policy.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage storage switches

Storage switches endpoint overview

Retrieving storage switch information

The storage switch GET API retrieves all of the switches in the cluster.

Examples

1) Retrieves a list of storage switches from the cluster

The following example shows the response with a list of storage switches in the cluster:

```
# The API:
```

```
/api/storage/switches

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/switches" -H "accept:
application/hal+json"

# The response:
{
"records": [
  {
    "name": "Brocade_10.226.57.206",
    "_links": {
      "self": {
        "href": "/api/storage/switches/Brocade_10.226.57.206"
      }
    }
  },
  {
    "name": "Brocade_10.226.57.207",
    "_links": {
      "self": {
        "href": "/api/storage/switches/Brocade_10.226.57.207"
      }
    }
  },
  {
    "name": "Brocade_10.226.57.208",
    "_links": {
      "self": {
        "href": "/api/storage/switches/Brocade_10.226.57.208"
      }
    }
  },
  {
    "name": "Brocade_10.226.57.209",
    "_links": {
      "self": {
        "href": "/api/storage/switches/Brocade_10.226.57.209"
      }
    }
  }
],
"num_records": 4,
"_links": {
  "self": {
    "href": "/api/storage/switches/"
```

```
  }
}
}
```

2) Retrieves a specific storage switch from the cluster

The following example shows the response of the requested storage switch. If there is no storage switch with the requested name, an error is returned.

```
# The API:
/api/storage/switches/{name}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/switches/Brocade_10.226.57.206"
-H "accept: application/hal+json"

# The response:
{
"name": "Brocade_10.226.57.206",
"domain_id": 5,
"switch_fabric_name": "100050eb1a238892",
"fw_version": "v7.2.1c1",
"ip_address": "10.226.57.206",
"is_director_class": false,
"local": false,
"monitoring_enabled": true,
"model": "Brocade6510",
"role": "subordinate",
"state": "ok",
"symbolic_name": "rtp-fc01-41kk11",
"vendor": "brocade",
"wwn": "100050eb1a1ef7d7",
"power_supply_units": [
  {
    "name": "Power Supply #1",
    "state": "ok"
  },
  {
    "name": "Power Supply #2",
    "state": "ok"
  }
],
"temperature_sensors": [
```

```
    {
      "name": "SLOT #0: TEMP #1",
      "reading": 52,
      "state": "ok"
    }
  ],
  "ports": [
    {
      "name": "FC port 0/0",
      "mode": "f_port",
      "wwn": "200050eb1a1ef7d7",
      "enabled": true,
      "state": "online",
      "speed": 16,
      "sfp": {
        "type": "small_form_factor",
        "transmitter_type": "short_wave_laser",
        "serial_number": "HAA2140310058E5"
      }
    },
    {
      "name": "FC port 0/1",
      "mode": "f_port",
      "wwn": "200050eb1a1ef2d7",
      "enabled": true,
      "state": "online",
      "speed": 16,
      "sfp": {
        "type": "small_form_factor",
        "transmitter_type": "short_wave_laser",
        "serial_number": "HAA2140310058E5"
      }
    },
    {
      "name": "FC port 0/2",
      "mode": "f_port",
      "wwn": "200050eb1a1ef7d0",
      "enabled": true,
      "state": "online",
      "speed": 16,
      "sfp": {
        "type": "small_form_factor",
        "transmitter_type": "short_wave_laser",
        "serial_number": "HAA2140310058E5"
      }
    },
```

```
    {
      "name": "FC port 0/3",
      "mode": "f_port",
      "wwn": "200050eb1a1ef7d7",
      "enabled": true,
      "state": "online",
      "speed": 16,
      "sfp": {
        "type": "small_form_factor",
        "transmitter_type": "short_wave_laser",
        "serial_number": "HAA2140310058E5"
      }
    },
    {
      "name": "FC port 0/4",
      "mode": "f_port",
      "wwn": "200050eb1a1ef2d7",
      "enabled": true,
      "state": "online",
      "speed": 16,
      "sfp": {
        "type": "small_form_factor",
        "transmitter_type": "short_wave_laser",
        "serial_number": "HAA2140310058E5"
      }
    },
    {
      "name": "FC port 0/5",
      "mode": "f_port",
      "wwn": "200050eb1a1ef7d0",
      "enabled": true,
      "state": "online",
      "speed": 16,
      "sfp": {
        "type": "small_form_factor",
        "transmitter_type": "short_wave_laser",
        "serial_number": "HAA2140310058E5"
      }
    }
  ],
  "connections": [
    {
      "source_port": {
        "name": "FC port 0/0",
        "wwn": "200050eb1a236efd",
        "mode": "f_port"
```

```
    },
    "peer_port": {
      "wwn": "2100000e1e30ac5f",
      "connection": "sti8020mcc-htp-006:fcvi_device_1",
      "type": "fcvi_adapter",
      "unique_id": "38993dc0-4ea1-11eb-9331-00a0985bd455"
    }
  },
  {
    "source_port": {
      "name": "FC port 0/1",
      "wwn": "200150eb1a236efd",
      "mode": "f_port"
    },
    "peer_port": {
      "wwn": "21000024ff72c0c9",
      "connection": "sti8020mcc-htp-006:2b",
      "type": "fcp_adapter",
      "unique_id": "38993dc0-4ea1-11eb-9331-00a0985bd455"
    }
  },
  {
    "source_port": {
      "name": "FC port 0/2",
      "wwn": "200250eb1a236efd",
      "mode": "f_port"
    },
    "peer_port": {
      "wwn": "21000024ff72c0cb",
      "connection": "sti8020mcc-htp-006:2d",
      "type": "fcp_adapter",
      "unique_id": "38993dc0-4ea1-11eb-9331-00a0985bd455"
    }
  }
],
"fans": [
  {
    "name": "FAN #1",
    "speed": 7336,
    "state": "ok"
  },
  {
    "name": "FAN #2",
    "speed": 7336,
    "state": "ok"
  }
```

```
],
"paths": [
     {
       "adapter": {
         "name": "2a",
         "wwn": "21000024ff6c4bc0",
         "type": "fcp_initiator"
       },
       "port": {
         "name": "FC port 0/4",
         "speed": 8
       },
       "node": {
         "name": "sti8020mcc-htp-005",
         "uuid": "382cb083-4416-11eb-ad1d-00a0985bd455",
         "_links": {
           "self": {
             "href": "/api/cluster/nodes/382cb083-4416-11eb-ad1d-
00a0985bd455"
           }
         }
       },
       "_links": {
         "self": {
           "href": "/api/storage/ports/382cb083-4416-11eb-ad1d-
00a0985bd455/2a"
         }
       }
     },
     {
       "adapter": {
         "name": "2c",
         "wwn": "21000024ff6c4bc2",
         "type": "fcp_initiator"
       },
       "port": {
         "name": "FC port 0/5",
         "speed": 8
       },
       "node": {
         "name": "sti8020mcc-htp-005",
         "uuid": "382cb083-4416-11eb-ad1d-00a0985bd455",
         "_links": {
           "self": {
             "href": "/api/cluster/nodes/382cb083-4416-11eb-ad1d-
00a0985bd455"
```

```
          }
        }
      },
      "_links": {
        "self": {
          "href": "/api/storage/ports/382cb083-4416-11eb-ad1d-
00a0985bd455/2c"
        }
      }
    },
    {
      "adapter": {
        "name": "fcvi_device_0",
        "wwn": "2100000e1e09d5d2",
        "type": "fc_vi"
      },
      "port": {
        "name": "FC port 0/3",
        "speed": 16
      },
      "node": {
        "name": "sti8020mcc-htp-005",
        "uuid": "382cb083-4416-11eb-ad1d-00a0985bd455",
        "_links": {
          "self": {
            "href": "/api/cluster/nodes/382cb083-4416-11eb-ad1d-
00a0985bd455"
          }
        }
      }
    },
    {
      "adapter": {
        "name": "2a",
        "wwn": "21000024ff72c0c8",
        "type": "fcp_initiator"
      },
      "port": {
        "name": "FC port 0/1",
        "speed": 8
      },
      "node": {
        "name": "sti8020mcc-htp-006",
        "uuid": "364fbba8-4416-11eb-8e72-00a098431045",
        "_links": {
          "self": {
```

```
            "href": "/api/cluster/nodes/364fbba8-4416-11eb-8e72-
00a098431045"
          }
        }
      },
      "_links": {
        "self": {
          "href": "/api/storage/ports/364fbba8-4416-11eb-8e72-
00a098431045/2a"
        }
      }
    },
    {
      "adapter": {
        "name": "2c",
        "wwn": "21000024ff72c0ca",
        "type": "fcp_initiator"
      },
      "port": {
      "name": "FC port 0/2",
      "speed": 8
      },
      "node": {
        "name": "sti8020mcc-htp-006",
        "uuid": "364fbba8-4416-11eb-8e72-00a098431045",
        "_links": {
          "self": {
            "href": "/api/cluster/nodes/364fbba8-4416-11eb-8e72-
00a098431045"
          }
        }
      },
      "_links": {
        "self": {
          "href": "/api/storage/ports/364fbba8-4416-11eb-8e72-
00a098431045/2c"
        }
      }
    }
],
"_links": {
  "self": {
    "href": "/api/storage/switches/Brocade_10.226.57.206"
  }
}
}
```

Retrieve storage switches

GET `/storage/switches`

Introduced In: 9.9

Retrieves a collection of storage switches.

Related ONTAP commands

- `storage switch show`

Learn more

- DOC /storage/switches

Parameters

Name	Type	In	Required	Description
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[storage_switch]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "connections": [
        {
          "peer_port": {
            "connection": "string",
            "type": "string",
            "unique_id": "string",
            "wwn": "string"
          },
          "source_port": {
            "mode": "string",
            "name": "string",
            "wwn": "string"
          }
        }
      ],
      "errors": [
        {
          "component": {
            "name": "string"
          },
          "reason": {
            "arguments": [
              {
                "code": "string",
                "message": "string"
              }
            ],
            "code": "4",
            "message": "entry doesn't exist",
            "target": "uuid"
          },
          "severity": "string",
          "type": "string"
```

```
      }
    ],
    "fabric_name": "string",
    "fans": [
      {
        "name": "string",
        "state": "string"
      }
    ],
    "firmware_version": "string",
    "ip_address": "string",
    "model": "string",
    "monitored_blades": [
      "integer"
    ],
    "name": "string",
    "paths": [
      {
        "adapter": {
          "name": "string",
          "type": "string",
          "wwn": "string"
        },
        "node": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "port": {
          "name": "string"
        }
      }
    ],
    "ports": [
      {
        "mode": "string",
        "name": "string",
        "sfp": {
          "serial_number": "string",
          "transmitter_type": "string",
          "type": "string"
        },
```

```
          "state": "string",
          "wwn": "string"
        }
      ],
      "power_supply_units": [
        {
          "name": "string",
          "state": "string"
        }
      ],
      "role": "string",
      "state": "string",
      "symbolic_name": "string",
      "temperature_sensors": [
        {
          "name": "string",
          "state": "string"
        }
      ],
      "vendor": "string",
      "vsans": [
        {
          "load_balancing_types": "string",
          "name": "string",
          "state": "string"
        }
      ],
      "wwn": "string",
      "zones": [
        {
          "name": "string",
          "port": {
            "id": "string",
            "name": "string"
          },
          "wwn": "string"
        }
      ]
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

peer_port

Name	Type	Description
connection	string	Storage switch peer port host and name
type	string	Storage switch peer type
unique_id	string	Storage switch peer unique ID
wwn	string	Storage switch peer port world wide name

source_port

Name	Type	Description
mode	string	Storage switch port operating mode
name	string	Storage switch port name
wwn	string	Storage switch peer port world wide name

connections

Name	Type	Description
peer_port	peer_port	
source_port	source_port	

component

Name	Type	Description
id	integer	Error component ID
name	string	Error component name

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

errors

Name	Type	Description
component	component	
reason	error	
severity	string	Error component severity
type	string	Error component type

fans

Name	Type	Description
name	string	Storage switch fan name
speed	integer	Storage switch fan speed
state	string	Storage switch fan state

adapter

Name	Type	Description
name	string	Node adapter name
type	string	Node adapter type
wwn	string	Node adapter world wide name

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

port

Name	Type	Description
name	string	Storage switch port name
speed	integer	Storage switch port speed, in Gbps

paths

Name	Type	Description
adapter	adapter	
node	node	
port	port	

sfp

Name	Type	Description
serial_number	string	Storage switch port SFP serial number

Name	Type	Description
transmitter_type	string	Storage switch port SFP transmitter type
type	string	Storage switch port SFP type

ports

Name	Type	Description
enabled	boolean	Indicates whether the storage switch port is enabled.
mode	string	Storage switch port mode
name	string	Storage switch port name
sfp	sfp	
speed	integer	Storage switch port speed, in Gbps
state	string	Storage switch port state
wwn	string	Storage switch port world wide name

power_supply_units

Name	Type	Description
name	string	Power supply unit name
state	string	Power supply unit state

temperature_sensors

Name	Type	Description
name	string	Temperature sensor name
reading	integer	Temperature sensor reading, in degrees celsius.
state	string	Temperature sensor state

vsans

Name	Type	Description
id	integer	Storage switch VSAN ID
iod	boolean	Indicates whether in-order delivery is set for a zone.
load_balancing_types	string	Storage switch VSAN load balancing type
name	string	Storage switch VSAN name
state	string	Storage switch VSAN Port state

port

Name	Type	Description
id	string	Storage switch zone port ID
name	string	Storage switch zone port

zones

Name	Type	Description
id	integer	Storage switch zone ID
name	string	Storage switch zone name
port	port	
wwn	string	Storage switch zone world wide name

storage_switch

The Storage switch object describes the storage switch properties, features and cabling.

Name	Type	Description
connections	array[connections]	
director_class	boolean	
domain_id	integer	Domain ID
errors	array[errors]	

Name	Type	Description
fabric_name	string	Storage switch fabric name
fans	array[fans]	
firmware_version	string	Storage switch firmware version
ip_address	string	IP Address
local	boolean	Indicates whether the storage switch is directly connected to the reporting cluster.
model	string	Storage switch model.
monitored_blades	array[integer]	Indicates the blades that are being monitored for a director-class switch.
monitoring_enabled	boolean	Indicates whether monitoring is enabled for the storage switch.
name	string	Storage switch name
paths	array[paths]	
ports	array[ports]	
power_supply_units	array[power_supply_units]	
role	string	Storage switch role in fabric.
state	string	Storage switch state
symbolic_name	string	Storage switch symbolic name
temperature_sensors	array[temperature_sensors]	
vendor	string	Storage switch vendor
vsans	array[vsans]	
wwn	string	Storage switch world wide name
zones	array[zones]	

Retrieve a specific storage switch

GET `/storage/switches/{name}`

Introduced In: 9.9

Retrieves a specific storage switch.

Related ONTAP commands

- `storage switch show`

Learn more

- DOC /storage/switches

Parameters

Name	Type	In	Required	Description
name	string	path	True	
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
connections	array[connections]	
director_class	boolean	
domain_id	integer	Domain ID
errors	array[errors]	
fabric_name	string	Storage switch fabric name
fans	array[fans]	
firmware_version	string	Storage switch firmware version
ip_address	string	IP Address
local	boolean	Indicates whether the storage switch is directly connected to the reporting cluster.
model	string	Storage switch model.

Name	Type	Description
monitored_blades	array[integer]	Indicates the blades that are being monitored for a director-class switch.
monitoring_enabled	boolean	Indicates whether monitoring is enabled for the storage switch.
name	string	Storage switch name
paths	array[paths]	
ports	array[ports]	
power_supply_units	array[power_supply_units]	
role	string	Storage switch role in fabric.
state	string	Storage switch state
symbolic_name	string	Storage switch symbolic name
temperature_sensors	array[temperature_sensors]	
vendor	string	Storage switch vendor
vsans	array[vsans]	
wwn	string	Storage switch world wide name
zones	array[zones]	

Example response


```
{
  "connections": [
    {
      "peer_port": {
        "connection": "string",
        "type": "string",
        "unique_id": "string",
        "wwn": "string"
      },
      "source_port": {
        "mode": "string",
        "name": "string",
        "wwn": "string"
      }
    }
  ],
  "errors": [
    {
      "component": {
        "name": "string"
      },
      "reason": {
        "arguments": [
          {
            "code": "string",
            "message": "string"
          }
        ],
        "code": "4",
        "message": "entry doesn't exist",
        "target": "uuid"
      },
      "severity": "string",
      "type": "string"
    }
  ],
  "fabric_name": "string",
  "fans": [
    {
      "name": "string",
      "state": "string"
    }
  ],
  "firmware_version": "string",
```

```
  "ip_address": "string",
  "model": "string",
  "monitored_blades": [
    "integer"
  ],
  "name": "string",
  "paths": [
    {
      "adapter": {
        "name": "string",
        "type": "string",
        "wwn": "string"
      },
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "port": {
        "name": "string"
      }
    }
  ],
  "ports": [
    {
      "mode": "string",
      "name": "string",
      "sfp": {
        "serial_number": "string",
        "transmitter_type": "string",
        "type": "string"
      },
      "state": "string",
      "wwn": "string"
    }
  ],
  "power_supply_units": [
    {
      "name": "string",
      "state": "string"
    }
  ],
```

```
  "role": "string",
  "state": "string",
  "symbolic_name": "string",
  "temperature_sensors": [
    {
      "name": "string",
      "state": "string"
    }
  ],
  "vendor": "string",
  "vsans": [
    {
      "load_balancing_types": "string",
      "name": "string",
      "state": "string"
    }
  ],
  "wwn": "string",
  "zones": [
    {
      "name": "string",
      "port": {
        "id": "string",
        "name": "string"
      },
      "wwn": "string"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

peer_port

Name	Type	Description
connection	string	Storage switch peer port host and name
type	string	Storage switch peer type
unique_id	string	Storage switch peer unique ID
wwn	string	Storage switch peer port world wide name

source_port

Name	Type	Description
mode	string	Storage switch port operating mode
name	string	Storage switch port name
wwn	string	Storage switch peer port world wide name

connections

Name	Type	Description
peer_port	peer_port	
source_port	source_port	

component

Name	Type	Description
id	integer	Error component ID
name	string	Error component name

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

errors

Name	Type	Description
component	component	
reason	error	
severity	string	Error component severity
type	string	Error component type

fans

Name	Type	Description
name	string	Storage switch fan name
speed	integer	Storage switch fan speed
state	string	Storage switch fan state

adapter

Name	Type	Description
name	string	Node adapter name
type	string	Node adapter type
wwn	string	Node adapter world wide name

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

port

Name	Type	Description
name	string	Storage switch port name
speed	integer	Storage switch port speed, in Gbps

paths

Name	Type	Description
adapter	adapter	
node	node	
port	port	

sfp

Name	Type	Description
serial_number	string	Storage switch port SFP serial number
transmitter_type	string	Storage switch port SFP transmitter type
type	string	Storage switch port SFP type

ports

Name	Type	Description
enabled	boolean	Indicates whether the storage switch port is enabled.
mode	string	Storage switch port mode
name	string	Storage switch port name
sfp	sfp	
speed	integer	Storage switch port speed, in Gbps
state	string	Storage switch port state
wwn	string	Storage switch port world wide name

power_supply_units

Name	Type	Description
name	string	Power supply unit name
state	string	Power supply unit state

temperature_sensors

Name	Type	Description
name	string	Temperature sensor name
reading	integer	Temperature sensor reading, in degrees celsius.
state	string	Temperature sensor state

vsans

Name	Type	Description
id	integer	Storage switch VSAN ID
iod	boolean	Indicates whether in-order delivery is set for a zone.

Name	Type	Description
load_balancing_types	string	Storage switch VSAN load balancing type
name	string	Storage switch VSAN name
state	string	Storage switch VSAN Port state

port

Name	Type	Description
id	string	Storage switch zone port ID
name	string	Storage switch zone port

zones

Name	Type	Description
id	integer	Storage switch zone ID
name	string	Storage switch zone name
port	port	
wwn	string	Storage switch zone world wide name

Manage storage tape devices

Storage tape-devices endpoint overview

Retrieving storage tape information

The storage tape GET API retrieves all of the tapes in the cluster.

Examples

1) Retrieving a list of tapes from the cluster

The following example returns the list of tapes in the cluster:

```
# The API:
/api/storage/tape-devices

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/tape-devices" -H "accept:
application/hal+json"

# The response:
{
"records": [
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "2d.0",
    "_links": {
      "self": {
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/2d.0"
      }
    }
  },
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "2d.0L1",
    "_links": {
      "self": {
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/2d.0L1"
      }
```

```
    }
  },
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "qeg-tape-brocade2-8g:0.126",
    "_links": {
      "self": {
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/qeg-tape-brocade2-8g%3A0.126"
      }
    }
  },
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "stsw-broc6510-01:11.126",
    "_links": {
      "self": {
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/stsw-broc6510-01%3A11.126"
      }
    }
  },
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
```

```
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "stsw-broc6510-01:15.126",
    "_links": {
      "self": {
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/stsw-broc6510-01%3A15.126"
      }
    }
  },
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "stsw-broc6510-01:15.126L1",
    "_links": {
      "self": {
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/stsw-broc6510-01%3A15.126L1"
      }
    }
  },
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "stsw-broc6510-01:22.126",
    "_links": {
      "self": {
```

```
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/stsw-broc6510-01%3A22.126"
      }
    }
  },
  {
    "node": {
      "uuid": "4083be52-5315-11eb-a839-00a0985ebbe7",
      "name": "st-8020-1-01",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/4083be52-5315-11eb-a839-
00a0985ebbe7"
        }
      }
    },
    "device_id": "stsw-broc6510-01:23.126",
   "_links": {
      "self": {
        "href": "/api/storage/tape-devices/4083be52-5315-11eb-a839-
00a0985ebbe7/stsw-broc6510-01%3A23.126"
      }
    }
  },
],
"num_records": 7,
"_links": {
  "self": {
    "href": "/api/storage/tape-devices"
  }
}
}
```

2) Retrieving a specific tape device from the cluster

The following example returns the requested tape device. If there is no tape with the requested UID, an error is returned.

```
# The API:
/api/storage/tape-devices/{node.uuid}/{device_id}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/tape-devices/5f5275eb-5315-
```

```
11eb-8ac4-00a0985e0dcf/2d.0" -H "accept: application/hal+json"

# The response:
{
"node": {
  "uuid": "5f5275eb-5315-11eb-8ac4-00a0985e0dcf",
  "name": "st-8020-1-02",
  "_links": {
    "self": {
      "href": "/api/cluster/nodes/5f5275eb-5315-11eb-8ac4-00a0985e0dcf"
    }
  }
},
"device_id": "2d.0",
"type": "tape",
"description": "IBM LTO-6 ULT3580",
"alias": {
  "name": "st7",
  "mapping": "SN[1068000245]"
},
"wwnn": "5001697722ee0010",
"wwpn": "5001697722ee0011",
"serial_number": "1068000245",
"interface": "sas",
"device_state": "offline",
"formats": [
  "LTO-4/5 Native Density",
  "LTO-4/5 Compressed",
  "LTO-6 2.5TB",
  "LTO-6 6.25TB Compressed"
],
"storage_port": {
  "name": "2d"
},
"file_number": -1,
"block_number": -1,
"residual_count": 0,
"device_names": [
  {
    "rewind_device": "rst0l",
    "no_rewind_device": "nrst0l",
    "unload_reload_device": "urst0l"
  },
  {
    "rewind_device": "rst0m",
    "no_rewind_device": "nrst0m",
```

```
      "unload_reload_device": "urst0m"
    },
    {
      "rewind_device": "rst0h",
      "no_rewind_device": "nrst0h",
      "unload_reload_device": "urst0h"
    },
    {
      "rewind_device": "rst0a",
      "no_rewind_device": "nrst0a",
      "unload_reload_device": "urst0a"
    }
  ],
  "reservation_type": "off",
  "_links": {
    "self": {
      "href": "/api/storage/tape-devices/5f5275eb-5315-11eb-8ac4-
00a0985e0dcf/2d.0"
    }
  }
}
```


Retrieve tape devices

GET `/storage/tape-devices`

Introduced In: 9.9

Retrieves a collection of tape devices.

Related ONTAP commands

- `storage tape show`

Learn more

- DOC /storage/tape-devices

Parameters

Name	Type	In	Required	Description
block_number	integer	query	False	Filter by block_number
interface	string	query	False	Filter by interface

Name	Type	In	Required	Description
storage_port.name	string	query	False	Filter by storage_port.name
wwpn	string	query	False	Filter by wwpn
device_names.rewind_device	string	query	False	Filter by device_names.rewind_device
device_names.unload_reload_device	string	query	False	Filter by device_names.unload_reload_device
device_names.no_rewind_device	string	query	False	Filter by device_names.no_rewind_device
file_number	integer	query	False	Filter by file_number
node.uuid	string	query	False	Filter by node.uuid
node.name	string	query	False	Filter by node.name
reservation_type	string	query	False	Filter by reservation_type
serial_number	string	query	False	Filter by serial_number
device_state	string	query	False	Filter by device_state
residual_count	integer	query	False	Filter by residual_count
alias.name	string	query	False	Filter by alias.name
alias.mapping	string	query	False	Filter by alias.mapping
type	string	query	False	Filter by type
device_id	string	query	False	Filter by device_id
description	string	query	False	Filter by description

Name	Type	In	Required	Description
wwnn	string	query	False	Filter by wwnn
formats	string	query	False	Filter by formats
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	Number of records
records	array[tape_device]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "alias": {
        "mapping": "SN[10WT000933]",
        "name": "st6"
      },
      "block_number": 0,
      "description": "QUANTUM LTO-8 ULTRIUM",
      "device_id": "1a.0",
      "device_names": [
        {
          "no_rewind_device": "nrst6l",
          "rewind_device": "rst6l",
          "unload_reload_device": "urst6l"
        }
      ],
      "device_state": "read_write_enabled",
      "file_number": 0,
      "formats": [
        "LTO-7 6TB",
        "LTO-7 15TB Compressed",
        "LTO-8 12TB",
        "LTO-8 30TB Compressed"
      ],
      "interface": "sas",
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "reservation_type": "off",
```

```
      "residual_count": 0,
      "serial_number": "10WT00093",
      "storage_port": {
        "name": "2b"
      },
      "type": "tape",
      "wwnn": "500507631295741c",
      "wwpn": "500507631295741c"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

alias

Name	Type	Description
mapping	string	Alias mapping.
name	string	Alias name.

device_names

Name	Type	Description
no_rewind_device	string	Device name for no rewind.
rewind_device	string	Device name for rewind.
unload_reload_device	string	Device name for unload or reload operations.

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

storage_port

Name	Type	Description
name	string	Initiator port.

tape_device

Name	Type	Description
alias	alias	
block_number	integer	Block number.
description	string	
device_id	string	
device_names	array[device_names]	
device_state	string	Operational state of the device.
file_number	integer	File number.
formats	array[string]	Tape cartridge format.
interface	string	Device interface type.
node	node	
reservation_type	string	
residual_count	integer	Residual count of the last I/O operation.
serial_number	string	
storage_port	storage_port	
type	string	Device type.
wwnn	string	World Wide Node Name.
wwpn	string	World Wide Port Name.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Retrieve a tape device

GET `/storage/tape-devices/{node.uuid}/{device_id}`

Introduced In: 9.9

Retrieves a specific tape.

Related ONTAP commands

- `storage tape show`

Learn more

- DOC /storage/tape-devices

Parameters

Name	Type	In	Required	Description
node.uuid	string	path	True	Node UUID
device_id	string	path	True	Device ID
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
alias	alias	
block_number	integer	Block number.

Name	Type	Description
description	string	
device_id	string	
device_names	array[device_names]	
device_state	string	Operational state of the device.
file_number	integer	File number.
formats	array[string]	Tape cartridge format.
interface	string	Device interface type.
node	node	
reservation_type	string	
residual_count	integer	Residual count of the last I/O operation.
serial_number	string	
storage_port	storage_port	
type	string	Device type.
wwnn	string	World Wide Node Name.
wwpn	string	World Wide Port Name.

Example response


```
{
  "alias": {
    "mapping": "SN[10WT000933]",
    "name": "st6"
  },
  "block_number": 0,
  "description": "QUANTUM LTO-8 ULTRIUM",
  "device_id": "1a.0",
  "device_names": [
    {
      "no_rewind_device": "nrst6l",
      "rewind_device": "rst6l",
      "unload_reload_device": "urst6l"
    }
  ],
  "device_state": "read_write_enabled",
  "file_number": 0,
  "formats": [
    "LTO-7 6TB",
    "LTO-7 15TB Compressed",
    "LTO-8 12TB",
    "LTO-8 30TB Compressed"
  ],
  "interface": "sas",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "reservation_type": "off",
  "residual_count": 0,
  "serial_number": "10WT00093",
  "storage_port": {
    "name": "2b"
  },
  "type": "tape",
  "wwnn": "500507631295741c",
  "wwpn": "500507631295741c"
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


```
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```


Definitions

See Definitions

alias

Name	Type	Description
mapping	string	Alias mapping.
name	string	Alias name.

device_names

Name	Type	Description
no_rewind_device	string	Device name for no rewind.
rewind_device	string	Device name for rewind.
unload_reload_device	string	Device name for unload or reload operations.

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

storage_port

Name	Type	Description
name	string	Initiator port.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

Name	Type	Description
arguments	array[error_arguments]	Message arguments
code	string	Error code
message	string	Error message
target	string	The target parameter that caused the error.

Manage volume efficiency policies

Storage volume-efficiency-policies endpoint overview

Overview

Volume efficiency policies specify information about efficiency policies that are applied to the volume.

Volume efficiency policy APIs

The following APIs are used to perform operations related to volume efficiency policy information:

– POST /api/storage/volume-efficiency-policies

– GET /api/storage/volume-efficiency-policies

– GET /api/storage/volume-efficiency-policies/{uuid}

– PATCH /api/storage/volume-efficiency-policies/{uuid}

– DELETE /api/storage/volume-efficiency-policies/{uuid}

Examples

Creating a volume efficiency policy

The POST operation is used to create a volume efficiency policy with the specified attributes.

```
# The API:
/api/storage/volume-efficiency-policies

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/volume-efficiency-policies"
-H "accept: application/hal+json" -d '{"name": "new_policy", "type":
"scheduled", "schedule": { "name": "daily" }, "duration": "2",
"qos_policy": "best_effort", "enabled": "true", "comment": "schedule-
policy", "svm": { "name": "vs1"}}'

# The response:
HTTP/1.1 201 Created
Date: Tue, 12 Mar 2019 21:20:24 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Location: /api/storage/volume-efficiency-policies/a69d8173-450c-11e9-aa44-
005056bbc848
Content-Length: 369
Content-Type: application/json
{
"num_records": 1,
"records": [
  {
    "uuid": "a69d8173-450c-11e9-aa44-005056bbc848",
    "svm": {
      "name": "vs1"
    },
    "name": "new_policy",
    "type": "scheduled",
    "schedule":{
      "name": "daily"
    },
    "duration": "2",
    "qos_policy": "best_effort",
    "enabled": "true",
    "comment": "schedule-policy"
  }
]
}
```

Retrieving volume efficiency policy attributes

The GET operation is used to retrieve volume efficiency policy attributes.

```
# The API:
/api/storage/volume-efficiency-policies

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volume-efficiency-policies" -H
"accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Tue, 12 Mar 2019 21:17:17 GMT
Server: libzapid-http
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 686
Content-Type: application/json
{
"records": [
  {
    "uuid": "3c112527-2fe8-11e9-b55e-005056bbf1c8",
    "name": "default",
    "_links": {
      "self": {
        "href": "/api/storage/volume-efficiency-policies/3c112527-2fe8-
11e9-b55e-005056bbf1c8"
      }
    }
  },
  {
    "uuid": "3c1c1656-2fe8-11e9-b55e-005056bbf1c8",
    "name": "default-1weekly",
    "_links": {
      "self": {
        "href": "/api/storage/volume-efficiency-policies/3c1c1656-2fe8-
11e9-b55e-005056bbf1c8"
      }
    }
  },
  {
    "uuid": "3c228b82-2fe8-11e9-b55e-005056bbf1c8",
    "name": "none",
    "_links": {
      "self": {
        "href": "/api/storage/volume-efficiency-policies/3c228b82-2fe8-
11e9-b55e-005056bbf1c8"
      }
    }
```

```
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/volume-efficiency-policies/"
  }
}
}
```

Retrieving the attributes of a specific volume efficiency policy

The GET operation is used to retrieve the attributes of a specific volume efficiency policy.

The API:

/api/storage/volume-efficiency-policies/{uuid}

The call:

curl -X GET "https://<mgmt-ip>/api/storage/volume-efficiency-policies/3c112527-2fe8-11e9-b55e-005056bbf1c8" -H "accept: application/hal+json"</mgmt-ip>

The response:

HTTP/1.1 200 OK Date: Tue, 12 Mar 2019 21:24:48 GMT Server: libzapid-httpd X-Content-Type-Options: nosniff Cache-Control: no-cache,no-store,must-revalidate Content-Length: 381 Content-Type: application/json { "uuid": "3c112527-2fe8-11e9-b55e-005056bbf1c8", "name": "new_policy", "type": "scheduled", "schedule": { "name": "daily" } "duration": "2", "qos_policy": "best_effort", "enabled": "true", "comment": "schedule-policy", "svm": { "name": "vs1" } "_links": { "self": { "href": "/api/storage/volume-efficiency-policies/3c112527-2fe8-11e9-b55e-005056bbf1c8" } } }

```
### Updating a volume efficiency policy
The PATCH operation is used to update the specific attributes of a volume
efficiency policy.
```

The API:

/api/storage/volume-efficiency-policies/{uuid}

The call:

curl -X PATCH "https://<mgmt-ip>/api/storage/volume-efficiency-policies/ae9e65c4-4506-11e9-aa44-005056bbc848" -d '{"duration": "3" }' -H "accept: application/hal+json"</mgmt-ip>

The response:

HTTP/1.1 200 OK Date: Tue, 12 Mar 2019 21:27:04 GMT Server: libzapid-httpd X-Content-Type-Options: nosniff Cache-Control: no-cache,no-store,must-revalidate Content-Length: 3 Content-Type: application/json

```
### Deleting a volume efficiency policy
The DELETE operation is used to delete a volume efficiency policy.
```

The API:

/api/storage/volume-efficiency-policies/{uuid}

The call:

curl -X DELETE "https://<mgmt-ip>/api/storage/volume-efficiency-policies/ ae9e65c4-4506-11e9-aa44-005056bbc848" -H "accept: application/hal+json"</mgmt-ip>

The response:

HTTP/1.1 200 OK Date: Tue, 12 Mar 2019 21:19:04 GMT Server: libzapid-httpd X-Content-Type-Options: nosniff Cache-Control: no-cache,no-store,must-revalidate Content-Length: 3 Content-Type: application/json

```
[[ID25f7ae530af605cf375f7a6b3ad838e1]]
= Retrieve volume efficiency policies

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volume-efficiency-policies`#

*Introduced In:* 9.8

Retrieves a collection of volume efficiency policies.

== Related ONTAP commands

* `volume efficiency policy show`

== Learn more

* xref:{relative_path}storage_volume-efficiency-
policies_endpoint_overview.html[DOC /storage/volume-efficiency-policies]


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
```

```
|Description

|svm.uuid
|string
|query
|False
a|Filter by svm.uuid


|svm.name
|string
|query
|False
a|Filter by svm.name


|schedule.name
|string
|query
|False
a|Filter by schedule.name


|name
|string
|query
|False
a|Filter by name


|start_threshold_percent
|integer
|query
|False
a|Filter by start_threshold_percent


|duration
|integer
|query
|False
a|Filter by duration


|enabled
|boolean
|query
```

```
|False
a|Filter by enabled


|qos_policy
|string
|query
|False
a|Filter by qos_policy


|type
|string
|query
|False
a|Filter by type


|comment
|string
|query
|False
a|Filter by comment


|uuid
|string
|query
|False
a|Filter by uuid


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|return_records
```

```
|boolean
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|
```

```
|num_records
|integer
a|Number of records


|records
|array[link:#volume_efficiency_policy[volume_efficiency_policy]]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
      "duration": 5,
      "enabled": 1,
      "name": "default",
      "qos_policy": "string",
      "schedule": {
        "name": "daily"
      },
      "start_threshold_percent": 30,
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
```

```
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "type": "string",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
```

```
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===
```

```
[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#schedule]
[.api-collapsible-fifth-title]
schedule

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Schedule at which volume efficiency policies are captured on the SVM.
Some common schedules already defined in the system are hourly, daily,
weekly, at 5 minute intervals, and at 8 hour intervals. Volume efficiency
policies with custom schedules can be referenced.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#volume_efficiency_policy]
[.api-collapsible-fifth-title]
volume_efficiency_policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the volume efficiency policy.


|duration
|integer
a|This field is used with the policy type "scheduled" to indicate the
allowed duration for a session, in hours. Possible value is a number
between 0 and 999 inclusive. Default is unlimited indicated by value 0.


|enabled
|boolean
a|Is the volume efficiency policy enabled?
```

```
|name
|string
a|Name of the volume efficiency policy.


|qos_policy
|string
a|QoS policy for the sis operation. Possible values are background and
best_effort. In background, sis operation will run in background with
minimal or no impact on data serving client operations. In best_effort,
sis operations may have some impact on data serving client operations.


|schedule
|link:#schedule[schedule]
a|

|start_threshold_percent
|integer
a|This field is used with the policy type "threshold" to indicate the
threshold percentage for triggering the volume efficiency policy. It is
mutuallly exclusive of the schedule.


|svm
|link:#svm[svm]
a|

|type
|string
a|Type of volume efficiency policy.


|uuid
|string
a|Unique identifier of volume efficiency policy.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.
```

```
|===


//end collapsible .Definitions block
====



[[ID20c76bd6eed286b84dea208f3439ae76]]
= Create a volume efficiency policy

[.api-doc-operation .api-doc-operation-post]#POST# [.api-doc-code-
block]#`/storage/volume-efficiency-policies`#

*Introduced In:* 9.8

Creates a volume efficiency policy.

== Required properties

* `svm.uuid` or `svm.name` - Existing SVM in which to create the volume
efficiency policy.
* `name` - Name for the volume efficiency policy.

== Recommended optional properties

* `type` - Type of volume policy.
* `schedule` - Schedule the volume efficiency defined in minutes, hourly,
daily and weekly.
* `duration` - Indicates the allowed duration for a session for policy
type "scheduled".
* `start_threshold_percent` - Indicates the start threshold percentage for
the policy type "threshold". It is mutually exclusive of the schedule.
* `qos_policy` - QoS policy for the sis operation.
* `comment` - A comment associated with the volume efficiency policy.
* `enabled` - Is the volume efficiency policy enabled?

== Default property values

If not specified in POST, the following default property values are
assigned:

* `type` - scheduled
* `enabled` - true
* `qos_policy` - best_effort
```

```
== Related ONTAP commands

* `volume efficiency policy create`

== Learn more

* xref:{relative_path}storage_volume-efficiency-
policies_endpoint_overview.html[DOC /storage/volume-efficiency-policies]


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|return_records
|boolean
|query
|False
a|The default is false.  If set to true, the records are returned.

* Default value:

|===

== Request Body



[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
```

```
|string
a|A comment associated with the volume efficiency policy.


|duration
|integer
a|This field is used with the policy type "scheduled" to indicate the
allowed duration for a session, in hours. Possible value is a number
between 0 and 999 inclusive. Default is unlimited indicated by value 0.


|enabled
|boolean
a|Is the volume efficiency policy enabled?


|name
|string
a|Name of the volume efficiency policy.


|qos_policy
|string
a|QoS policy for the sis operation. Possible values are background and
best_effort. In background, sis operation will run in background with
minimal or no impact on data serving client operations. In best_effort,
sis operations may have some impact on data serving client operations.


|schedule
|link:#schedule[schedule]
a|

|start_threshold_percent
|integer
a|This field is used with the policy type "threshold" to indicate the
threshold percentage for triggering the volume efficiency policy. It is
mutuallly exclusive of the schedule.


|svm
|link:#svm[svm]
a|

|type
|string
a|Type of volume efficiency policy.
```

```
|uuid
|string
a|Unique identifier of volume efficiency policy.


|===


.Example request
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "duration": 5,
  "enabled": 1,
  "name": "default",
  "qos_policy": "string",
  "schedule": {
    "name": "daily"
  },
  "start_threshold_percent": 30,
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "string",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
====

== Response
```

Status: 201, Created

```
== Error
```

Status: Default

```
ONTAP Error Response Codes

|===
| Error Code | Description

| 6881341
| Specified schedule not found.

| 6881344
| Failed to queue specified job.

| 6881345
| This operation is not permitted on a node SVM.

| 6881349
| Policy name is not valid.

| 6881362
| Threshold percentage cannot be less than 1 percent.

| 6881433
| For "{\{0}}" type policy, attribute "{\{1}}" is not supported.

| 6881435
| Only a policy of type "threshold" can set the "start-threshold-percent"
attribute.

| 6881436
| For a policy of type "scheduled", a valid "schedule" is a required
attribute.

| 6881454
| An efficiency policy of type "threshold" requires an effective cluster
version of ONTAP 8.3 or later.

| 6881474
| Duration cannot be null.

| 6881475
| Duration is not valid.
```

```
| 6881476
| Duration cannot be less than 1 hour.

| 6881477
| Duration cannot be more than 999 hours.
|===



[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
```

```
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#schedule]
[.api-collapsible-fifth-title]
schedule

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
```

```
a|Schedule at which volume efficiency policies are captured on the SVM.
Some common schedules already defined in the system are hourly, daily,
weekly, at 5 minute intervals, and at 8 hour intervals. Volume efficiency
policies with custom schedules can be referenced.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#volume_efficiency_policy]
[.api-collapsible-fifth-title]
volume_efficiency_policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
```

```
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the volume efficiency policy.


|duration
|integer
a|This field is used with the policy type "scheduled" to indicate the
allowed duration for a session, in hours. Possible value is a number
between 0 and 999 inclusive. Default is unlimited indicated by value 0.


|enabled
|boolean
a|Is the volume efficiency policy enabled?


|name
|string
a|Name of the volume efficiency policy.


|qos_policy
|string
a|QoS policy for the sis operation. Possible values are background and
best_effort. In background, sis operation will run in background with
minimal or no impact on data serving client operations. In best_effort,
sis operations may have some impact on data serving client operations.


|schedule
|link:#schedule[schedule]
a|

|start_threshold_percent
|integer
a|This field is used with the policy type "threshold" to indicate the
threshold percentage for triggering the volume efficiency policy. It is
mutuallly exclusive of the schedule.


|svm
|link:#svm[svm]
a|
```

```
|type
|string
a|Type of volume efficiency policy.


|uuid
|string
a|Unique identifier of volume efficiency policy.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[ID584f8f94d3d07f2593be63a57c0fffcb]]
= Delete a volume efficiency policy

[.api-doc-operation .api-doc-operation-delete]#DELETE# [.api-doc-code-
block]#`/storage/volume-efficiency-policies/{uuid}`#

*Introduced In:* 9.8

Deletes a volume efficiency policy.

== Related ONTAP commands

* `volume efficiency policy modify`

== Learn more

* xref:{relative_path}storage_volume-efficiency-
policies_endpoint_overview.html[DOC /storage/volume-efficiency-policies]
```

```
== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|uuid
|string
|path
|True
a|Volume efficiency policy UUID

|===

== Response
```

Status: 200, Ok

```
== Error
```

Status: Default

```
ONTAP Error Response Code

|===
| Error Code | Description

| 6881346
| The policy was not deleted because the policy is in use by at least one
volume.

| 6881347
| This operation cannot be performed because the specified policy is owned
by the cluster admin.

| 6881431
| The specified policy is a predefined policy and cannot be deleted.
|===
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.
```

```
|===


//end collapsible .Definitions block
====



[[ID8c1064ec19cbf4cdbb30386ece52d832]]
= Retrieve volume efficiency policy details

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volume-efficiency-policies/{uuid}`#

*Introduced In:* 9.8

Retrieves the details of the specified volume efficiency policy.

== Related ONTAP commands

* `volume efficiency policy show`

== Learn more

* xref:{relative_path}storage_volume-efficiency-
policies_endpoint_overview.html[DOC /storage/volume-efficiency-policies]


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|uuid
|string
|path
|True
a|Volume efficiency policy UUID
```

```
|fields
|array[string]
|query
|False
a|Specify the fields to return.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the volume efficiency policy.


|duration
|integer
a|This field is used with the policy type "scheduled" to indicate the
allowed duration for a session, in hours. Possible value is a number
between 0 and 999 inclusive. Default is unlimited indicated by value 0.


|enabled
|boolean
a|Is the volume efficiency policy enabled?


|name
|string
a|Name of the volume efficiency policy.


|qos_policy
|string
```

```
a|QoS policy for the sis operation. Possible values are background and
best_effort. In background, sis operation will run in background with
minimal or no impact on data serving client operations. In best_effort,
sis operations may have some impact on data serving client operations.


|schedule
|link:#schedule[schedule]
a|

|start_threshold_percent
|integer
a|This field is used with the policy type "threshold" to indicate the
threshold percentage for triggering the volume efficiency policy. It is
mutuallly exclusive of the schedule.


|svm
|link:#svm[svm]
a|

|type
|string
a|Type of volume efficiency policy.


|uuid
|string
a|Unique identifier of volume efficiency policy.


|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "duration": 5,
  "enabled": 1,
```

```
  "name": "default",
  "qos_policy": "string",
  "schedule": {
    "name": "daily"
  },
  "start_threshold_percent": 30,
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "string",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
```

```
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
```

```
|link:#href[href]
a|

|===


[#schedule]
[.api-collapsible-fifth-title]
schedule

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Schedule at which volume efficiency policies are captured on the SVM.
Some common schedules already defined in the system are hourly, daily,
weekly, at 5 minute intervals, and at 8 hour intervals. Volume efficiency
policies with custom schedules can be referenced.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
```

```
|string
a|The unique identifier of the SVM.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
```

```
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[ID8c0cc48bfc9f5907f438f95e2024bcf9]]
= Update a volume efficiency policy

[.api-doc-operation .api-doc-operation-patch]#PATCH# [.api-doc-code-
block]#`/storage/volume-efficiency-policies/{uuid}`#

*Introduced In:* 9.8

Updates a volume efficiency policy.

== Related ONTAP commands

* `volume efficiency policy modify`

== Learn more

* xref:{relative_path}storage_volume-efficiency-
policies_endpoint_overview.html[DOC /storage/volume-efficiency-policies]


== Parameters

[cols=5*,options=header]
|===

|Name
```

```
|Type
|In
|Required
|Description

|uuid
|string
|path
|True
a|Volume efficiency policy UUID

|===

== Request Body



[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the volume efficiency policy.


|duration
|integer
a|This field is used with the policy type "scheduled" to indicate the
allowed duration for a session, in hours. Possible value is a number
between 0 and 999 inclusive. Default is unlimited indicated by value 0.


|enabled
|boolean
a|Is the volume efficiency policy enabled?


|name
|string
a|Name of the volume efficiency policy.
```

```
|qos_policy
|string
a|QoS policy for the sis operation. Possible values are background and
best_effort. In background, sis operation will run in background with
minimal or no impact on data serving client operations. In best_effort,
sis operations may have some impact on data serving client operations.


|schedule
|link:#schedule[schedule]
a|

|start_threshold_percent
|integer
a|This field is used with the policy type "threshold" to indicate the
threshold percentage for triggering the volume efficiency policy. It is
mutuallly exclusive of the schedule.


|svm
|link:#svm[svm]
a|

|type
|string
a|Type of volume efficiency policy.


|uuid
|string
a|Unique identifier of volume efficiency policy.


|===


.Example request
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
```

```
  },
  "comment": "string",
  "duration": 5,
  "enabled": 1,
  "name": "default",
  "qos_policy": "string",
  "schedule": {
    "name": "daily"
  },
  "start_threshold_percent": 30,
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "string",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
====
```

== Response

Status: 200, Ok

```
== Error
```

Status: Default

```
ONTAP Error Response Code

|===
| Error Code | Description

| 6881341
| Specified schedule not found.

| 6881344
| Failed to queue specified job.

| 6881348
| This operation cannot be performed because the specified policy is owned
```

```
by the cluster admin.

| 6881349
| Policy name is not valid.

| 6881362
| Threshold percentage cannot be less than 1 percent.

| 6881433
| For "{\{0}}" type policy, "{\{1}}" duration is not supported.

| 6881435
| Only a policy of type "threshold" can set the "start-threshold-percent"
attribute.

| 6881436
| For a policy of type "scheduled", a valid "schedule" is a required
attribute.

| 6881438
| For "{\{0}}" policy, modification of attributes is not allowed.

| 6881474
| Duration cannot be null.

| 6881475
| Duration is not valid.

| 6881476
| Duration cannot be less than 1 hour.

| 6881477
| Duration cannot be more than 999 hours.
|===



[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|
```

```
|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===
```

```
[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#schedule]
[.api-collapsible-fifth-title]
schedule

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Schedule at which volume efficiency policies are captured on the SVM.
Some common schedules already defined in the system are hourly, daily,
weekly, at 5 minute intervals, and at 8 hour intervals. Volume efficiency
policies with custom schedules can be referenced.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#volume_efficiency_policy]
[.api-collapsible-fifth-title]
volume_efficiency_policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the volume efficiency policy.


|duration
|integer
a|This field is used with the policy type "scheduled" to indicate the
allowed duration for a session, in hours. Possible value is a number
between 0 and 999 inclusive. Default is unlimited indicated by value 0.


|enabled
|boolean
a|Is the volume efficiency policy enabled?
```

```
|name
|string
a|Name of the volume efficiency policy.


|qos_policy
|string
a|QoS policy for the sis operation. Possible values are background and
best_effort. In background, sis operation will run in background with
minimal or no impact on data serving client operations. In best_effort,
sis operations may have some impact on data serving client operations.


|schedule
|link:#schedule[schedule]
a|

|start_threshold_percent
|integer
a|This field is used with the policy type "threshold" to indicate the
threshold percentage for triggering the volume efficiency policy. It is
mutuallly exclusive of the schedule.


|svm
|link:#svm[svm]
a|

|type
|string
a|Type of volume efficiency policy.


|uuid
|string
a|Unique identifier of volume efficiency policy.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.
```

```
|===


//end collapsible .Definitions block
====



:leveloffset: -1


= Manage storage volumes

:leveloffset: +1


[[ID7161924ba592a72706704ba208215712]]
= Storage volumes endpoint overview



== Overview

FlexVol volumes are logical containers used by ONTAP to serve data to
clients.  They contain file systems in a NAS environment and LUNs in a SAN
environment.

A FlexGroup volume is a scale-out NAS container that provides high
performance along with automatic load distribution and scalability. A
FlexGroup volume contains several constituents that automatically and
transparently share the traffic.

FlexClone volumes are writable, point-in-time copies of a FlexVol volume.
At this time, FlexClones of FlexGroups are not supported.

Volumes with SnapLock type Compliance or Enterprise, are referred to as
SnapLock volumes. Volumes with SnapLock type cannot be of FlexGroup style.
Once a SnapLock aggregate is created, by default, volumes created inside
the aggregate inherit the "snaplock" property from the aggregate. It is
possible to create a SnapLock volume by specifying SnapLock parameters.
SnapLock parameters are only available at the "advanced" privilege level.

ONTAP storage APIs allow you to create, modify, and monitor volumes and
aggregates.
```

```
== Storage efficiency

Storage efficiency is used to remove duplicate blocks in the data and to
compress the data. Efficiency has deduplication, compression, cross volume
deduplication, and compaction options. On All Flash systems, all
efficiencies are enabled by default on volume creation. Options such as
"background/inline/both" are treated as both, which means both background
and inline are enabled for any efficiency option. The option "none"
disables both background and inline efficiency.

To enable any efficiency option on all-flash or FAS systems, background
deduplication is always enabled.

== Quotas

Quotas provide a way to restrict or track the files and space usage by a
user, group, or qtree. Quotas are enabled for a specific FlexVol or a
FlexGroup volume.

The following APIs can be used to enable or disable and obtain quota state
for a FlexVol or a FlexGroup volume:

&ndash; PATCH  /api/storage/volumes/\{uuid} -d '{"quota.enabled":"true"}'

&ndash; PATCH  /api/storage/volumes/\{uuid} -d '{"quota.enabled":"false"}'

&ndash; GET    /api/storage/volumes/\{uuid}/?fields=quota.state

== File System Analytics

File system analytics provide a quick method for obtaining information
summarizing properties of all files within any directory tree of a volume.
For more information on file system analytics, see
xref:{relative_path}storage_volumes_volume.uuid_files_path_endpoint_overvi
ew.html[DOC /storage/volumes{volume.uuid}/files/\{path}] . Analytics can
be enabled or disabled on individual volumes.

The following APIs can be used to enable or disable and obtain analytics
state for a FlexVol volume or a FlexGroup volume:

&ndash; PATCH  /api/storage/volumes/\{uuid} -d '{"analytics.state":"on"}'

&ndash; PATCH  /api/storage/volumes/\{uuid} -d '{"analytics.state":"off"}'

&ndash; GET    /api/storage/volumes/\{uuid}/?fields=analytics

== QoS
```

```
QoS policy and settings enforce Service Level Objectives (SLO) on a
volume. SLO can be set by specifying qos.max_throughput_iops and/or
qos.max_throughput_mbps or qos.min_throughput_iops and/or
qos.min_throughput_mbps. Specifying min_throughput_iops or
min_throughput_mbps is only supported on volumes hosted on a node that is
flash optimized. A pre-created QoS policy can also be used by specifying
qos.name or qos.uuid property.

== Performance monitoring

Performance of a volume can be monitored by the `metric.+*+` and
`statistics.+*+` fields. These show the performance of the volume in terms
of IOPS, latency and throughput. The `metric.+*+` fields denote an average
whereas `statistics.+*+` fields denote a real-time monotonically
increasing value aggregated across all nodes.

== Volume APIs

The following APIs are used to perform operations related with FlexVol
volumes and FlexGroup volumes:

&ndash; POST      /api/storage/volumes

&ndash; GET       /api/storage/volumes

&ndash; GET       /api/storage/volumes/\{uuid}

&ndash; PATCH     /api/storage/volumes/\{uuid}

&ndash; DELETE    /api/storage/volumes/\{uuid}

== Examples

=== Creating a volume

The POST request is used to create a new volume and to specify its
properties.

----

# The API:
/api/storage/volumes

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/volumes" -H "accept:
application/hal+json" -d '{"name": "vol1",
```

```
"aggregates":[{"name":"aggr1"}], "svm":{"name" : "vs1"}}'

# The response:
{
"job": {
  "uuid": "b89bc5dd-94a3-11e8-a7a3-0050568edf84",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/b89bc5dd-94a3-11e8-a7a3-0050568edf84"
    }
  }
}
}
----

=== Creating a SnapLock volume and specifying its properties using POST

----

# The API:
/api/storage/volumes

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/volumes" -H "accept:
application/hal+json" -d '{"name": "vol1",  "aggregates":[{"name":
"aggr1"}],  "svm":{"name" : "vs1"}, "snaplock":{"retention":{"default":
"P20Y"}, "type": "compliance"}}'

# The response:
{
"job": {
  "uuid": "e45b123b-c228-11e8-aa20-0050568e36bb",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/e45b123b-c228-11e8-aa20-0050568e36bb"
    }
  }
}
}
----

=== Creating a FlexGroup volume and specifying its properties using POST

----

# The API:
```

```
/api/storage/volumes

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/volumes" -H "accept:
application/hal+json" -d '{"name" : "vol1", "state" : "online", "type" :
"RW", "aggregates" : [{"name" : "aggr1"}, {"name" : "aggr2"},
{"name":"aggr3"}], "constituents_per_aggregate" : "1", "svm" : {"name" :
"vs1"}, "size" : "240MB", "encryption" : {"enabled" : "False"},
"efficiency" : {"compression" : "both"}, "autosize" : {"maximum" :
"500MB", "minimum" : "240MB"}}'

# The response:
{
"job": {
  "uuid": "3cfa38bd-3a78-11e9-ae39-0050568ed7dd",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/3cfa38bd-3a78-11e9-ae39-0050568ed7dd"
    }
  }
}
}
----

=== Creating a FlexClone and specifying its properties using POST

----

# The API:
/api/storage/volumes

# The call:
curl -X POST  "https://<mgmt-ip>/api/storage/volumes" -H "accept:
application/hal+json" -d '{"name":"vol1_clone", "clone": {"parent_volume":
{"name": "vol1"}, "is_flexclone": "true"},"svm":{"name": "vs0"}}'

# The response:
HTTP/1.1 202 Accepted
Date: Tue, 26 Feb 2019 09:06:22 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Location: /api/storage/volumes/?name=vol1_clone
Content-Length: 189
Content-Type: application/hal+json
{
```

```
"job": {
  "uuid": "c9ee0040-39a5-11e9-9b24-00a098439a83",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/c9ee0040-39a5-11e9-9b24-00a098439a83"
    }
  }
}
}
----

== Volumes reported in the GET REST API

=== The following types of volumes are reported:

&ndash;  RW, DP and LS volumes

&ndash;  FlexGroup volume

&ndash;  FlexCache volume

&ndash;  FlexClone volume

&ndash;  FlexGroup constituent

=== The following volumes are not reported:

&ndash;  DEL and TMP type volume

&ndash;  Node Root volume

&ndash;  System Vserver volume

&ndash;  FlexCache constituent

== Examples

=== Retrieving the list of volumes

----

# The API:
/api/storage/volumes

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes" -H "accept:
application/hal+json"
```

```
# The response:
{
"records": [
  {
    "uuid": "2d1167cc-c3f2-495a-a23f-8f50b071b9b8",
    "name": "vsdata_root",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/2d1167cc-c3f2-495a-a23f-
8f50b071b9b8"
      }
    }
  },
  {
    "uuid": "3969be7e-78b4-4b4c-82a4-fa86331f03df",
    "name": "vsfg_root",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/3969be7e-78b4-4b4c-82a4-
fa86331f03df"
      }
    }
  },
  {
    "uuid": "59c03ac5-e708-4ce8-a676-278dc249fda2",
    "name": "svm_root",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/59c03ac5-e708-4ce8-a676-
278dc249fda2"
      }
    }
  },
  {
    "uuid": "6802635b-8036-11e8-aae5-0050569503ac",
    "name": "fgvol",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/6802635b-8036-11e8-aae5-
0050569503ac"
      }
    }
  },
  {
    "uuid": "d0c3359c-5448-4a9b-a077-e3295a7e9057",
```

```
    "name": "datavol",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/d0c3359c-5448-4a9b-a077-
e3295a7e9057"
      }
    }
  }
],
"num_records": 5,
"_links": {
  "self": {
    "href": "/api/storage/volumes"
  }
}
}
----

=== Retrieving the attributes of a volume

The GET request is used to retrieve the attributes of a volume.

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
a077-e3295a7e9057" -H "accept: application/hal+json"

# The response:
{
"uuid": "d0c3359c-5448-4a9b-a077-e3295a7e9057",
"comment": "This is a data volume",
"create_time": "2018-07-05T14:56:44+05:30",
"language": "en_us",
"name": "datavol",
"size": 20971520,
"state": "online",
"style": "flexvol",
"tiering_policy": "auto",
"type": "rw",
"aggregates": [
  {
    "name": "data",
```

```
    "uuid": "aa742322-36bc-4d98-bbc4-0a827534c035",
    "_links": {
      "self": {
        "href": "/api/cluster/aggregates/data"
      }
    }
  }
],
"encryption": {
  "enabled": false,
  "state": "none",
  "key_id": "",
  "type" : "none"
},
"error_state": {
  "has_bad_blocks": false,
  "is_inconsistent": false
},
"files": {
  "maximum": 566,
  "used": 96
},
"nas": {
  "gid": 2468,
  "security_style": "unix",
  "uid": 1357,
  "unix_permissions": 4755,
  "export_policy": {
    "name": "default",
    "id": 8589934593
  },
  "junction_parent": {
    "name": "vol1",
    "uuid": "a2564f80-25fb-41e8-9b49-44de2600991f",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/a2564f80-25fb-41e8-9b49-
44de2600991f"
      }
    }
  }
},
"metric": {
  "timestamp": "2019-04-09T05:50:15Z",
  "status": "ok",
  "duration": "PT15S",
```

```
    "latency": {
      "other": 0,
      "total": 0,
      "read": 0,
      "write": 0
    },
    "iops": {
      "read": 0,
      "write": 0,
      "other": 0,
      "total": 0
    },
    "throughput": {
      "read": 0,
      "write": 0,
      "other": 0,
      "total": 0
    },
    "cloud": {
      "timestamp": "2019-04-09T05:50:15Z",
      "status": "ok",
      "duration": "PT15S",
      "iops" : {
        "read": 0,
        "write": 0,
        "other": 0,
        "total": 0
      },
      "latency": {
        "read": 0,
        "write": 0,
        "other": 0,
        "total": 0
      }
    },
    "flexcache": {
      "timestamp": "2019-04-09T05:50:15Z",
      "status": "ok",
      "duration": "PT1D",
      "cache_miss_percent": 0,
      "bandwidth_savings": 0
    }
  },
  "statistics": {
    "timestamp": "2019-04-09T05:50:42Z",
    "status": "ok",
```

```
  "latency_raw": {
    "other": 38298,
    "total": 38298,
    "read": 0,
    "write": 0
  },
  "iops_raw": {
    "read": 0,
    "write": 0,
    "other": 3,
    "total": 3
  },
  "throughput_raw": {
    "read": 0,
    "write": 0,
    "other": 0,
    "total": 0
  },
  "cloud": {
    "timestamp": "2019-04-09T05:50:42Z",
    "status": "ok",
    "iops_raw" : {
      "read": 0,
      "write": 0,
      "other": 0,
      "total": 0
    },
    "latency_raw": {
      "read": 0,
      "write": 0,
      "other": 0,
      "total": 0
    }
  },
  "flexcache_raw": {
    "timestamp": "2019-04-09T05:50:15Z",
    "status": "ok",
    "cache_miss_blocks": 0,
    "client_requested_blocks": 0
  }
},
"qos": {
  "policy": {
  "min_throughput_iops": 0,
  "min_throughput_mbps": 0,
  "max_throughput_iops": 1000,
```

```
  "max_throughput_mbps": 0,
  "uuid": "228454af-5a8b-11e9-bd5b-005056ac6f1f",
  "name": "pg1"
  }
},
"snaplock": {
  "append_mode_enabled": false,
  "autocommit_period": "none",
  "compliance_clock_time": "2019-05-24T10:59:00+05:30",
  "expiry_time": "2038-01-19T08:44:28+05:30",
  "is_audit_log": false,
  "litigation_count": 0,
  "privileged_delete": "disabled",
  "type": "enterprise",
  "retention": {
    "default": "P0Y",
    "minimum": "P0Y",
    "maximum": "P30Y"
  }
},
"snapshot_policy": {
  "name": "default"
},
"svm": {
  "name": "vsdata",
  "uuid": "d61b69f5-7458-11e8-ad3f-0050569503ac"
},
"anti_ransomware_state": "disabled",
"_links": {
  "self": {
    "href": "/api/storage/volumes/d0c3359c-5448-4a9b-a077-e3295a7e9057"
  }
}
}
----

=== Retrieving the quota state of a FlexVol or a FlexGroup volume

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb20da45-4f6b-11e9-
9a71-005056a7f717/?fields=quota.state" -H "accept: application/hal+json"
```

```
# The response:
{
"uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
"name": "fv",
"quota": {
  "state": "on"
},
"_links": {
  "self": {
    "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-005056a7f717/"
  }
}
}
----

=== Retrieving the constituents of a FlexGroup volume

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
a077-e3295a7e9057/?fields=constituents" -H "accept: application/hal+json"

# The response:
{
"uuid": "d0c3359c-5448-4a9b-a077-e3295a7e9057",
"name": "fg",
"constituents": [
  {
    "name": "fg__0001",
    "space": {
      "size": 536870912,
      "available": 479756288,
      "used": 30273536,
      "local_tier_footprint": 540958720,
      "footprint": 389120,
      "over_provisioned": 0,
      "metadata": 4087808,
      "total_footprint": 540958720,
      "logical_space": {
        "reporting": false,
        "enforcement": false,
```

```
        "used_by_afs": 30273536
      },
      "snapshot": {
        "reserve_percent": 5,
        "autodelete_enabled": false
      }
    },
    "aggregates": {
      "name": "vs_aggr",
      "uuid": "2e00716c-eb54-45a9-8ca5-be50ccd40708",
      "_links": {
        "self": {
          "href": "/api/storage/aggregates/2e00716c-eb54-45a9-8ca5-
be50ccd40708"
        }
      }
    }
  },
  {
    "name": "fg__0002",
    "space": {
      "size": 536870912,
      "available": 479756288,
      "used": 30273536,
      "local_tier_footprint": 540958720,
      "footprint": 389120,
      "over_provisioned": 0,
      "metadata": 4087808,
      "total_footprint": 540958720,
      "logical_space": {
        "reporting": false,
        "enforcement": false,
        "used_by_afs": 30273536
      },
      "snapshot": {
        "reserve_percent": 5,
        "autodelete_enabled": false
      }
    },
    "aggregates": {
      "name": "aggr1",
      "uuid": "f655cf4f-8208-4fc8-bfc8-4f238d434402",
      "_links": {
        "self": {
          "href": "/api/storage/aggregates/f655cf4f-8208-4fc8-bfc8-
4f238d434402"
```

```
        }
      }
    }
  },
  {
    "name": "fg__0003",
    "space": {
      "size": 536870912,
      "available": 479756288,
      "used": 30273536,
      "local_tier_footprint": 540958720,
      "footprint": 389120,
      "over_provisioned": 0,
      "metadata": 4087808,
      "total_footprint": 540958720,
      "logical_space": {
        "reporting": false,
        "enforcement": false,
        "used_by_afs": 30273536
      },
      "snapshot": {
        "reserve_percent": 5,
        "autodelete_enabled": false
      }
    },
    "aggregates": {
      "name": "aggr2",
      "uuid": "c7239f14-b861-46fc-b406-70fe13c1a4fb",
      "_links": {
        "self": {
          "href": "/api/storage/aggregates/c7239f14-b861-46fc-b406-
70fe13c1a4fb"
        }
      }
    }
  },
  {
    "name": "fg__0004",
    "space": {
      "size": 536870912,
      "available": 479756288,
      "used": 30273536,
      "local_tier_footprint": 540958720,
      "footprint": 389120,
      "over_provisioned": 0,
      "metadata": 4087808,
```

```
      "total_footprint": 540958720,
      "logical_space": {
        "reporting": false,
        "enforcement": false,
        "used_by_afs": 30273536
      },
      "snapshot": {
        "reserve_percent": 5,
        "autodelete_enabled": false
      }
    },
    "aggregates": {
      "name": "aggr3",
      "uuid": "4c86137a-06af-482d-a41c-d64acc5dcea4",
      "_links": {
        "self": {
          "href": "/api/storage/aggregates/4c86137a-06af-482d-a41c-
d64acc5dcea4"
        }
      }
    }
  }
],
"_links": {
  "self": {
    "href": "/api/storage/volumes/d0c3359c-5448-4a9b-a077-e3295a7e9057"
  }
}
}
----

== Updating the attributes of a volume

== Examples

=== Updating the attributes of a volume

The PATCH request is used to update the attributes of a volume.

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
```

```
a077-e3295a7e9057" -d '{ "size": 26214400, "nas": {"security_style":
"mixed"}, "comment": "This is a data volume" }' -H "accept:
application/hal+json"

# The response:
HTTP/1.1 202 Accepted
Date: Tue, 31 Jul 2018 09:36:43 GMT
Server: libzapid-httpd
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
Content-Type: application/hal+json
{
"job": {
  "uuid": "3c5be5a6-94a5-11e8-8ca3-00505695c11b",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/3c5be5a6-94a5-11e8-8ca3-00505695c11b"
    }
  }
}
}
----

=== Updating the attributes of a FlexClone using PATCH

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
a077-e3295a7e9057" -d '{"clone":{"split_initiated":"true"}}' -H "accept:
application/hal+json"

# The response:
HTTP/1.1 202 Accepted
Date: Mon, 25 Feb 2019 10:10:19 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
Content-Type: application/hal+json
{
"job": {
  "uuid": "8e01747f-38e5-11e9-8a3a-00a09843994b",
```

```
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/8e01747f-38e5-11e9-8a3a-00a09843994b"
    }
  }
}
}
----

=== Enabling quotas for a FlexVol or a FlexGroup volume using PATCH

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
a077-e3295a7e9057" -d '{"quota":{"enabled":"true"}}' -H "accept:
application/hal+json"

# The response:
HTTP/1.1 202 Accepted
Date: Mon, 25 Feb 2019 10:10:19 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
Content-Type: application/hal+json
{
"job": {
  "uuid": "d2fe7299-57d0-11e9-a2dc-005056a7f717",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/d2fe7299-57d0-11e9-a2dc-005056a7f717"
    }
  }
}
}
----

=== Disabling quotas for a FlexVol or a FlexGroup volume using PATCH

----

# The API:
```

```
/api/storage/volumes/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
a077-e3295a7e9057" -d '{"quota":{"enabled":"false"}}' -H "accept:
application/hal+json"

# The response:
HTTP/1.1 202 Accepted
Date: Mon, 25 Feb 2019 10:10:19 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
Content-Type: application/hal+json
{
"job": {
  "uuid": "0c8f6bea-57d1-11e9-a2dc-005056a7f717",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/0c8f6bea-57d1-11e9-a2dc-005056a7f717"
    }
  }
}
}
----

== Add tiering object tags for a FlexVol using PATCH

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
a077-e3295a7e9057" -d '{"tiering.object_tags": [ "key1=val1", "key2=val2"
]}' -H "accept: application/hal+json"

# The response:
HTTP/1.1 202 Accepted
Date: Tue, 11 Feb 2020 19:29:25 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
```

```
Content-Type: application/hal+json
{
"job": {
  "uuid": "d05012de-4d04-11ea-836b-005056bb6f9d",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/d05012de-4d04-11ea-836b-005056bb6f9d"
    }
  }
}
}
----

=== Remove tiering object tags for a FlexVol using PATCH

----

# The API:
/api/storage/volumes/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/volumes/d0c3359c-5448-4a9b-
a077-e3295a7e9057" -d '{"tiering.object_tags": []}' -H "accept:
application/hal+json"

# The response:
HTTP/1.1 202 Accepted
Date: Fri, 24 Jan 2020 22:28:04 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
Content-Type: application/hal+json
{
"job": {
  "uuid": "ca234df1-3ef8-11ea-9a56-005056bb69a1",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/ca234df1-3ef8-11ea-9a56-005056bb69a1"
    }
  }
}
}
----

== Deleting a volume
```

```
== Example

=== Deleting a volume

The DELETE request is used to delete a volume.

----

# The API:
/api/storage/volumes

# The call:
curl -X DELETE  "https://<mgmt-ip>/api/storage/volumes/{uuid} " -H
"accept: application/hal+json"

# The response:
HTTP/1.1 202 Accepted
cache-control: no-cache,no-store,must-revalidate
connection: Keep-Alive
content-length: 189
content-type: application/json
date: Wed, 01 Aug 2018 09:40:36 GMT
keep-alive: timeout=5, max=100
server: libzapid-httpd
{
"job": {
  "uuid": "f1aa3eb8-956e-11e8-86bf-0050568e2249",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/f1aa3eb8-956e-11e8-86bf-0050568e2249"
    }
  }
}
}
----




[[ID30d724706b81fadad3c11c7bec09b27d]]
= Retrieve volumes

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes`#

*Introduced In:* 9.6
```

```
Retrieves volumes.

== Expensive properties

There is an added cost to retrieving values for these properties. They are
not included by default in GET results and must be explicitly requested
using the `fields` query parameter. See
xref:{relative_path}getting_started_with_the_ontap_rest_api.html#Requestin
g_specific_fields[Requesting specific fields] to learn more.

* `is_svm_root`
* `analytics.+*+`
* `anti_ransomware.+*+`
* `application.+*+`
* `encryption.+*+`
* `queue_for_encryption`
* `convert_unicode`
* `clone.parent_snapshot.name`
* `clone.parent_snapshot.uuid`
* `clone.parent_svm.name`
* `clone.parent_svm.uuid`
* `clone.parent_volume.name`
* `clone.parent_volume.uuid`
* `clone.split_complete_percent`
* `clone.split_estimate`
* `clone.split_initiated`
* `efficiency.+*+`
* `error_state.+*+`
* `files.+*+`
* `max_dir_size`
* `nas.export_policy.id`
* `nas.gid`
* `nas.path`
* `nas.security_style`
* `nas.uid`
* `nas.unix_permissions`
* `nas.junction_parent.name`
* `nas.junction_parent.uuid`
* `snaplock.+*+`
* `restore_to.+*+`
* `snapshot_policy.uuid`
* `quota.+*+`
* `qos.+*+`
* `flexcache_endpoint_type`
* `space.block_storage_inactive_user_data`
```

```
* `space.capacity_tier_footprint`
* `space.performance_tier_footprint`
* `space.local_tier_footprint`
* `space.footprint`
* `space.over_provisioned`
* `space.metadata`
* `space.total_footprint`
* `space.dedupe_metafiles_footprint`
* `space.dedupe_metafiles_temporary_footprint`
* `space.delayed_free_footprint`
* `space.file_operation_metadata`
* `space.snapmirror_destination_footprint`
* `space.volume_guarantee_footprint`
* `space.cross_volume_dedupe_metafiles_footprint`
* `space.cross_volume_dedupe_metafiles_temporary_footprint`
* `space.snapshot_reserve_unusable`
* `space.snapshot_spill`
* `space.user_data`
* `space.logical_space.+*+`
* `space.snapshot.+*+`
* `space.used_by_afs`
* `space.afs_total`
* `space.available_percent`
* `space.full_threshold_percent`
* `space.nearly_full_threshold_percent`
* `space.overwrite_reserve`
* `space.overwrite_reserve_used`
* `space.size_available_for_snapshots`
* `space.percent_used`
* `space.fractional_reserve`
* `space.block_storage_inactive_user_data_percent`
* `space.physical_used`
* `space.physical_used_percent`
* `space.expected_available`
* `space.filesystem_size`
* `space.filesystem_size_fixed`
* `guarantee.+*+`
* `autosize.+*+`
* `movement.+*+`
* `statistics.+*+`
* `constituents.name`
* `constituents.space.size`
* `constituents.space.available`
* `constituents.space.used`
* `constituents.space.available_percent`
* `constituents.space.used_percent`
```

```
* `constituents.space.block_storage_inactive_user_data`
* `constituents.space.capacity_tier_footprint`
* `constituents.space.performance_tier_footprint`
* `constituents.space.local_tier_footprint`
* `constituents.space.footprint`
* `constituents.space.over_provisioned`
* `constituents.space.metadata`
* `constituents.space.total_footprint`
* `constituents.space.logical_space.reporting`
* `constituents.space.logical_space.enforcement`
* `constituents.space.logical_space.used_by_afs`
* `constituents.space.logical_space.available`
* `constituents.space.snapshot.used`
* `constituents.space.snapshot.reserve_percent`
* `constituents.space.snapshot.autodelete_enabled`
* `constituents.aggregates.name`
* `constituents.aggregates.uuid`
* `constituents.movement.destination_aggregate.name`
* `constituents.movement.destination_aggregate.uuid`
* `constituents.movement.state`
* `constituents.movement.percent_complete`
* `constituents.movement.cutover_window`
* `constituents.movement.tiering_policy`

== Related ONTAP commands

* `volume show`
* `volume clone show`
* `volume efficiency show`
* `volume encryption show`
* `volume flexcache show`
* `volume flexgroup show`
* `volume move show`
* `volume quota show`
* `volume show-space`
* `volume snaplock show`
* `security anti-ransomware volume show`
* `security anti-ransomware volume space show`


== Parameters

[cols=5*,options=header]
|===

|Name
```

```
|Type
|In
|Required
|Description

|is_constituent
|boolean
|query
|False
a|When set to false, only FlexVol and FlexGroup volumes are returned.
When set to true, only FlexGroup constituent volumes are returned. Default
for GET calls is false.

* Default value:
* Introduced in: 9.10


|nas.unix_permissions
|integer
|query
|False
a|Filter by nas.unix_permissions


|nas.security_style
|string
|query
|False
a|Filter by nas.security_style


|nas.export_policy.name
|string
|query
|False
a|Filter by nas.export_policy.name


|nas.export_policy.id
|integer
|query
|False
a|Filter by nas.export_policy.id


|nas.junction_parent.uuid
|string
```

```
|query
|False
a|Filter by nas.junction_parent.uuid

* Introduced in: 9.9


|nas.junction_parent.name
|string
|query
|False
a|Filter by nas.junction_parent.name

* Introduced in: 9.9


|nas.uid
|integer
|query
|False
a|Filter by nas.uid


|nas.path
|string
|query
|False
a|Filter by nas.path


|nas.gid
|integer
|query
|False
a|Filter by nas.gid


|movement.start_time
|string
|query
|False
a|Filter by movement.start_time

* Introduced in: 9.9


|movement.cutover_window
```

```
|integer
|query
|False
a|Filter by movement.cutover_window


|movement.percent_complete
|integer
|query
|False
a|Filter by movement.percent_complete


|movement.state
|string
|query
|False
a|Filter by movement.state


|movement.destination_aggregate.uuid
|string
|query
|False
a|Filter by movement.destination_aggregate.uuid


|movement.destination_aggregate.name
|string
|query
|False
a|Filter by movement.destination_aggregate.name


|is_svm_root
|boolean
|query
|False
a|Filter by is_svm_root

* Introduced in: 9.7


|uuid
|string
|query
|False
```

```
a|Filter by uuid


|flexcache_endpoint_type
|string
|query
|False
a|Filter by flexcache_endpoint_type


|status
|string
|query
|False
a|Filter by status

* Introduced in: 9.9


|error_state.is_inconsistent
|boolean
|query
|False
a|Filter by error_state.is_inconsistent


|error_state.has_bad_blocks
|boolean
|query
|False
a|Filter by error_state.has_bad_blocks


|constituents.space.performance_tier_footprint
|integer
|query
|False
a|Filter by constituents.space.performance_tier_footprint

* Introduced in: 9.9


|constituents.space.available_percent
|integer
|query
|False
a|Filter by constituents.space.available_percent
```

```
* Introduced in: 9.9


|constituents.space.capacity_tier_footprint
|integer
|query
|False
a|Filter by constituents.space.capacity_tier_footprint

* Introduced in: 9.9


|constituents.space.used_percent
|integer
|query
|False
a|Filter by constituents.space.used_percent

* Introduced in: 9.10


|constituents.space.used_by_afs
|integer
|query
|False
a|Filter by constituents.space.used_by_afs

* Introduced in: 9.9


|constituents.space.available
|integer
|query
|False
a|Filter by constituents.space.available

* Introduced in: 9.9


|constituents.space.size
|integer
|query
|False
a|Filter by constituents.space.size

* Introduced in: 9.9
```

```
|constituents.space.metadata
|integer
|query
|False
a|Filter by constituents.space.metadata

* Introduced in: 9.9


|constituents.space.block_storage_inactive_user_data
|integer
|query
|False
a|Filter by constituents.space.block_storage_inactive_user_data

* Introduced in: 9.9


|constituents.space.footprint
|integer
|query
|False
a|Filter by constituents.space.footprint

* Introduced in: 9.9


|constituents.space.over_provisioned
|integer
|query
|False
a|Filter by constituents.space.over_provisioned

* Introduced in: 9.9


|constituents.space.total_footprint
|integer
|query
|False
a|Filter by constituents.space.total_footprint

* Introduced in: 9.9
```

```
|constituents.space.local_tier_footprint
|integer
|query
|False
a|Filter by constituents.space.local_tier_footprint

* Introduced in: 9.9


|constituents.space.afs_total
|integer
|query
|False
a|Filter by constituents.space.afs_total

* Introduced in: 9.9


|constituents.space.used
|integer
|query
|False
a|Filter by constituents.space.used

* Introduced in: 9.9


|constituents.space.logical_space.enforcement
|boolean
|query
|False
a|Filter by constituents.space.logical_space.enforcement

* Introduced in: 9.9


|constituents.space.logical_space.reporting
|boolean
|query
|False
a|Filter by constituents.space.logical_space.reporting

* Introduced in: 9.9


|constituents.space.logical_space.available
|integer
```

```
|query
|False
a|Filter by constituents.space.logical_space.available

* Introduced in: 9.9


|constituents.space.logical_space.used_by_afs
|integer
|query
|False
a|Filter by constituents.space.logical_space.used_by_afs

* Introduced in: 9.9


|constituents.space.snapshot.reserve_percent
|integer
|query
|False
a|Filter by constituents.space.snapshot.reserve_percent

* Introduced in: 9.9


|constituents.space.snapshot.used
|integer
|query
|False
a|Filter by constituents.space.snapshot.used

* Introduced in: 9.9


|constituents.aggregates.uuid
|string
|query
|False
a|Filter by constituents.aggregates.uuid

* Introduced in: 9.9


|constituents.aggregates.name
|string
|query
|False
```

```
a|Filter by constituents.aggregates.name

* Introduced in: 9.9


|constituents.movement.cutover_window
|integer
|query
|False
a|Filter by constituents.movement.cutover_window

* Introduced in: 9.9


|constituents.movement.state
|string
|query
|False
a|Filter by constituents.movement.state

* Introduced in: 9.9


|constituents.movement.destination_aggregate.uuid
|string
|query
|False
a|Filter by constituents.movement.destination_aggregate.uuid

* Introduced in: 9.9


|constituents.movement.destination_aggregate.name
|string
|query
|False
a|Filter by constituents.movement.destination_aggregate.name

* Introduced in: 9.9


|constituents.movement.percent_complete
|integer
|query
|False
a|Filter by constituents.movement.percent_complete
```

```
* Introduced in: 9.9


|constituents.name
|string
|query
|False
a|Filter by constituents.name

* Introduced in: 9.9


|access_time_enabled
|boolean
|query
|False
a|Filter by access_time_enabled

* Introduced in: 9.8


|comment
|string
|query
|False
a|Filter by comment


|snaplock.litigation_count
|integer
|query
|False
a|Filter by snaplock.litigation_count


|snaplock.unspecified_retention_file_count
|integer
|query
|False
a|Filter by snaplock.unspecified_retention_file_count

* Introduced in: 9.8


|snaplock.is_audit_log
|boolean
|query
```

```
|False
a|Filter by snaplock.is_audit_log


|snaplock.type
|string
|query
|False
a|Filter by snaplock.type


|snaplock.append_mode_enabled
|boolean
|query
|False
a|Filter by snaplock.append_mode_enabled


|snaplock.compliance_clock_time
|string
|query
|False
a|Filter by snaplock.compliance_clock_time


|snaplock.expiry_time
|string
|query
|False
a|Filter by snaplock.expiry_time


|snaplock.privileged_delete
|string
|query
|False
a|Filter by snaplock.privileged_delete


|snaplock.retention.maximum
|string
|query
|False
a|Filter by snaplock.retention.maximum


|snaplock.retention.default
```

```
|string
|query
|False
a|Filter by snaplock.retention.default


|snaplock.retention.minimum
|string
|query
|False
a|Filter by snaplock.retention.minimum


|snaplock.autocommit_period
|string
|query
|False
a|Filter by snaplock.autocommit_period


|scheduled_snapshot_naming_scheme
|string
|query
|False
a|Filter by scheduled_snapshot_naming_scheme

* Introduced in: 9.10


|style
|string
|query
|False
a|Filter by style


|type
|string
|query
|False
a|Filter by type


|create_time
|string
|query
|False
```

```
a|Filter by create_time


|clone.parent_svm.uuid
|string
|query
|False
a|Filter by clone.parent_svm.uuid


|clone.parent_svm.name
|string
|query
|False
a|Filter by clone.parent_svm.name


|clone.parent_snapshot.name
|string
|query
|False
a|Filter by clone.parent_snapshot.name


|clone.parent_snapshot.uuid
|string
|query
|False
a|Filter by clone.parent_snapshot.uuid


|clone.split_initiated
|boolean
|query
|False
a|Filter by clone.split_initiated


|clone.split_estimate
|integer
|query
|False
a|Filter by clone.split_estimate


|clone.parent_volume.uuid
|string
```

```
|query
|False
a|Filter by clone.parent_volume.uuid


|clone.parent_volume.name
|string
|query
|False
a|Filter by clone.parent_volume.name


|clone.is_flexclone
|boolean
|query
|False
a|Filter by clone.is_flexclone


|clone.split_complete_percent
|integer
|query
|False
a|Filter by clone.split_complete_percent


|guarantee.honored
|boolean
|query
|False
a|Filter by guarantee.honored


|guarantee.type
|string
|query
|False
a|Filter by guarantee.type


|convert_unicode
|boolean
|query
|False
a|Filter by convert_unicode

* Introduced in: 9.10
```

```
|state
|string
|query
|False
a|Filter by state


|consistency_group.name
|string
|query
|False
a|Filter by consistency_group.name

* Introduced in: 9.7


|consistency_group.uuid
|string
|query
|False
a|Filter by consistency_group.uuid

* Introduced in: 9.10


|statistics.status
|string
|query
|False
a|Filter by statistics.status


|statistics.iops_raw.total
|integer
|query
|False
a|Filter by statistics.iops_raw.total


|statistics.iops_raw.write
|integer
|query
|False
a|Filter by statistics.iops_raw.write
```

```
|statistics.iops_raw.other
|integer
|query
|False
a|Filter by statistics.iops_raw.other


|statistics.iops_raw.read
|integer
|query
|False
a|Filter by statistics.iops_raw.read


|statistics.latency_raw.total
|integer
|query
|False
a|Filter by statistics.latency_raw.total


|statistics.latency_raw.write
|integer
|query
|False
a|Filter by statistics.latency_raw.write


|statistics.latency_raw.other
|integer
|query
|False
a|Filter by statistics.latency_raw.other


|statistics.latency_raw.read
|integer
|query
|False
a|Filter by statistics.latency_raw.read


|statistics.throughput_raw.total
|integer
|query
|False
```

```
a|Filter by statistics.throughput_raw.total


|statistics.throughput_raw.write
|integer
|query
|False
a|Filter by statistics.throughput_raw.write


|statistics.throughput_raw.other
|integer
|query
|False
a|Filter by statistics.throughput_raw.other


|statistics.throughput_raw.read
|integer
|query
|False
a|Filter by statistics.throughput_raw.read


|statistics.cloud.latency_raw.total
|integer
|query
|False
a|Filter by statistics.cloud.latency_raw.total

* Introduced in: 9.7


|statistics.cloud.latency_raw.write
|integer
|query
|False
a|Filter by statistics.cloud.latency_raw.write

* Introduced in: 9.7


|statistics.cloud.latency_raw.other
|integer
|query
|False
a|Filter by statistics.cloud.latency_raw.other
```

```
* Introduced in: 9.7


|statistics.cloud.latency_raw.read
|integer
|query
|False
a|Filter by statistics.cloud.latency_raw.read

* Introduced in: 9.7


|statistics.cloud.iops_raw.total
|integer
|query
|False
a|Filter by statistics.cloud.iops_raw.total

* Introduced in: 9.7


|statistics.cloud.iops_raw.write
|integer
|query
|False
a|Filter by statistics.cloud.iops_raw.write

* Introduced in: 9.7


|statistics.cloud.iops_raw.other
|integer
|query
|False
a|Filter by statistics.cloud.iops_raw.other

* Introduced in: 9.7


|statistics.cloud.iops_raw.read
|integer
|query
|False
a|Filter by statistics.cloud.iops_raw.read

* Introduced in: 9.7
```

```
|statistics.cloud.status
|string
|query
|False
a|Filter by statistics.cloud.status

* Introduced in: 9.7


|statistics.cloud.timestamp
|string
|query
|False
a|Filter by statistics.cloud.timestamp

* Introduced in: 9.7


|statistics.flexcache_raw.timestamp
|string
|query
|False
a|Filter by statistics.flexcache_raw.timestamp

* Introduced in: 9.8


|statistics.flexcache_raw.client_requested_blocks
|integer
|query
|False
a|Filter by statistics.flexcache_raw.client_requested_blocks

* Introduced in: 9.8


|statistics.flexcache_raw.cache_miss_blocks
|integer
|query
|False
a|Filter by statistics.flexcache_raw.cache_miss_blocks

* Introduced in: 9.8
```

```
|statistics.flexcache_raw.status
|string
|query
|False
a|Filter by statistics.flexcache_raw.status

* Introduced in: 9.8


|statistics.timestamp
|string
|query
|False
a|Filter by statistics.timestamp


|queue_for_encryption
|boolean
|query
|False
a|Filter by queue_for_encryption

* Introduced in: 9.8


|autosize.grow_threshold
|integer
|query
|False
a|Filter by autosize.grow_threshold


|autosize.shrink_threshold
|integer
|query
|False
a|Filter by autosize.shrink_threshold


|autosize.minimum
|integer
|query
|False
a|Filter by autosize.minimum


|autosize.mode
```

```
|string
|query
|False
a|Filter by autosize.mode


|autosize.maximum
|integer
|query
|False
a|Filter by autosize.maximum


|snapmirror.destinations.is_cloud
|boolean
|query
|False
a|Filter by snapmirror.destinations.is_cloud

* Introduced in: 9.9


|snapmirror.destinations.is_ontap
|boolean
|query
|False
a|Filter by snapmirror.destinations.is_ontap

* Introduced in: 9.9


|snapmirror.is_protected
|boolean
|query
|False
a|Filter by snapmirror.is_protected

* Introduced in: 9.7


|snapshot_count
|integer
|query
|False
a|Filter by snapshot_count

* Introduced in: 9.10
```

```
|language
|string
|query
|False
a|Filter by language


|metric.iops.total
|integer
|query
|False
a|Filter by metric.iops.total


|metric.iops.write
|integer
|query
|False
a|Filter by metric.iops.write


|metric.iops.other
|integer
|query
|False
a|Filter by metric.iops.other


|metric.iops.read
|integer
|query
|False
a|Filter by metric.iops.read


|metric.throughput.total
|integer
|query
|False
a|Filter by metric.throughput.total


|metric.throughput.write
|integer
|query
```

```
|False
a|Filter by metric.throughput.write


|metric.throughput.other
|integer
|query
|False
a|Filter by metric.throughput.other


|metric.throughput.read
|integer
|query
|False
a|Filter by metric.throughput.read


|metric.duration
|string
|query
|False
a|Filter by metric.duration


|metric.cloud.iops.total
|integer
|query
|False
a|Filter by metric.cloud.iops.total

* Introduced in: 9.7


|metric.cloud.iops.write
|integer
|query
|False
a|Filter by metric.cloud.iops.write

* Introduced in: 9.7


|metric.cloud.iops.other
|integer
|query
|False
```

```
a|Filter by metric.cloud.iops.other

* Introduced in: 9.7


|metric.cloud.iops.read
|integer
|query
|False
a|Filter by metric.cloud.iops.read

* Introduced in: 9.7


|metric.cloud.status
|string
|query
|False
a|Filter by metric.cloud.status

* Introduced in: 9.7


|metric.cloud.duration
|string
|query
|False
a|Filter by metric.cloud.duration

* Introduced in: 9.7


|metric.cloud.latency.total
|integer
|query
|False
a|Filter by metric.cloud.latency.total

* Introduced in: 9.7


|metric.cloud.latency.write
|integer
|query
|False
a|Filter by metric.cloud.latency.write
```

```
* Introduced in: 9.7


|metric.cloud.latency.other
|integer
|query
|False
a|Filter by metric.cloud.latency.other

* Introduced in: 9.7


|metric.cloud.latency.read
|integer
|query
|False
a|Filter by metric.cloud.latency.read

* Introduced in: 9.7


|metric.cloud.timestamp
|string
|query
|False
a|Filter by metric.cloud.timestamp

* Introduced in: 9.7


|metric.status
|string
|query
|False
a|Filter by metric.status


|metric.flexcache.timestamp
|string
|query
|False
a|Filter by metric.flexcache.timestamp

* Introduced in: 9.8


|metric.flexcache.duration
```

```
|string
|query
|False
a|Filter by metric.flexcache.duration

* Introduced in: 9.8


|metric.flexcache.cache_miss_percent
|integer
|query
|False
a|Filter by metric.flexcache.cache_miss_percent

* Introduced in: 9.8


|metric.flexcache.status
|string
|query
|False
a|Filter by metric.flexcache.status

* Introduced in: 9.8


|metric.flexcache.bandwidth_savings
|integer
|query
|False
a|Filter by metric.flexcache.bandwidth_savings

* Introduced in: 9.9


|metric.latency.total
|integer
|query
|False
a|Filter by metric.latency.total


|metric.latency.write
|integer
|query
|False
a|Filter by metric.latency.write
```

```
|metric.latency.other
|integer
|query
|False
a|Filter by metric.latency.other


|metric.latency.read
|integer
|query
|False
a|Filter by metric.latency.read


|metric.timestamp
|string
|query
|False
a|Filter by metric.timestamp


|files.maximum
|integer
|query
|False
a|Filter by files.maximum


|files.used
|integer
|query
|False
a|Filter by files.used


|size
|integer
|query
|False
a|Filter by size


|name
|string
|query
```

```
|False
a|Filter by name


|flash_pool.caching_policy
|string
|query
|False
a|Filter by flash_pool.caching_policy

* Introduced in: 9.10


|flash_pool.cache_eligibility
|string
|query
|False
a|Filter by flash_pool.cache_eligibility

* Introduced in: 9.10


|flash_pool.cache_retention_priority
|string
|query
|False
a|Filter by flash_pool.cache_retention_priority

* Introduced in: 9.10


|application.uuid
|string
|query
|False
a|Filter by application.uuid


|application.name
|string
|query
|False
a|Filter by application.name


|snapshot_policy.uuid
|string
```

```
|query
|False
a|Filter by snapshot_policy.uuid


|snapshot_policy.name
|string
|query
|False
a|Filter by snapshot_policy.name


|tiering.object_tags
|string
|query
|False
a|Filter by tiering.object_tags

* Introduced in: 9.8


|tiering.policy
|string
|query
|False
a|Filter by tiering.policy


|tiering.min_cooling_days
|integer
|query
|False
a|Filter by tiering.min_cooling_days

* Introduced in: 9.8


|encryption.type
|string
|query
|False
a|Filter by encryption.type


|encryption.enabled
|boolean
|query
```

```
|False
a|Filter by encryption.enabled


|encryption.key_id
|string
|query
|False
a|Filter by encryption.key_id


|encryption.state
|string
|query
|False
a|Filter by encryption.state


|encryption.rekey
|boolean
|query
|False
a|Filter by encryption.rekey


|encryption.status.code
|string
|query
|False
a|Filter by encryption.status.code


|encryption.status.message
|string
|query
|False
a|Filter by encryption.status.message


|flexgroup.uuid
|string
|query
|False
a|Filter by flexgroup.uuid

* Introduced in: 9.10
```

```
|flexgroup.name
|string
|query
|False
a|Filter by flexgroup.name

* Introduced in: 9.10


|space.physical_used
|integer
|query
|False
a|Filter by space.physical_used

* Introduced in: 9.10


|space.snapshot.space_used_percent
|integer
|query
|False
a|Filter by space.snapshot.space_used_percent

* Introduced in: 9.9


|space.snapshot.reserve_size
|integer
|query
|False
a|Filter by space.snapshot.reserve_size

* Introduced in: 9.9


|space.snapshot.reserve_percent
|integer
|query
|False
a|Filter by space.snapshot.reserve_percent


|space.snapshot.used
|integer
|query
```

```
|False
a|Filter by space.snapshot.used


|space.snapshot.autodelete_trigger
|string
|query
|False
a|Filter by space.snapshot.autodelete_trigger

* Introduced in: 9.10


|space.snapshot.reserve_available
|integer
|query
|False
a|Filter by space.snapshot.reserve_available

* Introduced in: 9.10


|space.full_threshold_percent
|integer
|query
|False
a|Filter by space.full_threshold_percent

* Introduced in: 9.9


|space.filesystem_size
|integer
|query
|False
a|Filter by space.filesystem_size

* Introduced in: 9.10


|space.available
|integer
|query
|False
a|Filter by space.available
```

```
|space.used_by_afs
|integer
|query
|False
a|Filter by space.used_by_afs

* Introduced in: 9.9


|space.physical_used_percent
|integer
|query
|False
a|Filter by space.physical_used_percent

* Introduced in: 9.10


|space.user_data
|integer
|query
|False
a|Filter by space.user_data

* Introduced in: 9.10


|space.cross_volume_dedupe_metafiles_footprint
|integer
|query
|False
a|Filter by space.cross_volume_dedupe_metafiles_footprint

* Introduced in: 9.10


|space.metadata
|integer
|query
|False
a|Filter by space.metadata


|space.block_storage_inactive_user_data
|integer
|query
|False
```

```
a|Filter by space.block_storage_inactive_user_data


|space.size_available_for_snapshots
|integer
|query
|False
a|Filter by space.size_available_for_snapshots

* Introduced in: 9.9


|space.percent_used
|integer
|query
|False
a|Filter by space.percent_used

* Introduced in: 9.9


|space.performance_tier_footprint
|integer
|query
|False
a|Filter by space.performance_tier_footprint

* Introduced in: 9.8


|space.overwrite_reserve
|integer
|query
|False
a|Filter by space.overwrite_reserve

* Introduced in: 9.9


|space.total_footprint
|integer
|query
|False
a|Filter by space.total_footprint

* Introduced in: 9.8
```

```
|space.over_provisioned
|integer
|query
|False
a|Filter by space.over_provisioned


|space.dedupe_metafiles_temporary_footprint
|integer
|query
|False
a|Filter by space.dedupe_metafiles_temporary_footprint

* Introduced in: 9.10


|space.afs_total
|integer
|query
|False
a|Filter by space.afs_total

* Introduced in: 9.9


|space.local_tier_footprint
|integer
|query
|False
a|Filter by space.local_tier_footprint

* Introduced in: 9.8


|space.block_storage_inactive_user_data_percent
|integer
|query
|False
a|Filter by space.block_storage_inactive_user_data_percent

* Introduced in: 9.9


|space.logical_space.available
|integer
|query
```

```
|False
a|Filter by space.logical_space.available


|space.logical_space.used_by_snapshots
|integer
|query
|False
a|Filter by space.logical_space.used_by_snapshots

* Introduced in: 9.10


|space.logical_space.used_by_afs
|integer
|query
|False
a|Filter by space.logical_space.used_by_afs


|space.logical_space.enforcement
|boolean
|query
|False
a|Filter by space.logical_space.enforcement


|space.logical_space.used_percent
|integer
|query
|False
a|Filter by space.logical_space.used_percent

* Introduced in: 9.9


|space.logical_space.reporting
|boolean
|query
|False
a|Filter by space.logical_space.reporting


|space.logical_space.used
|integer
|query
|False
```

```
a|Filter by space.logical_space.used

* Introduced in: 9.9


|space.used
|integer
|query
|False
a|Filter by space.used


|space.delayed_free_footprint
|integer
|query
|False
a|Filter by space.delayed_free_footprint

* Introduced in: 9.10


|space.snapshot_spill
|integer
|query
|False
a|Filter by space.snapshot_spill

* Introduced in: 9.10


|space.fractional_reserve
|integer
|query
|False
a|Filter by space.fractional_reserve

* Introduced in: 9.9


|space.cross_volume_dedupe_metafiles_temporary_footprint
|integer
|query
|False
a|Filter by space.cross_volume_dedupe_metafiles_temporary_footprint

* Introduced in: 9.10
```

```
|space.size
|integer
|query
|False
a|Filter by space.size


|space.nearly_full_threshold_percent
|integer
|query
|False
a|Filter by space.nearly_full_threshold_percent

* Introduced in: 9.9


|space.snapmirror_destination_footprint
|integer
|query
|False
a|Filter by space.snapmirror_destination_footprint

* Introduced in: 9.10


|space.footprint
|integer
|query
|False
a|Filter by space.footprint


|space.filesystem_size_fixed
|boolean
|query
|False
a|Filter by space.filesystem_size_fixed

* Introduced in: 9.10


|space.dedupe_metafiles_footprint
|integer
|query
|False
a|Filter by space.dedupe_metafiles_footprint
```

```
* Introduced in: 9.10


|space.available_percent
|integer
|query
|False
a|Filter by space.available_percent

* Introduced in: 9.9


|space.overwrite_reserve_used
|integer
|query
|False
a|Filter by space.overwrite_reserve_used

* Introduced in: 9.9


|space.snapshot_reserve_unusable
|integer
|query
|False
a|Filter by space.snapshot_reserve_unusable

* Introduced in: 9.10


|space.volume_guarantee_footprint
|integer
|query
|False
a|Filter by space.volume_guarantee_footprint

* Introduced in: 9.10


|space.capacity_tier_footprint
|integer
|query
|False
a|Filter by space.capacity_tier_footprint
```

```
|space.expected_available
|integer
|query
|False
a|Filter by space.expected_available

* Introduced in: 9.10


|space.file_operation_metadata
|integer
|query
|False
a|Filter by space.file_operation_metadata

* Introduced in: 9.10


|quota.state
|string
|query
|False
a|Filter by quota.state


|aggregates.uuid
|string
|query
|False
a|Filter by aggregates.uuid


|aggregates.name
|string
|query
|False
a|Filter by aggregates.name


|is_object_store
|boolean
|query
|False
a|Filter by is_object_store

* Introduced in: 9.8
```

```
|efficiency.last_op_size
|integer
|query
|False
a|Filter by efficiency.last_op_size

* Introduced in: 9.9


|efficiency.cross_volume_dedupe
|string
|query
|False
a|Filter by efficiency.cross_volume_dedupe


|efficiency.compaction
|string
|query
|False
a|Filter by efficiency.compaction


|efficiency.op_state
|string
|query
|False
a|Filter by efficiency.op_state

* Introduced in: 9.9


|efficiency.schedule
|string
|query
|False
a|Filter by efficiency.schedule

* Introduced in: 9.8


|efficiency.last_op_state
|string
|query
|False
a|Filter by efficiency.last_op_state
```

```
* Introduced in: 9.9


|efficiency.policy.name
|string
|query
|False
a|Filter by efficiency.policy.name

* Introduced in: 9.7


|efficiency.dedupe
|string
|query
|False
a|Filter by efficiency.dedupe


|efficiency.last_op_err
|string
|query
|False
a|Filter by efficiency.last_op_err

* Introduced in: 9.9


|efficiency.state
|string
|query
|False
a|Filter by efficiency.state

* Introduced in: 9.9


|efficiency.last_op_end
|string
|query
|False
a|Filter by efficiency.last_op_end

* Introduced in: 9.9
```

```
|efficiency.last_op_begin
|string
|query
|False
a|Filter by efficiency.last_op_begin

* Introduced in: 9.9


|efficiency.path
|string
|query
|False
a|Filter by efficiency.path

* Introduced in: 9.9


|efficiency.progress
|string
|query
|False
a|Filter by efficiency.progress

* Introduced in: 9.9


|efficiency.type
|string
|query
|False
a|Filter by efficiency.type

* Introduced in: 9.9


|efficiency.compression
|string
|query
|False
a|Filter by efficiency.compression


|efficiency.storage_efficiency_mode
|string
|query
|False
```

```
a|Filter by efficiency.storage_efficiency_mode

* Introduced in: 9.10


|svm.uuid
|string
|query
|False
a|Filter by svm.uuid


|svm.name
|string
|query
|False
a|Filter by svm.name


|analytics.state
|string
|query
|False
a|Filter by analytics.state

* Introduced in: 9.8


|analytics.supported
|boolean
|query
|False
a|Filter by analytics.supported

* Introduced in: 9.8


|analytics.scan_progress
|integer
|query
|False
a|Filter by analytics.scan_progress

* Introduced in: 9.8


|analytics.unsupported_reason.code
```

```
|string
|query
|False
a|Filter by analytics.unsupported_reason.code

* Introduced in: 9.8


|analytics.unsupported_reason.message
|string
|query
|False
a|Filter by analytics.unsupported_reason.message

* Introduced in: 9.8


|max_dir_size
|integer
|query
|False
a|Filter by max_dir_size

* Introduced in: 9.10


|qos.policy.uuid
|string
|query
|False
a|Filter by qos.policy.uuid


|qos.policy.min_throughput_iops
|integer
|query
|False
a|Filter by qos.policy.min_throughput_iops


|qos.policy.max_throughput_iops
|integer
|query
|False
a|Filter by qos.policy.max_throughput_iops
```

```
|qos.policy.min_throughput_mbps
|integer
|query
|False
a|Filter by qos.policy.min_throughput_mbps

* Introduced in: 9.8


|qos.policy.name
|string
|query
|False
a|Filter by qos.policy.name


|qos.policy.max_throughput_mbps
|integer
|query
|False
a|Filter by qos.policy.max_throughput_mbps


|cloud_retrieval_policy
|string
|query
|False
a|Filter by cloud_retrieval_policy

* Introduced in: 9.8


|anti_ransomware_state
|string
|query
|False
a|Filter by anti_ransomware_state

* Introduced in: 9.10


|activity_tracking.supported
|boolean
|query
|False
a|Filter by activity_tracking.supported
```

```
* Introduced in: 9.10


|activity_tracking.state
|string
|query
|False
a|Filter by activity_tracking.state

* Introduced in: 9.10


|activity_tracking.unsupported_reason.code
|string
|query
|False
a|Filter by activity_tracking.unsupported_reason.code

* Introduced in: 9.10


|activity_tracking.unsupported_reason.message
|string
|query
|False
a|Filter by activity_tracking.unsupported_reason.message

* Introduced in: 9.10


|anti_ransomware.suspect_files.count
|integer
|query
|False
a|Filter by anti_ransomware.suspect_files.count

* Introduced in: 9.10


|anti_ransomware.suspect_files.format
|string
|query
|False
a|Filter by anti_ransomware.suspect_files.format

* Introduced in: 9.10
```

```
|anti_ransomware.attack_probability
|string
|query
|False
a|Filter by anti_ransomware.attack_probability

* Introduced in: 9.10


|anti_ransomware.state
|string
|query
|False
a|Filter by anti_ransomware.state

* Introduced in: 9.10


|anti_ransomware.dry_run_start_time
|string
|query
|False
a|Filter by anti_ransomware.dry_run_start_time

* Introduced in: 9.10


|anti_ransomware.space.used_by_logs
|integer
|query
|False
a|Filter by anti_ransomware.space.used_by_logs

* Introduced in: 9.10


|anti_ransomware.space.snapshot_count
|integer
|query
|False
a|Filter by anti_ransomware.space.snapshot_count

* Introduced in: 9.10


|anti_ransomware.space.used
```

```
|integer
|query
|False
a|Filter by anti_ransomware.space.used

* Introduced in: 9.10


|anti_ransomware.space.used_by_snapshots
|integer
|query
|False
a|Filter by anti_ransomware.space.used_by_snapshots

* Introduced in: 9.10


|anti_ransomware.attack_reports.time
|string
|query
|False
a|Filter by anti_ransomware.attack_reports.time

* Introduced in: 9.10


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|return_records
|boolean
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.
```

```
* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===
```

```
== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|num_records
|integer
a|Number of records


|records
```

```
|array[link:#volume[volume]]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "activity_tracking": {
        "state": "string",
        "unsupported_reason": {
          "code": "124518405",
          "message": "Volume activity tracking cannot be enabled on
volumes that contain LUNs."
        }
      },
      "aggregates": [
        {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        }
      ],
      "analytics": {
```

```
        "scan_progress": 17,
        "state": "string",
        "unsupported_reason": {
          "code": "111411207",
          "message": "File system analytics cannot be enabled on volumes
that contain LUNs."
        }
      },
      "anti_ransomware": {
        "attack_probability": "string",
        "attack_reports": [
          {
            "_links": {
              "suspects": {
                "href": "/api/resourcelink"
              }
            },
            "time": "2021-06-01T20:36:41+05:30"
          }
        ],
        "dry_run_start_time": "string",
        "space": {
          "snapshot_count": 0,
          "used": 0,
          "used_by_logs": 0,
          "used_by_snapshots": 0
        },
        "state": "string",
        "suspect_files": [
          {
            "count": 0,
            "format": "string"
          }
        ]
      },
      "anti_ransomware_state": "string",
      "application": {
        "name": "string",
        "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
      },
      "autosize": {
        "mode": "string"
      },
      "clone": {
        "parent_snapshot": {
          "_links": {
```

```
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "this_snapshot",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "parent_svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "parent_volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      },
      "split_complete_percent": 0,
      "split_estimate": 0
    },
    "cloud_retrieval_policy": "string",
    "comment": "string",
    "consistency_group": {
      "name": "consistency_group_1",
      "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
    },
    "constituents": [
      {
        "aggregates": {
          "name": "string",
          "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
        },
        "movement": {
          "cutover_window": 30,
          "destination_aggregate": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
```

```
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "percent_complete": 0,
        "state": "replicating",
        "tiering_policy": "string"
      },
      "name": "string",
      "space": {
        "available": 0,
        "block_storage_inactive_user_data": 0,
        "capacity_tier_footprint": 0,
        "footprint": 0,
        "local_tier_footprint": 0,
        "logical_space": {
          "available": 0,
          "used_by_afs": 0
        },
        "metadata": 0,
        "over_provisioned": 0,
        "performance_tier_footprint": 0,
        "snapshot": {
          "used": 0
        },
        "total_footprint": 0,
        "used": 0
      }
    }
  ],
  "create_time": "2018-06-04T19:00:00Z",
  "efficiency": {
    "application_io_size": "string",
    "compaction": "string",
    "compression": "string",
    "cross_volume_dedupe": "string",
    "dedupe": "string",
    "last_op_begin": "string",
    "last_op_end": "string",
    "last_op_err": "string",
    "last_op_size": 0,
    "last_op_state": "string",
    "op_state": "string",
    "path": "string",
    "policy": {
```

```
          "name": "string"
        },
        "progress": "string",
        "schedule": "string",
        "state": "string",
        "storage_efficiency_mode": "string",
        "type": "string"
      },
      "encryption": {
        "key_id": "string",
        "key_manager_attribute": "CRN=v1:bluemix:public:containers-
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
        "state": "string",
        "status": {
          "code": "string",
          "message": "string"
        },
        "type": "string"
      },
      "files": {
        "used": 0
      },
      "flash_pool": {
        "cache_eligibility": "string",
        "cache_retention_priority": "string",
        "caching_policy": "string"
      },
      "flexcache_endpoint_type": "string",
      "flexgroup": {
        "name": "my_flexgroup",
        "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
      },
      "guarantee": {
        "type": "string"
      },
      "language": "string",
      "metric": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "cloud": {
          "duration": "PT15S",
          "iops": {
```

```
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "latency": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "duration": "PT15S",
      "flexcache": {
        "bandwidth_savings": 4096,
        "cache_miss_percent": 20,
        "duration": "PT1D",
        "status": "ok",
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "throughput": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "movement": {
      "cutover_window": 30,
      "destination_aggregate": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
```

```
        "name": "aggr1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "percent_complete": 0,
      "start_time": "2020-12-07T03:45:12-05:00",
      "state": "replicating",
      "tiering_policy": "string"
    },
    "name": "vol_cs_dept",
    "nas": {
      "export_policy": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "id": 100,
        "name": "default"
      },
      "junction_parent": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "vs1_root",
        "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
      },
      "path": "/user/my_volume",
      "security_style": "string",
      "unix_permissions": 755
    },
    "qos": {
      "policy": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "max_throughput_iops": 10000,
        "max_throughput_mbps": 500,
        "min_throughput_iops": 2000,
        "min_throughput_mbps": 500,
        "name": "performance",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
```

```
    },
    "quota": {
      "state": "string"
    },
    "scheduled_snapshot_naming_scheme": "string",
    "snaplock": {
      "append_mode_enabled": "",
      "autocommit_period": "P30M",
      "compliance_clock_time": "2018-06-04T19:00:00Z",
      "expiry_time": "Wed Sep  5 11:02:42 GMT 2018",
      "is_audit_log": 1,
      "litigation_count": 10,
      "privileged_delete": "enabled",
      "retention": {
        "default": "P30Y",
        "maximum": "P30Y",
        "minimum": "P30Y"
      },
      "type": "enterprise",
      "unspecified_retention_file_count": 10
    },
    "snapshot_count": 0,
    "snapshot_policy": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "default",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "space": {
      "available": 0,
      "block_storage_inactive_user_data": 0,
      "block_storage_inactive_user_data_percent": 0,
      "capacity_tier_footprint": 0,
      "cross_volume_dedupe_metafiles_footprint": 0,
      "cross_volume_dedupe_metafiles_temporary_footprint": 0,
      "dedupe_metafiles_footprint": 0,
      "dedupe_metafiles_temporary_footprint": 0,
      "delayed_free_footprint": 0,
      "file_operation_metadata": 0,
      "filesystem_size": 0,
      "footprint": 0,
      "local_tier_footprint": 0,
      "logical_space": {
```

```
        "available": 0,
        "used": 0,
        "used_by_afs": 0,
        "used_by_snapshots": 0,
        "used_percent": 0
      },
      "metadata": 0,
      "over_provisioned": 0,
      "overwrite_reserve": 0,
      "overwrite_reserve_used": 0,
      "percent_used": 0,
      "performance_tier_footprint": 0,
      "size_available_for_snapshots": 0,
      "snapmirror_destination_footprint": 0,
      "snapshot": {
        "autodelete_trigger": "string",
        "reserve_available": 0,
        "reserve_size": 0,
        "space_used_percent": 0,
        "used": 0
      },
      "snapshot_reserve_unusable": 0,
      "snapshot_spill": 0,
      "total_footprint": 0,
      "used": 0,
      "user_data": 0,
      "volume_guarantee_footprint": 0
    },
    "state": "string",
    "statistics": {
      "cloud": {
        "iops_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "latency_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "flexcache_raw": {
        "cache_miss_blocks": 10,
```

```
          "client_requested_blocks": 500,
          "status": "ok",
          "timestamp": "2017-01-25T11:20:13Z"
        },
        "iops_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "latency_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "status": "ok",
        "throughput_raw": {
          "read": 200,
          "total": 1000,
          "write": 100
        },
        "timestamp": "2017-01-25T11:20:13Z"
      },
      "status": [
        "string"
      ],
      "style": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "tiering": {
        "object_tags": [
          "string"
        ],
        "policy": "string"
      },
      "type": "string",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    }
  ]
}
```

```
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
```

```
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|self
|link:#href[href]
a|

|===


[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|If volume activity tracking is not supported on the volume, this field
provides an appropriate error code.


|message
|string
a|If volume activity tracking is not supported on the volume, this field
provides an error message detailing why this is the case.


|===


[#activity_tracking]
[.api-collapsible-fifth-title]
activity_tracking

[cols=3*,options=header]
|===
|Name
|Type
|Description

|state
|string
a|Activity tracking state of the volume. If this value is "on", ONTAP
collects top metrics information for the volume in real time. There is a
slight impact to I/O performance in order to collect this information. If
```

```
this value is "off", no activity tracking information is collected or
available to view.

* enum: ["off", "on"]
* Introduced in: 9.10


|supported
|boolean
a|This field indicates whether or not volume activity tracking is
supported on the volume. If volume activity tracking is not supported, the
reason why is provided in the "activity_tracking.unsupported_reason"
field.


|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#aggregates]
[.api-collapsible-fifth-title]
aggregates

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|
```

```
|===


[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|If file system analytics is not supported on the volume, this field
provides the error code explaining why.


|message
|string
a|If file system analytics is not supported on the volume, this field
provides the error message explaining why.


|===


[#analytics]
[.api-collapsible-fifth-title]
analytics

[cols=3*,options=header]
|===
|Name
|Type
|Description

|scan_progress
|integer
a|Percentage of files in the volume that the file system analytics
initialization scan has processed. Only returned when the state is
`initializing`.


|state
|string
```

```
a|File system analytics state of the volume. If this value is "on", ONTAP
collects extra file system analytics information for all directories on
the volume.  There will be a slight impact to I/O performance to collect
this information. If this value is "off", file system analytics
information is not collected and not available to be viewed. If this value
is "initializing", that means file system analytics was recently turned
on, and the initialization scan to gather information all all existing
files and directories is currently running. If this value is 'unknown'
that means there was an internal error when determining the file system
analytics state for the volume.

* enum: ["unknown", "initializing", "off", "on"]
* Introduced in: 9.8


|supported
|boolean
a|This field indicates whether or not file system analytics is supported
on the volume. If file system analytics is not supported, the reason will
be specified in the "analytics.unsupported_reason" field.


|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|suspects
|link:#href[href]
a|

|===


[#anti_ransomware_attack_report]
```

```
[.api-collapsible-fifth-title]
anti_ransomware_attack_report

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|time
|string
a|Timestamp at which ransomware attack is observed.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|snapshot_count
|integer
a|Total number of Anti-ransomware backup Snapshot copies.


|used
|integer
a|Total space in bytes used by the Anti-ransomware feature.


|used_by_logs
|integer
a|Space in bytes used by the Anti-ransomware analytics logs.


|used_by_snapshots
```

```
|integer
a|Space in bytes used by the Anti-ransomware backup Snapshot copies.


|===


[#suspect_files]
[.api-collapsible-fifth-title]
suspect_files

[cols=3*,options=header]
|===
|Name
|Type
|Description

|count
|integer
a|Total number of `suspect_files.format` files observed by the Anti-
ransomware analytics engine on the volume.


|format
|string
a|File formats observed by the Anti-ransomware analytics engine on the
volume.


|===


[#anti_ransomware]
[.api-collapsible-fifth-title]
anti_ransomware

Anti-ransomware related information of the volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|attack_probability
|string
```

```
a|Probability of a ransomware attack.
`none` No files are suspected of ransomware activity.
`low` A number of files are suspected of ransomware activity.
`moderate` A moderate number of files are suspected of ransomware
activity.
`high` A large number of files are suspected of ransomware activity.


|attack_reports
|array[link:#anti_ransomware_attack_report[anti_ransomware_attack_report]]
a|

|dry_run_start_time
|string
a|Time when Anti-ransomware monitoring `state` is set to dry-run value for
starting evaluation mode.


|space
|link:#space[space]
a|

|state
|string
a|Anti-ransomware state.
`disabled` Anti-ransomware monitoring is disabled on the volume.  This is
the default state in a POST operation.
`disable_in_progress` Anti-ransomware monitoring is being disabled and a
cleanup operation is in effect. Valid in GET operation.
`dry_run` Anti-ransomware monitoring is enabled in the evaluation mode.
`enabled` Anti-ransomware monitoring is active on the volume.
`paused` Anti-ransomware monitoring is paused on the volume.
`enable_paused` Anti-ransomware monitoring is paused on the volume from
its earlier enabled state. Valid in GET operation.
`dry_run_paused` Anti-ransomware monitoring is paused on the volume from
its earlier dry_run state. Valid in GET operation.
For POST, the valid Anti-ransomware states are only `disabled`, `enabled`
and `dry_run`, whereas for PATCH, `paused` is also valid along with the
three valid states for POST.


|suspect_files
|array[link:#suspect_files[suspect_files]]
a|

|===
```

```
[#application]
[.api-collapsible-fifth-title]
application

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the application to which the volume belongs. Available only when
the volume is part of an application.


|uuid
|string
a|UUID of the application to which the volume belongs. Available only when
the volume is part of an application.


|===


[#autosize]
[.api-collapsible-fifth-title]
autosize

[cols=3*,options=header]
|===
|Name
|Type
|Description

|grow_threshold
|integer
a|Used space threshold size, in percentage, for the automatic growth of
the volume. When the amount of used space in the volume becomes greater
than this threhold, the volume automatically grows unless it has reached
the maximum size. The volume grows when 'space.used' is greater than this
percent of 'space.size'. The 'grow_threshold' size cannot be less than or
equal to the 'shrink_threshold' size..


|maximum
```

```
|integer
a|Maximum size in bytes up to which a volume grows automatically. This
size cannot be less than the current volume size, or less than or equal to
the minimum size of volume.


|minimum
|integer
a|Minimum size in bytes up to which the volume shrinks automatically. This
size cannot be greater than or equal to the maximum size of volume.


|mode
|string
a|Autosize mode for the volume.
grow &dash; Volume automatically grows when the amount of used space is
above the 'grow_threshold' value.
grow_shrink &dash; Volume grows or shrinks in response to the amount of
space used.
off &dash; Autosizing of the volume is disabled.


|shrink_threshold
|integer
a|Used space threshold size, in percentage, for the automatic shrinkage of
the volume.  When the amount of used space in the volume drops below this
threshold, the volume automatically shrinks unless it has reached the
minimum size. The volume shrinks when the 'space.used' is less than the
'shrink_threshold' percent of 'space.size'. The 'shrink_threshold' size
cannot be greater than or equal to the 'grow_threshold' size.


|===


[#snapshot_reference]
[.api-collapsible-fifth-title]
snapshot_reference

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
```

```
a|

|name
|string
a|

|uuid
|string
a|

|===


[#parent_svm]
[.api-collapsible-fifth-title]
parent_svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#parent_volume]
[.api-collapsible-fifth-title]
parent_volume

[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#clone]
[.api-collapsible-fifth-title]
clone

[cols=3*,options=header]
|===
|Name
|Type
|Description

|is_flexclone
|boolean
a|Specifies if this volume is a normal FlexVol or FlexClone. This field
needs to be set when creating a FlexClone. Valid in POST.


|parent_snapshot
|link:#snapshot_reference[snapshot_reference]
a|

|parent_svm
|link:#parent_svm[parent_svm]
```

```
a|

|parent_volume
|link:#parent_volume[parent_volume]
a|

|split_complete_percent
|integer
a|Percentage of FlexClone blocks split from its parent volume.


|split_estimate
|integer
a|Space required by the containing-aggregate to split the FlexClone
volume.


|split_initiated
|boolean
a|This field is set when split is executed on any FlexClone, that is when
the FlexClone volume is split from its parent FlexVol. This field needs to
be set for splitting a FlexClone form FlexVol. Valid in PATCH.


|===


[#consistency_group]
[.api-collapsible-fifth-title]
consistency_group

Consistency group the volume is part of.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|The name of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.
```

```
|uuid
|string
a|The UUID of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.


|===


[#aggregates]
[.api-collapsible-fifth-title]
aggregates

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the aggregate hosting the FlexGroup Constituent.


|uuid
|string
a|Unique identifier for the aggregate.


|===


[#destination_aggregate]
[.api-collapsible-fifth-title]
destination_aggregate

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
300 seconds.


|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
a|Aggregate


|percent_complete
|integer
a|Completion percentage
```

```
|state
|string
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
|string
a|Tiering policy for FabricPool


|===


[#logical_space]
[.api-collapsible-fifth-title]
logical_space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.


|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.
```

```
|used_by_afs
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|used
|integer
a|The total space used by Snapshot copies in the volume, in bytes.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.


|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.


|footprint
|integer
a|Data used for this volume in the aggregate, in bytes.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.


|logical_space
|link:#logical_space[logical_space]
a|

|metadata
```

```
|integer
a|Space used by the volume metadata in the aggregate, in bytes.


|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
aggregate, in bytes.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|snapshot
|link:#snapshot[snapshot]
a|

|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, in bytes.


|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|used_percent
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, as a percent.
```

```
|===


[#constituents]
[.api-collapsible-fifth-title]
constituents

[cols=3*,options=header]
|===
|Name
|Type
|Description

|aggregates
|link:#aggregates[aggregates]
a|

|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|FlexGroup Constituents name


|space
|link:#space[space]
a|

|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|name
|string
a|Specifies the name of the efficiency policy. Valid for PATCH.


|===


[#efficiency]
[.api-collapsible-fifth-title]
efficiency

[cols=3*,options=header]
|===
|Name
|Type
|Description

|application_io_size
|string
a|Block size to use by compression. Valid for POST.


|compaction
|string
a|The system can be enabled/disabled compaction.
inline &dash; Data will be compacted first and written to the volume.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compaction enabled and some are disabled.


|compression
|string
a|The system can be enabled/disabled compression.
inline &dash; Data will be compressed first and written to the volume.
background &dash; Data will be written to the volume and compressed later.
both &dash; Inline compression compresses the data and write to the
volume, background compression compresses only the blocks on which inline
compression is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compression enabled and some are disabled.


|cross_volume_dedupe
```

```
|string
a|The system can be enabled/disabled cross volume dedupe. it can be
enabled only when dedupe is enabled.
inline &dash; Data will be cross volume deduped first and written to the
volume.
background &dash; Data will be written to the volume and cross volume
deduped later.
both &dash; Inline cross volume dedupe dedupes the data and write to the
volume, background cross volume dedupe dedupes only the blocks on which
inline dedupe is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are cross volume dedupe enabled and some are disabled.


|dedupe
|string
a|The system can be enabled/disabled dedupe.
inline &dash; Data will be deduped first and written to the volume.
background &dash; Data will be written to the volume and deduped later.
both &dash; Inline dedupe dedupes the data and write to the volume,
background dedupe dedupes only the blocks on which inline dedupe is not
run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are dedupe enabled and some are disabled.


|last_op_begin
|string
a|Last sis operation begin timestamp.


|last_op_end
|string
a|Last sis operation end timestamp.


|last_op_err
|string
a|Last sis operation error text.


|last_op_size
|integer
a|Last sis operation size.
```

```
|last_op_state
|string
a|Last sis operation state.


|op_state
|string
a|Sis status of the volume.


|path
|string
a|Absolute volume path of the volume.


|policy
|link:#policy[policy]
a|

|progress
|string
a|Sis progress of the volume.


|schedule
|string
a|Schedule associated with volume.


|state
|string
a|Storage efficiency state of the volume. Currently, this field supports
POST/PATCH only for RW (Read-Write) volumes on FSx for ONTAP.
disabled &dash; All storage efficiency features are disabled.
mixed &dash; Read-only field for FlexGroup volumes, storage efficiency is
enabled on certain constituents and disabled on others.
On FSx for ONTAP &dash;
   enabled &dash; All supported storage efficiency features for the
volume are enabled.
   custom &dash; Read-only field currently only supported for the FSx
for ONTAP, user-defined storage efficiency features are enabled.
For other platforms &dash;
   enabled &dash; At least one storage efficiency feature for the
volume is enabled.

* enum: ["disabled", "enabled", "mixed", "custom"]
```

```
* Introduced in: 9.9


|storage_efficiency_mode
|string
a|Storage efficiency mode used by volume. This parameter is supported only
on AFF platform.


|type
|string
a|Sis Type of the volume.


|===


[#status]
[.api-collapsible-fifth-title]
status

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Encryption progress message code.


|message
|string
a|Encryption progress message.


|===


[#encryption]
[.api-collapsible-fifth-title]
encryption

[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|enabled
|boolean
a|Creates an encrypted or an unencrypted volume. For POST, when set to
'true', a new key is generated and used to encrypt the given volume. In
that case, the underlying SVM must be configured with the key manager.
When set to 'false', the volume created will be unencrypted. For PATCH,
when set to 'true', it encrypts an unencrypted volume. Specifying the
parameter as 'false' in a PATCH operation for an encrypted volume is only
supported when moving the volume to another aggregate.


|key_id
|string
a|The key ID used for creating encrypted volume. A new key-id is generated
for creating an encrypted volume. This key-id is associated with the
generated key.


|key_manager_attribute
|string
a|Specifies an additional key manager attribute that is an identifier-
value pair, separated by '='. For example, CRN=unique-value. This
parameter is required when using the POST method and an IBM Key Lore key
manager is configured on the SVM.


|rekey
|boolean
a|If set to 'true', re-encrypts the volume with a new key. Valid in PATCH.


|state
|string
a|Volume encryption state.
encrypted &dash; The volume is completely encrypted.
encrypting &dash; Encryption operation is in progress.
partial &dash; Some constituents are encrypted and some are not.
Applicable only for FlexGroup volume.
rekeying. Encryption of volume with a new key is in progress.
unencrypted &dash; The volume is a plain-text one.


|status
|link:#status[status]
```

```
a|

|type
|string
a|Volume encryption type.
none &dash; The volume is a plain-text one.
volume &dash; The volume is encrypted with NVE (NetApp Volume Encryption).
aggregate &dash; The volume is encrypted with NAE (NetApp Aggregate
Encryption).


|===


[#error_state]
[.api-collapsible-fifth-title]
error_state

[cols=3*,options=header]
|===
|Name
|Type
|Description

|has_bad_blocks
|boolean
a|Indicates whether the volume has any corrupt data blocks. If the damaged
data block is accessed, an IO error, such as EIO for NFS or
STATUS_FILE_CORRUPT for CIFS, is returned.


|is_inconsistent
|boolean
a|Indicates whether the file system has any inconsistencies.
true &dash; File system is inconsistent.
false &dash; File system in not inconsistent.


|===


[#files]
[.api-collapsible-fifth-title]
files

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|maximum
|integer
a|The maximum number of files (inodes) for user-visible data allowed on
the volume. This value can be increased or decreased. Increasing the
maximum number of files does not immediately cause additional disk space
to be used to track files. Instead, as more files are created on the
volume, the system dynamically increases the number of disk blocks that
are used to track files. The space assigned to track files is never freed,
and this value cannot be decreased below the current number of files that
can be tracked within the assigned space for the volume. Valid in PATCH.


|used
|integer
a|Number of files (inodes) used for user-visible data permitted on the
volume. This field is valid only when the volume is online.


|===


[#flash_pool]
[.api-collapsible-fifth-title]
flash_pool

[cols=3*,options=header]
|===
|Name
|Type
|Description

|cache_eligibility
|string
a|If this parameter is specified, the command displays information only
about the volume or volumes with the specified Flash Pool caching
attributes.


|cache_retention_priority
|string
a|If this parameter is specified, the command displays the volumes that
match the specified cache retention priority policy. A cache retention
priority defines how long the blocks of a volume will be cached in the
```

```
Flash Pool once they become cold.


|caching_policy
|string
a|This optionally specifies the caching policy to apply to the volume. A
caching policy defines how the system caches a volume's data in Flash
Cache modules. If a caching policy is not assigned to a volume, the system
uses the caching policy that is assigned to the containing SVM. If a
caching policy is not assigned to the containing SVM, the system uses the
default cluster-wide policy.


|===


[#flexgroup]
[.api-collapsible-fifth-title]
flexgroup

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the FlexGroup volume that the constituent is part of.


|uuid
|string
a|Unique identifier for the FlexGroup volume that the constituent is part
of.


|===


[#guarantee]
[.api-collapsible-fifth-title]
guarantee

[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|honored
|boolean
a|Is the space guarantee of this volume honored in the aggregate?


|type
|string
a|The type of space guarantee of this volume in the aggregate.


|===


[#iops]
[.api-collapsible-fifth-title]
iops

The rate of I/O operations observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
```

```
a|Peformance metric for write I/O operations.


|===


[#latency]
[.api-collapsible-fifth-title]
latency

The round trip latency in microseconds observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#cloud]
[.api-collapsible-fifth-title]
cloud
```

```
Performance numbers (IOPS and latency) for cloud store. These numbers are
relevant only for volumes hosted on FabricPools.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.
```

```
|===


[#flexcache]
[.api-collapsible-fifth-title]
flexcache

Performance number for FlexCache used to measure cache effectiveness.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bandwidth_savings
|integer
a|Bandwidth savings denoting the amount of data served locally by the
cache, in bytes.


|cache_miss_percent
|integer
a|Cache miss percentage.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.
```

```
|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

The rate of throughput bytes per second observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===
```

```
[#metric]
[.api-collapsible-fifth-title]
metric

Performance numbers, such as IOPS, latency and throughput.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|cloud
|link:#cloud[cloud]
a|Performance numbers (IOPS and latency) for cloud store. These numbers
are relevant only for volumes hosted on FabricPools.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|flexcache
|link:#flexcache[flexcache]
a|Performance number for FlexCache used to measure cache effectiveness.


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
```

```
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput
|link:#throughput[throughput]
a|The rate of throughput bytes per second observed at the storage object.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
300 seconds.
```

```
|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
a|Aggregate


|percent_complete
|integer
a|Completion percentage


|start_time
|string
a|Start time of volume move.


|state
|string
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
|string
a|Tiering policy for FabricPool


|===


[#export_policy]
[.api-collapsible-fifth-title]
export_policy

Export Policy


[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|id
|integer
a|

|name
|string
a|

|===


[#junction_parent]
[.api-collapsible-fifth-title]
junction_parent

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the parent volume that contains the junction inode of this
volume. The junction parent volume must belong to the same SVM that owns
this volume.


|uuid
|string
a|Unique identifier for the parent volume.


|===


[#nas]
[.api-collapsible-fifth-title]
```

```
nas

[cols=3*,options=header]
|===
|Name
|Type
|Description

|export_policy
|link:#export_policy[export_policy]
a|Export Policy


|gid
|integer
a|The UNIX group ID of the volume. Valid in POST or PATCH.


|junction_parent
|link:#junction_parent[junction_parent]
a|

|path
|string
a|The fully-qualified path in the owning SVM's namespace at which the
volume is mounted. The path is case insensitive and must be unique within
a SVM's namespace. Path must begin with '/' and must not end with '/'.
Only one volume can be mounted at any given junction path. An empty path
in POST creates an unmounted volume. An empty path in PATCH deactivates
and unmounts the volume. Taking a volume offline or restricted state
removes its junction path. This attribute is reported in GET only when the
volume is mounted.


|security_style
|string
a|Security style associated with the volume. Valid in POST or PATCH.
mixed &dash; Mixed-style security
ntfs &dash; NTFS/WIndows-style security
unified &dash; Unified-style security, unified UNIX, NFS and CIFS
permissions
unix &dash; Unix-style security.


|uid
|integer
a|The UNIX user ID of the volume. Valid in POST or PATCH.
```

```
|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write) and 1 (execute).
First digit selects the set user ID(4), set group ID (2) and sticky (1)
attributes. The second digit selects permission for the owner of the file;
the third selects permissions for other users in the same group; the
fourth for other users not in the group. Valid in POST or PATCH. For
security style "mixed" or "unix", the default setting is 0755 in octal
(493 in decimal) and for security style "ntfs", the default setting is
0000. In cases where only owner, group and other permissions are given (as
in 755, representing the second, third and fourth dight), first digit is
assumed to be zero.


|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|max_throughput_iops
|integer
a|Specifies the maximum throughput in IOPS, 0 means none. This is mutually
exclusive with name and UUID during POST and PATCH.


|max_throughput_mbps
|integer
a|Specifies the maximum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.


|min_throughput_iops
```

```
|integer
a|Specifies the minimum throughput in IOPS, 0 means none. Setting
"min_throughput" is supported on AFF platforms only, unless FabricPool
tiering policies are set. This is mutually exclusive with name and UUID
during POST and PATCH.


|min_throughput_mbps
|integer
a|Specifies the minimum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.


|name
|string
a|The QoS policy group name. This is mutually exclusive with UUID and
other QoS attributes during POST and PATCH.


|uuid
|string
a|The QoS policy group UUID. This is mutually exclusive with name and
other QoS attributes during POST and PATCH.


|===


[#qos]
[.api-collapsible-fifth-title]
qos

QoS information


[cols=3*,options=header]
|===
|Name
|Type
|Description

|policy
|link:#policy[policy]
a|

|===
```

```
[#quota]
[.api-collapsible-fifth-title]
quota

Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|enabled
|boolean
a|This option is used to enable or disable the quota for the volume. This
option is valid only in PATCH. Quotas are enabled for FlexVols or
FlexGroup volumes when the quota state is "on". Quotas are disabled for
FlexVols or FlexGroup volumes when the quota state is "off".


|state
|string
a|Quota state of the volume


|===


[#retention]
[.api-collapsible-fifth-title]
retention

[cols=3*,options=header]
|===
|Name
|Type
|Description

|default
|string
a|Specifies the default retention period that is applied to files while
committing them to the WORM state without an associated retention period.
The retention value represents a duration and must be specified in the
ISO-8601 duration format. The retention period can be in years, months,
```

days, hours, and minutes. A duration specified for years, months, and days is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively, for example "P10Y" represents a duration of 10 years. A duration in hours and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string must contain only a single time element that is, either years, months, days, hours, or minutes. A duration which combines different periods is not supported, for example "P1Y10M" is not supported. Apart from the duration specified in the ISO-8601 format, the duration field also accepts the string "infinite" to set an infinite retention period and the string "unspecified" to set an unspecified retention period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++

|maximum
|string
a|Specifies the maximum allowed retention period for files committed to the WORM state on the volume. The retention value represents a duration and must be specified in the ISO-8601 duration format. The retention period can be in years, months, days, hours, and minutes. A duration specified for years, months, and days is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively, for example "P10Y" represents a duration of 10 years. A duration in hours and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string must contain only a single time element that is, either years, months, days, hours, or minutes. A duration which combines different periods is not supported, for example "P1Y10M" is not supported. Apart from the duration specified in the ISO-8601 format, the duration field also accepts the string "infinite" to set an infinite retention period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++

|minimum
|string
a|Specifies the minimum allowed retention period for files committed to the WORM state on the volume. The retention value represents a duration and must be specified in the ISO-8601 duration format. The retention period can be in years, months, days, hours, and minutes. A duration specified for years, month,s and days is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively, for example "P10Y" represents a duration of 10 years. A duration in hours and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string must contain only a single time element that is, either years, months, days, hours, or minutes. A duration which combines different periods is not supported, for example "P1Y10M" is not

```
supported. Apart from the duration specified in the ISO-8601 format, the
duration field also accepts the string "infinite" to set an infinite
retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|===


[#snaplock]
[.api-collapsible-fifth-title]
snaplock

[cols=3*,options=header]
|===
|Name
|Type
|Description

|append_mode_enabled
|boolean
a|Specifies if the volume append mode is enabled or disabled. When it is
enabled, all the files created with write permissions on the volume are,
by default, WORM appendable files. The user can append the data to a WORM
appendable file but cannot modify the existing contents of the file nor
delete the file until it expires.


|autocommit_period
|string
a|Specifies the autocommit period for SnapLock volume. All files which are
not modified for a period greater than the autocommit period of the volume
are committed to the WORM state. The autocommit period value represents a
duration and must be specified in the ISO-8601 duration format. The
autocommit period can be in years, months, days, hours, and minutes. A
period specified for years, months, and days is represented in the ISO-
8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D"
respectively, for example "P10Y" represents a duration of 10 years. A
duration in hours and minutes is represented by "PT+++<num>+++H" and
"PT+++<num>+++M" respectively. The period string must contain only a
single time element that is, either years, months, days, hours, or
minutes. A duration which combines different periods is not supported, for
example "P1Y10M" is not supported. Apart from the duration specified in
the ISO-8601 format, the autocommit field also accepts the string
"none".+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++
```

```
|compliance_clock_time
|string
a|This is the volume compliance clock time which is used to manage the
SnapLock objects in the volume.


|expiry_time
|string
a|Expiry time of the volume.


|is_audit_log
|boolean
a|Indicates if this volume has been configured as SnapLock audit log
volume for the SVM .


|litigation_count
|integer
a|Litigation count indicates the number of active legal-holds on the
volume.


|privileged_delete
|string
a|Specifies the privileged-delete attribute of a SnapLock volume. On a
SnapLock Enterprise (SLE) volume, a designated privileged user can
selectively delete files irrespective of the retention time of the file.
SLE volumes can have privileged delete as disabled, enabled or
permanently_disabled and for SnapLock Compliance (SLC) volumes it is
always permanently_disabled.


|retention
|link:#retention[retention]
a|

|type
|string
a|The SnapLock type of the volume.
compliance &dash; A SnapLock Compliance(SLC) volume provides the highest
level of WORM protection and an administrator cannot destroy a SLC volume
if it contains unexpired WORM files.
 enterprise &dash; An administrator can delete a SnapLock Enterprise(SLE)
volume.
 non_snaplock &dash; Indicates the volume is non-snaplock.
```

```
|unspecified_retention_file_count
|integer
a|Indicates the number of files with an unspecified retention time in the
volume.


|===


[#destinations]
[.api-collapsible-fifth-title]
destinations

[cols=3*,options=header]
|===
|Name
|Type
|Description

|is_cloud
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to a cloud destination.


|is_ontap
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to an ONTAP destination.

* readOnly: 1
* Introduced in: 9.9


|===


[#snapmirror]
[.api-collapsible-fifth-title]
snapmirror

Specifies attributes for SnapMirror protection.


[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|destinations
|link:#destinations[destinations]
a|

|is_protected
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data.


|===


[#snapshot_policy]
[.api-collapsible-fifth-title]
snapshot_policy

This is a reference to the Snapshot copy policy.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#logical_space]
[.api-collapsible-fifth-title]
```

```
logical_space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.


|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.


|used
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
vbn_zero, future_blk_cnt), in bytes.


|used_by_afs
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|used_by_snapshots
|integer
a|Size that is logically used across all Snapshot copies in the volume, in
bytes.


|used_percent
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
```

```
vbn_zero, future_blk_cnt), as a percentage.


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|autodelete_trigger
|string
a|Specifies when the system should trigger an autodelete of Snapshot
copies. When set to _volume_, autodelete is triggered based on volume
fullness. When set to _snap_reserve_, autodelete is triggered based on
Snapshot reserve fullness. The default value is _volume_.


|reserve_available
|integer
a|Size available for Snapshot copies within the Snapshot copy reserve, in
bytes.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|reserve_size
|integer
a|Size in the volume that has been set aside as a reserve for Snapshot
copy usage, in bytes.
```

```
|space_used_percent
|integer
a|Percentage of snapshot reserve size that has been used.


|used
|integer
a|The total space used by Snapshot copies in the volume, in bytes.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.


|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.
```

```
|block_storage_inactive_user_data_percent
|integer
a|Percentage of size that is physically used in the performance tier of
the volume.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.


|cross_volume_dedupe_metafiles_footprint
|integer
a|Cross volume deduplication metadata footprint, in bytes.


|cross_volume_dedupe_metafiles_temporary_footprint
|integer
a|Cross volume temporary deduplication metadata footprint, in bytes.


|dedupe_metafiles_footprint
|integer
a|Deduplication metadata footprint, in bytes.


|dedupe_metafiles_temporary_footprint
|integer
a|Temporary deduplication metadata footprint, in bytes.


|delayed_free_footprint
|integer
a|Delayed free blocks footprint, in bytes.


|expected_available
|integer
a|Size that should be available for the volume, irrespective of available
size in the aggregate, in bytes.


|file_operation_metadata
|integer
a|File operation metadata footprint, in bytes.
```

```
|filesystem_size
|integer
a|Total usable size of the volume, in bytes.


|filesystem_size_fixed
|boolean
a|Specifies whether the file system is to remain of the same size when set
to true or to grow when set to false. This option is automatically set to
true when a volume becomes SnapMirrored.


|footprint
|integer
a|Data used for this volume in the aggregate, in bytes.


|fractional_reserve
|integer
a|Used to change the amount of space reserved for overwrites of reserved
objects in a volume.


|full_threshold_percent
|integer
a|Volume full threshold percentage at which EMS warnings can be sent.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.


|logical_space
|link:#logical_space[logical_space]
a|

|metadata
|integer
a|Space used by the volume metadata in the aggregate, in bytes.


|nearly_full_threshold_percent
|integer
a|Volume nearly full threshold percentage at which EMS warnings can be
sent.
```

```
|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|overwrite_reserve
|integer
a|Reserved space for overwrites, in bytes.


|overwrite_reserve_used
|integer
a|Overwrite logical reserve space used, in bytes.


|percent_used
|integer
a|Percentage of the volume size that is used.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
aggregate, in bytes.


|physical_used
|integer
a|Size that is physically used in the volume, in bytes.


|physical_used_percent
|integer
a|Size that is physically used in the volume, as a percentage.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|size_available_for_snapshots
|integer
```

```
a|Available space for Snapshot copies from snap-reserve, in bytes.


|snapmirror_destination_footprint
|integer
a|SnapMirror destination footprint, in bytes.


|snapshot
|link:#snapshot[snapshot]
a|

|snapshot_reserve_unusable
|integer
a|Snapshot reserve that is not available for Snapshot copy creation, in
bytes.


|snapshot_spill
|integer
a|Space used by the snapshot copies beyond the snap-reserve, in bytes.


|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, in bytes.


|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|user_data
|integer
a|User data, in bytes.


|volume_guarantee_footprint
|integer
a|Space reserved for future writes in the volume, in bytes.
```

```
|===


[#iops_raw]
[.api-collapsible-fifth-title]
iops_raw

The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#latency_raw]
[.api-collapsible-fifth-title]
latency_raw
```

```
The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#cloud]
[.api-collapsible-fifth-title]
cloud

These are raw performance numbers (IOPS and latency) for the cloud store.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster. These numbers are relevant only for
volumes hosted on FabricPools.


[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be used along with delta time to calculate the rate of I/O operations per unit of time.


|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can be divided by the raw IOPS value to calculate the average latency per I/O operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of data over multiple nodes fails, then any partial errors might return "ok" on success or "error" on an internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data". "Inconsistent_ delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated. "Negative_delta" is returned when an expected monotonically increasing value has decreased in value. "Inconsistent_old_data" is returned when one or more nodes do not have the latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#flexcache_raw]
[.api-collapsible-fifth-title]
flexcache_raw

Performance numbers for FlexCache used to measure cache effectiveness.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|cache_miss_blocks
|integer
a|Blocks retrieved from origin in case of a cache miss. This can be
divided by the raw client_requested_blocks and multiplied by 100 to
calculate the cache miss percentage.


|client_requested_blocks
|integer
a|Total blocks requested by the client.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput_raw]
[.api-collapsible-fifth-title]
throughput_raw
```

```
Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
time.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#statistics]
[.api-collapsible-fifth-title]
statistics

These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|cloud
|link:#cloud[cloud]
a|These are raw performance numbers (IOPS and latency) for the cloud
store. These numbers are aggregated across all nodes in the cluster and
increase with the uptime of the cluster. These numbers are relevant only
for volumes hosted on FabricPools.


|flexcache_raw
|link:#flexcache_raw[flexcache_raw]
a|Performance numbers for FlexCache used to measure cache effectiveness.


|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput_raw
|link:#throughput_raw[throughput_raw]
```

```
a|Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
time.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

SVM containing the volume. Required on POST.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#tiering]
[.api-collapsible-fifth-title]
tiering
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|min_cooling_days
|integer
a|This parameter specifies the minimum number of days that user data
blocks of the volume must be cooled before they can be considered cold and
tiered out to the cloud tier. Note that this parameter is only used for
tiering purposes and does not affect the reporting of inactive data. The
value specified should be greater than the frequency with which
applications in the volume shift between different sets of data. This
parameter cannot be set when volume tiering policy is either "none" or
"all". The default value of this parameter depends on the volume's tiering
policy. See the tiering policy section of this documentation for
corresponding default values. If the tiering policy on the volume gets
changed, then this parameter will be reset to the default value
corresponding to the new tiering policy.


|object_tags
|array[string]
a|This parameter specifies tags of a volume for objects stored on a
FabricPool-enabled aggregate. Each tag is a key,value pair and should be
in the format "key=value".


|policy
|string
a|Policy that determines whether the user data blocks of a volume in a
FabricPool will be tiered to the cloud store when they become cold.
FabricPool combines flash (performance tier) with a cloud store into a
single aggregate. Temperature of a volume block increases if it is
accessed frequently and decreases when it is not. Valid in POST or PATCH.
all &dash; This policy allows tiering of both Snapshot copies and active
file system user data to the cloud store as soon as possible by ignoring
the temperature on the volume blocks.
auto &dash; This policy allows tiering of both snapshot and active file
system user data to the cloud store
none &dash; Volume blocks will not be tiered to the cloud store.
snapshot_only &dash; This policy allows tiering of only the volume
Snapshot copies not associated with the active file system. The default
tiering policy is "snapshot-only" for a FlexVol and "none" for a
FlexGroup. The default minimum cooling period for the "snapshot-only"
```

```
tiering policy is 2 days and for the "auto" tiering policy is 31 days.


|supported
|boolean
a|This parameter specifies whether or not FabricPools are selected when
provisioning a FlexGroup without specifying "aggregates.name" or
"aggregates.uuid". Only FabricPool aggregates are used if this parameter
is set to true and only non FabricPool aggregates are used if this
parameter is set to false. Tiering support for a FlexGroup can be changed
by moving all of the constituents to the required aggregates. Note that in
order to tier data, not only does the volume need to support tiering by
using FabricPools, the tiering "policy" must not be 'none'. A volume that
uses FabricPools but has a tiering "policy" of 'none' supports tiering,
but will not tier any data.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|access_time_enabled
|boolean
a|Indicates whether or not access time updates are enabled on the volume.


|activity_tracking
|link:#activity_tracking[activity_tracking]
a|

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.
```

```
|analytics
|link:#analytics[analytics]
a|

|anti_ransomware
|link:#anti_ransomware[anti_ransomware]
a|Anti-ransomware related information of the volume.


|anti_ransomware_state
|string
a|The Anti-ransomware state of the volume. If no "anti_ransomware_state"
property is specified, the volume inherits the value from its parent SVM's
"anti_ransomware_default_volume_state" property. If this value is
"disabled", Anti-ransomware is disabled on the volume. If this value is
"enabled", Anti-ransomware is enabled on the volume and alerts are raised
if any suspect is detected for those volumes. If this value is "dry_run",
Anti-ransomware is enabled in the dry-run or learning mode on the volume.
The "dry_run" state is same as the "enabled" state except that the
analytics data is used here for learning. No alerts are raised for any
detections or violations. If this value is "paused", Anti-ransomware is
paused on the volume. Additionally, three more states are available, which
are only valid for GET. If this value is "disable_in_progress", Anti-
ransomware monitoring is being disabled and a cleanup operation is in
effect. If this value is "enable_paused", Anti-ransomware is paused on the
volume from its earlier enabled state. If this value is "dry_run_paused",
Anti-ransomware monitoring is paused on the volume from its earlier
dry_run state. For POST, the valid Anti-ransomware states are only
"disabled", "enabled" and "dry_run", whereas for PATCH, "paused" is also
valid along with the three valid states for POST.


|application
|link:#application[application]
a|

|autosize
|link:#autosize[autosize]
a|

|clone
|link:#clone[clone]
a|

|cloud_retrieval_policy
```

```
|string
a|This parameter specifies the cloud retrieval policy for the volume. This
policy determines which tiered out blocks to retrieve from the capacity
tier to the performance tier. The available cloud retrieval policies are
"default" policy retrieves tiered data based on the underlying tiering
policy. If the tiering policy is 'auto', tiered data is retrieved only for
random client driven data reads. If the tiering policy is 'none' or
'snapshot_only', tiered data is retrieved for random and sequential client
driven data reads. If the tiering policy is 'all', tiered data is not
retrieved.
"on_read" policy retrieves tiered data for all client driven data reads.
"never" policy never retrieves tiered data.
"promote" policy retrieves all eligible tiered data automatically during
the next scheduled scan. It is only supported when the tiering policy is
'none' or 'snapshot_only'. If the tiering policy is 'snapshot_only', the
only data brought back is the data in the AFS. Data that is only in a
snapshot copy stays in the cloud and if tiering policy is 'none' then all
data is retrieved.


|comment
|string
a|A comment for the volume. Valid in POST or PATCH.


|consistency_group
|link:#consistency_group[consistency_group]
a|Consistency group the volume is part of.


|constituents
|array[link:#constituents[constituents]]
a|

|constituents_per_aggregate
|integer
a|Specifies the number of times to iterate over the aggregates listed with
the "aggregates.name" or "aggregates.uuid" when creating or expanding a
FlexGroup volume. If a volume is being created on a single aggregate, the
system creates a flexible volume if the "constituents_per_aggregate" field
is not specified, or a FlexGroup volume if it is specified. If a volume is
being created on multiple aggregates, the system always creates a
FlexGroup volume. The root constituent of a FlexGroup volume is always
placed on the first aggregate in the list.
```

```
|convert_unicode
|boolean
a|Specifies whether directory Unicode format conversion is enabled when
directories are accessed by NFS clients.


|create_time
|string
a|Creation time of the volume. This field is generated when the volume is
created.


|efficiency
|link:#efficiency[efficiency]
a|

|encryption
|link:#encryption[encryption]
a|

|error_state
|link:#error_state[error_state]
a|

|files
|link:#files[files]
a|

|flash_pool
|link:#flash_pool[flash_pool]
a|

|flexcache_endpoint_type
|string
a|FlexCache endpoint type.
none &dash; The volume is neither a FlexCache nor origin of any FlexCache.
cache &dash; The volume is a FlexCache volume.
origin &dash; The volume is origin of a FlexCache volume.


|flexgroup
|link:#flexgroup[flexgroup]
a|

|guarantee
|link:#guarantee[guarantee]
a|
```

```
|is_object_store
|boolean
a|Specifies whether the volume is provisioned for an object store server.


|is_svm_root
|boolean
a|Specifies whether the volume is a root volume of the SVM it belongs to.


|language
|string
a|Language encoding setting for volume. If no language is specified, the
volume inherits its SVM language encoding setting.


|max_dir_size
|integer
a|Maximum directory size. This value sets maximum size, in bytes, to which
a directory can grow. The default maximum directory size for FlexVol
volumes is model-dependent, and optimized for the size of system memory.
Before increasing the maximum directory size, involve technical support.


|metric
|link:#metric[metric]
a|Performance numbers, such as IOPS, latency and throughput.


|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|Volume name. The name of volume must start with an alphabetic character
(a to z or A to Z) or an underscore (_). The name must be 197 or fewer
characters in length for FlexGroups, and 203 or fewer characters in length
for all other types of volumes. Volume names must be unique within an SVM.
Required on POST.
```

```
|nas
|link:#nas[nas]
a|

|qos
|link:#qos[qos]
a|QoS information


|queue_for_encryption
|boolean
a|Specifies whether the volume is queued for encryption.


|quota
|link:#quota[quota]
a|Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


|scheduled_snapshot_naming_scheme
|string
a|Naming Scheme for automatic Snapshot copies:

* create_time - Automatic Snapshot copies are saved as per the start of
their current date and time.
* ordinal - Latest automatic snapshot copy is saved as
+++<scheduled_frequency>+++.0 and subsequent copies will follow the
create_time naming convention.+++</scheduled_frequency>+++


|size
|integer
a|Physical size of the volume, in bytes. The minimum size for a FlexVol
volume is 20MB and the minimum size for a FlexGroup volume is 200MB per
constituent. The recommended size for a FlexGroup volume is a minimum of
100GB per constituent. For all volumes, the default size is equal to the
minimum size.


|snaplock
|link:#snaplock[snaplock]
a|

|snapmirror
|link:#snapmirror[snapmirror]
a|Specifies attributes for SnapMirror protection.
```

```
|snapshot_count
|integer
a|Number of Snapshot copies in the volume.


|snapshot_policy
|link:#snapshot_policy[snapshot_policy]
a|This is a reference to the Snapshot copy policy.


|space
|link:#space[space]
a|

|state
|string
a|Volume state. Client access is supported only when volume is online and
junctioned. Taking volume to offline or restricted state removes its
junction path and blocks client access. When volume is in restricted state
some operations like parity reconstruction and iron on commit are allowed.
The 'mixed' state applies to FlexGroup volumes only and cannot be
specified as a target state. An 'error' state implies that the volume is
not in a state to serve data.


|statistics
|link:#statistics[statistics]
a|These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


|status
|array[string]
a|Describes the current status of a volume.


|style
|string
a|The style of the volume. If "style" is not specified, the volume type is
determined based on the specified aggregates. Specifying a single
aggregate, without "constituents_per_aggregate", creates a flexible
volume. Specifying multiple aggregates, or a single aggregate with
"constituents_per_aggregate", creates a FlexGroup. Specifying a volume
"style" creates a volume of that type. For example, if the style is
```

```
"flexvol" you must specify a single aggregate. If the style is
"flexgroup", the system either uses the specified aggregates or
automatically provisions aggregates if there are no specified aggregates.
The style "flexgroup_constiutent" is not supported when creating a volume.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroup volumes
flexgroup_constituent &dash; FlexGroup constituents.


|svm
|link:#svm[svm]
a|SVM containing the volume. Required on POST.


|tiering
|link:#tiering[tiering]
a|

|type
|string
a|Type of the volume.
rw &dash; read-write volume.
dp &dash; data-protection volume.
ls &dash; load-sharing `dp` volume. Valid in GET.


|use_mirrored_aggregates
|boolean
a|Specifies whether mirrored aggregates are selected when provisioning a
FlexGroup without specifying "aggregates.name" or "aggregates.uuid". Only
mirrored aggregates are used if this parameter is set to 'true' and only
unmirrored aggregates are used if this parameter is set to 'false'.
Aggregate level mirroring for a FlexGroup can be changed by moving all of
the constituents to the required aggregates. The default value is 'true'
for a MetroCluster configuration and is 'false' for a non-MetroCluster
configuration.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* readOnly: 1
* Introduced in: 9.6
```

```
|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code
```

```
|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[IDd057b4ede01dc41489f1967a3cf45119]]
= Create a volume on an SVM and storage aggregates

[.api-doc-operation .api-doc-operation-post]#POST# [.api-doc-code-
block]#`/storage/volumes`#

*Introduced In:* 9.6

Creates a volume on a specified SVM and storage aggregates.

== Required properties

* `svm.uuid` or `svm.name` - Existing SVM in which to create the volume.
* `name` - Name of the volume.
* `aggregates.name` or `aggregates.uuid` - Existing aggregates in which to
create the volume.

== Default property values

* `state` -  _online_
* `size` - _20MB_
* `style` - _flexvol_
* `type` - _rw_
* `encryption.enabled` - _false_
* `snapshot_policy.name` - _default_
* `guarantee.type` - _volume_
* `anti_ransomware.state` - _default_
```

```
== Related ONTAP commands

* `volume create`
* `volume clone create`


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When doing a POST, PATCH, or DELETE operation on a single record, the
default is 0 seconds.  This means that if an asynchronous operation is
started, the server immediately returns HTTP code 202 (Accepted) along
with a link to the job.  If a non-zero value is specified for POST, PATCH,
or DELETE operations, ONTAP waits that length of time to see if the job
completes so it can return something other than 202.

* Default value: 1
* Max value: 120
* Min value: 0


|return_records
|boolean
|query
|False
a|The default is false.  If set to true, the records are returned.

* Default value:

|===

== Request Body
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|access_time_enabled
|boolean
a|Indicates whether or not access time updates are enabled on the volume.


|activity_tracking
|link:#activity_tracking[activity_tracking]
a|

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.


|analytics
|link:#analytics[analytics]
a|

|anti_ransomware
|link:#anti_ransomware[anti_ransomware]
a|Anti-ransomware related information of the volume.


|anti_ransomware_state
|string
a|The Anti-ransomware state of the volume. If no "anti_ransomware_state"
property is specified, the volume inherits the value from its parent SVM's
"anti_ransomware_default_volume_state" property. If this value is
"disabled", Anti-ransomware is disabled on the volume. If this value is
"enabled", Anti-ransomware is enabled on the volume and alerts are raised
if any suspect is detected for those volumes. If this value is "dry_run",
Anti-ransomware is enabled in the dry-run or learning mode on the volume.
The "dry_run" state is same as the "enabled" state except that the
analytics data is used here for learning. No alerts are raised for any
detections or violations. If this value is "paused", Anti-ransomware is
paused on the volume. Additionally, three more states are available, which
```

```
are only valid for GET. If this value is "disable_in_progress", Anti-
ransomware monitoring is being disabled and a cleanup operation is in
effect. If this value is "enable_paused", Anti-ransomware is paused on the
volume from its earlier enabled state. If this value is "dry_run_paused",
Anti-ransomware monitoring is paused on the volume from its earlier
dry_run state. For POST, the valid Anti-ransomware states are only
"disabled", "enabled" and "dry_run", whereas for PATCH, "paused" is also
valid along with the three valid states for POST.


|application
|link:#application[application]
a|

|autosize
|link:#autosize[autosize]
a|

|clone
|link:#clone[clone]
a|

|cloud_retrieval_policy
|string
a|This parameter specifies the cloud retrieval policy for the volume. This
policy determines which tiered out blocks to retrieve from the capacity
tier to the performance tier. The available cloud retrieval policies are
"default" policy retrieves tiered data based on the underlying tiering
policy. If the tiering policy is 'auto', tiered data is retrieved only for
random client driven data reads. If the tiering policy is 'none' or
'snapshot_only', tiered data is retrieved for random and sequential client
driven data reads. If the tiering policy is 'all', tiered data is not
retrieved.
"on_read" policy retrieves tiered data for all client driven data reads.
"never" policy never retrieves tiered data.
"promote" policy retrieves all eligible tiered data automatically during
the next scheduled scan. It is only supported when the tiering policy is
'none' or 'snapshot_only'. If the tiering policy is 'snapshot_only', the
only data brought back is the data in the AFS. Data that is only in a
snapshot copy stays in the cloud and if tiering policy is 'none' then all
data is retrieved.


|comment
|string
a|A comment for the volume. Valid in POST or PATCH.
```

```
|consistency_group
|link:#consistency_group[consistency_group]
a|Consistency group the volume is part of.


|constituents
|array[link:#constituents[constituents]]
a|

|constituents_per_aggregate
|integer
a|Specifies the number of times to iterate over the aggregates listed with
the "aggregates.name" or "aggregates.uuid" when creating or expanding a
FlexGroup volume. If a volume is being created on a single aggregate, the
system creates a flexible volume if the "constituents_per_aggregate" field
is not specified, or a FlexGroup volume if it is specified. If a volume is
being created on multiple aggregates, the system always creates a
FlexGroup volume. The root constituent of a FlexGroup volume is always
placed on the first aggregate in the list.


|convert_unicode
|boolean
a|Specifies whether directory Unicode format conversion is enabled when
directories are accessed by NFS clients.


|create_time
|string
a|Creation time of the volume. This field is generated when the volume is
created.


|efficiency
|link:#efficiency[efficiency]
a|

|encryption
|link:#encryption[encryption]
a|

|error_state
|link:#error_state[error_state]
a|

|files
```

```
|link:#files[files]
a|

|flash_pool
|link:#flash_pool[flash_pool]
a|

|flexcache_endpoint_type
|string
a|FlexCache endpoint type.
none &dash; The volume is neither a FlexCache nor origin of any FlexCache.
cache &dash; The volume is a FlexCache volume.
origin &dash; The volume is origin of a FlexCache volume.


|flexgroup
|link:#flexgroup[flexgroup]
a|

|guarantee
|link:#guarantee[guarantee]
a|

|is_object_store
|boolean
a|Specifies whether the volume is provisioned for an object store server.


|is_svm_root
|boolean
a|Specifies whether the volume is a root volume of the SVM it belongs to.


|language
|string
a|Language encoding setting for volume. If no language is specified, the
volume inherits its SVM language encoding setting.


|max_dir_size
|integer
a|Maximum directory size. This value sets maximum size, in bytes, to which
a directory can grow. The default maximum directory size for FlexVol
volumes is model-dependent, and optimized for the size of system memory.
Before increasing the maximum directory size, involve technical support.
```

```
|metric
|link:#metric[metric]
a|Performance numbers, such as IOPS, latency and throughput.


|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|Volume name. The name of volume must start with an alphabetic character
(a to z or A to Z) or an underscore (_). The name must be 197 or fewer
characters in length for FlexGroups, and 203 or fewer characters in length
for all other types of volumes. Volume names must be unique within an SVM.
Required on POST.


|nas
|link:#nas[nas]
a|

|qos
|link:#qos[qos]
a|QoS information


|queue_for_encryption
|boolean
a|Specifies whether the volume is queued for encryption.


|quota
|link:#quota[quota]
a|Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


|scheduled_snapshot_naming_scheme
|string
a|Naming Scheme for automatic Snapshot copies:

* create_time - Automatic Snapshot copies are saved as per the start of
```

```
their current date and time.
* ordinal - Latest automatic snapshot copy is saved as
+++<scheduled_frequency>+++.0 and subsequent copies will follow the
create_time naming convention.+++</scheduled_frequency>+++


|size
|integer
a|Physical size of the volume, in bytes. The minimum size for a FlexVol
volume is 20MB and the minimum size for a FlexGroup volume is 200MB per
constituent. The recommended size for a FlexGroup volume is a minimum of
100GB per constituent. For all volumes, the default size is equal to the
minimum size.


|snaplock
|link:#snaplock[snaplock]
a|

|snapmirror
|link:#snapmirror[snapmirror]
a|Specifies attributes for SnapMirror protection.


|snapshot_count
|integer
a|Number of Snapshot copies in the volume.


|snapshot_policy
|link:#snapshot_policy[snapshot_policy]
a|This is a reference to the Snapshot copy policy.


|space
|link:#space[space]
a|

|state
|string
a|Volume state. Client access is supported only when volume is online and
junctioned. Taking volume to offline or restricted state removes its
junction path and blocks client access. When volume is in restricted state
some operations like parity reconstruction and iron on commit are allowed.
The 'mixed' state applies to FlexGroup volumes only and cannot be
specified as a target state. An 'error' state implies that the volume is
not in a state to serve data.
```

```
|statistics
|link:#statistics[statistics]
a|These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


|status
|array[string]
a|Describes the current status of a volume.


|style
|string
a|The style of the volume. If "style" is not specified, the volume type is
determined based on the specified aggregates. Specifying a single
aggregate, without "constituents_per_aggregate", creates a flexible
volume. Specifying multiple aggregates, or a single aggregate with
"constituents_per_aggregate", creates a FlexGroup. Specifying a volume
"style" creates a volume of that type. For example, if the style is
"flexvol" you must specify a single aggregate. If the style is
"flexgroup", the system either uses the specified aggregates or
automatically provisions aggregates if there are no specified aggregates.
The style "flexgroup_constiutent" is not supported when creating a volume.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroup volumes
flexgroup_constituent &dash; FlexGroup constituents.


|svm
|link:#svm[svm]
a|SVM containing the volume. Required on POST.


|tiering
|link:#tiering[tiering]
a|

|type
|string
a|Type of the volume.
rw &dash; read-write volume.
dp &dash; data-protection volume.
ls &dash; load-sharing `dp` volume. Valid in GET.
```

```
|use_mirrored_aggregates
|boolean
a|Specifies whether mirrored aggregates are selected when provisioning a
FlexGroup without specifying "aggregates.name" or "aggregates.uuid". Only
mirrored aggregates are used if this parameter is set to 'true' and only
unmirrored aggregates are used if this parameter is set to 'false'.
Aggregate level mirroring for a FlexGroup can be changed by moving all of
the constituents to the required aggregates. The default value is 'true'
for a MetroCluster configuration and is 'false' for a non-MetroCluster
configuration.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* readOnly: 1
* Introduced in: 9.6


|===


.Example request
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "activity_tracking": {
    "state": "string",
    "unsupported_reason": {
      "code": "124518405",
      "message": "Volume activity tracking cannot be enabled on volumes
that contain LUNs."
    }
  },
  "aggregates": [
```

```
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "analytics": {
    "scan_progress": 17,
    "state": "string",
    "unsupported_reason": {
      "code": "111411207",
      "message": "File system analytics cannot be enabled on volumes that
contain LUNs."
    }
  },
  "anti_ransomware": {
    "attack_probability": "string",
    "attack_reports": [
      {
        "_links": {
          "suspects": {
            "href": "/api/resourcelink"
          }
        },
        "time": "2021-06-01T20:36:41+05:30"
      }
    ],
    "dry_run_start_time": "string",
    "space": {
      "snapshot_count": 0,
      "used": 0,
      "used_by_logs": 0,
      "used_by_snapshots": 0
    },
    "state": "string",
    "suspect_files": [
      {
        "count": 0,
        "format": "string"
      }
    ]
  },
```

```
  "anti_ransomware_state": "string",
  "application": {
    "name": "string",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "autosize": {
    "mode": "string"
  },
  "clone": {
    "parent_snapshot": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "this_snapshot",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "parent_svm": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "svm1",
      "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "parent_volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "volume1",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    },
    "split_complete_percent": 0,
    "split_estimate": 0
  },
  "cloud_retrieval_policy": "string",
  "comment": "string",
  "consistency_group": {
    "name": "consistency_group_1",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "constituents": [
```

```
    {
      "aggregates": {
        "name": "string",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      },
      "movement": {
        "cutover_window": 30,
        "destination_aggregate": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "percent_complete": 0,
        "state": "replicating",
        "tiering_policy": "string"
      },
      "name": "string",
      "space": {
        "available": 0,
        "block_storage_inactive_user_data": 0,
        "capacity_tier_footprint": 0,
        "footprint": 0,
        "local_tier_footprint": 0,
        "logical_space": {
          "available": 0,
          "used_by_afs": 0
        },
        "metadata": 0,
        "over_provisioned": 0,
        "performance_tier_footprint": 0,
        "snapshot": {
          "used": 0
        },
        "total_footprint": 0,
        "used": 0
      }
    }
  ],
  "create_time": "2018-06-04T19:00:00Z",
  "efficiency": {
    "application_io_size": "string",
    "compaction": "string",
```

```
    "compression": "string",
    "cross_volume_dedupe": "string",
    "dedupe": "string",
    "last_op_begin": "string",
    "last_op_end": "string",
    "last_op_err": "string",
    "last_op_size": 0,
    "last_op_state": "string",
    "op_state": "string",
    "path": "string",
    "policy": {
      "name": "string"
    },
    "progress": "string",
    "schedule": "string",
    "state": "string",
    "storage_efficiency_mode": "string",
    "type": "string"
  },
  "encryption": {
    "key_id": "string",
    "key_manager_attribute": "CRN=v1:bluemix:public:containers-
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
    "state": "string",
    "status": {
      "code": "string",
      "message": "string"
    },
    "type": "string"
  },
  "files": {
    "used": 0
  },
  "flash_pool": {
    "cache_eligibility": "string",
    "cache_retention_priority": "string",
    "caching_policy": "string"
  },
  "flexcache_endpoint_type": "string",
  "flexgroup": {
    "name": "my_flexgroup",
    "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
  },
  "guarantee": {
    "type": "string"
```

```
  },
  "language": "string",
  "metric": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "cloud": {
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "duration": "PT15S",
    "flexcache": {
      "bandwidth_savings": 4096,
      "cache_miss_percent": 20,
      "duration": "PT1D",
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "iops": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput": {
      "read": 200,
      "total": 1000,
      "write": 100
```

```
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "movement": {
    "cutover_window": 30,
    "destination_aggregate": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "percent_complete": 0,
    "start_time": "2020-12-07T03:45:12-05:00",
    "state": "replicating",
    "tiering_policy": "string"
  },
  "name": "vol_cs_dept",
  "nas": {
    "export_policy": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "id": 100,
      "name": "default"
    },
    "junction_parent": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "vs1_root",
      "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
    },
    "path": "/user/my_volume",
    "security_style": "string",
    "unix_permissions": 755
  },
  "qos": {
    "policy": {
      "_links": {
```

```
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "max_throughput_iops": 10000,
      "max_throughput_mbps": 500,
      "min_throughput_iops": 2000,
      "min_throughput_mbps": 500,
      "name": "performance",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "quota": {
    "state": "string"
  },
  "scheduled_snapshot_naming_scheme": "string",
  "snaplock": {
    "append_mode_enabled": "",
    "autocommit_period": "P30M",
    "compliance_clock_time": "2018-06-04T19:00:00Z",
    "expiry_time": "Wed Sep  5 11:02:42 GMT 2018",
    "is_audit_log": 1,
    "litigation_count": 10,
    "privileged_delete": "enabled",
    "retention": {
      "default": "P30Y",
      "maximum": "P30Y",
      "minimum": "P30Y"
    },
    "type": "enterprise",
    "unspecified_retention_file_count": 10
  },
  "snapshot_count": 0,
  "snapshot_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "space": {
    "available": 0,
    "block_storage_inactive_user_data": 0,
    "block_storage_inactive_user_data_percent": 0,
```

```
    "capacity_tier_footprint": 0,
    "cross_volume_dedupe_metafiles_footprint": 0,
    "cross_volume_dedupe_metafiles_temporary_footprint": 0,
    "dedupe_metafiles_footprint": 0,
    "dedupe_metafiles_temporary_footprint": 0,
    "delayed_free_footprint": 0,
    "file_operation_metadata": 0,
    "filesystem_size": 0,
    "footprint": 0,
    "local_tier_footprint": 0,
    "logical_space": {
      "available": 0,
      "used": 0,
      "used_by_afs": 0,
      "used_by_snapshots": 0,
      "used_percent": 0
    },
    "metadata": 0,
    "over_provisioned": 0,
    "overwrite_reserve": 0,
    "overwrite_reserve_used": 0,
    "percent_used": 0,
    "performance_tier_footprint": 0,
    "size_available_for_snapshots": 0,
    "snapmirror_destination_footprint": 0,
    "snapshot": {
      "autodelete_trigger": "string",
      "reserve_available": 0,
      "reserve_size": 0,
      "space_used_percent": 0,
      "used": 0
    },
    "snapshot_reserve_unusable": 0,
    "snapshot_spill": 0,
    "total_footprint": 0,
    "used": 0,
    "user_data": 0,
    "volume_guarantee_footprint": 0
  },
  "state": "string",
  "statistics": {
    "cloud": {
      "iops_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
```

```
      },
      "latency_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "flexcache_raw": {
      "cache_miss_blocks": 10,
      "client_requested_blocks": 500,
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "status": [
    "string"
  ],
  "style": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
```

```
  "tiering": {
    "object_tags": [
      "string"
    ],
    "policy": "string"
  },
  "type": "string",
  "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
}
====

== Response
```

Status: 202, Accepted

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|job
|link:#job_link[job_link]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
====

== Error
```

Status: Default

```
ONTAP Error Response Codes

|===
| Error Code | Description

| 787140
| One of "aggregates.uuid", "aggregates.name", or "style" must be
provided.

| 787141
| The specified "aggregates.name" and "aggregates.uuid" refer to different
aggregates.

| 917526
| The volume name specified is a duplicate.

| 917829
| Volume autosize grow threshold must be larger than autosize shrink
threshold.

| 917831
| Volume minimum autosize must be smaller than the maximum autosize.

| 917835
| Maximum allowed snapshot.reserve_percent value during a volume creation
is 90. Use PATCH to set it to a higher value after the volume has been
created.

| 918191
| Flexvol tiering min cooling days requires an effective cluster version
of ONTAP 9.4 or later.

| 918194
| Tiering min cooling days not supported for SVMDR.

| 918195
| Tiering min cooling days not supported for non data volumes.

| 918196
| Tiering min cooling days not allowed for the provided tiering policy.

| 918215
| FlexGroup tiering min cooling days requires an effective cluster version
of ONTAP 9.5 or later.
```

| 918233
| The target field cannot be specified for this operation.

| 918236
| The specified "parent_volume.uuid" and "parent_volume.name" do not refer to the same volume.

| 918240
| The target style is an invalid volume style.

| 918241
| The target style is an unsupported volume style for volume creation.

| 918242
| When creating a flexible volume, exactly one aggregate must be specified via either "aggregates.name" or "aggregates.uuid".

| 918243
| The specified Snapshot copy UUID is not correct for the specified Snapshot copy name.

| 918244
| Invalid "volume.type" for clone volume.

| 918246
| "volume.clone.parent_volume.name" or "volume.clone.parent_volume.uuid" must be provided.

| 918247
| Specifying a value is not valid for a volume FlexClone creation.

| 918252
| "nas.path" is invalid.

| 918290
| cloud retrieval policy requires an effective cluster version of 9.8 or later.

| 918291
| Invalid volume cloud retrieval policy for the provided tiering policy.

| 918292
| cloud retrieval policy not supported for non data volume.

| 918521
| The volume maximum autosize must be smaller than or equal to the maximum

```
volume size.

| 918524
| Volume minimum autosize must be less than or equal to the current volume
size.

| 2621706
| The specified "svm.uuid" and "svm.name" do not refer to the same SVM.

| 2621707
| No SVM was specified. Either "svm.name" or "svm.uuid" must be supplied.

| 111411205
| File system analytics requires an effective cluster version of 9.8 or
later.

| 111411206
| The specified "analytics.state" is invalid.

| 111411207
| File system analytics cannot be enabled on volumes that contain LUNs.
|===



[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
```

```
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
```

```
a|

|===


[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|If volume activity tracking is not supported on the volume, this field
provides an appropriate error code.


|message
|string
a|If volume activity tracking is not supported on the volume, this field
provides an error message detailing why this is the case.


|===


[#activity_tracking]
[.api-collapsible-fifth-title]
activity_tracking

[cols=3*,options=header]
|===
|Name
|Type
|Description

|state
|string
a|Activity tracking state of the volume. If this value is "on", ONTAP
collects top metrics information for the volume in real time. There is a
slight impact to I/O performance in order to collect this information. If
this value is "off", no activity tracking information is collected or
available to view.
```

```
* enum: ["off", "on"]
* Introduced in: 9.10


|supported
|boolean
a|This field indicates whether or not volume activity tracking is
supported on the volume. If volume activity tracking is not supported, the
reason why is provided in the "activity_tracking.unsupported_reason"
field.


|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#aggregates]
[.api-collapsible-fifth-title]
aggregates

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===
```

```
[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|If file system analytics is not supported on the volume, this field
provides the error code explaining why.


|message
|string
a|If file system analytics is not supported on the volume, this field
provides the error message explaining why.


|===


[#analytics]
[.api-collapsible-fifth-title]
analytics

[cols=3*,options=header]
|===
|Name
|Type
|Description

|scan_progress
|integer
a|Percentage of files in the volume that the file system analytics
initialization scan has processed. Only returned when the state is
`initializing`.


|state
|string
a|File system analytics state of the volume. If this value is "on", ONTAP
collects extra file system analytics information for all directories on
```

```
the volume.  There will be a slight impact to I/O performance to collect
this information. If this value is "off", file system analytics
information is not collected and not available to be viewed. If this value
is "initializing", that means file system analytics was recently turned
on, and the initialization scan to gather information all all existing
files and directories is currently running. If this value is 'unknown'
that means there was an internal error when determining the file system
analytics state for the volume.

* enum: ["unknown", "initializing", "off", "on"]
* Introduced in: 9.8


|supported
|boolean
a|This field indicates whether or not file system analytics is supported
on the volume. If file system analytics is not supported, the reason will
be specified in the "analytics.unsupported_reason" field.


|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|suspects
|link:#href[href]
a|

|===


[#anti_ransomware_attack_report]
[.api-collapsible-fifth-title]
anti_ransomware_attack_report
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|time
|string
a|Timestamp at which ransomware attack is observed.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|snapshot_count
|integer
a|Total number of Anti-ransomware backup Snapshot copies.


|used
|integer
a|Total space in bytes used by the Anti-ransomware feature.


|used_by_logs
|integer
a|Space in bytes used by the Anti-ransomware analytics logs.


|used_by_snapshots
|integer
a|Space in bytes used by the Anti-ransomware backup Snapshot copies.
```

```
|===


[#suspect_files]
[.api-collapsible-fifth-title]
suspect_files

[cols=3*,options=header]
|===
|Name
|Type
|Description

|count
|integer
a|Total number of `suspect_files.format` files observed by the Anti-
ransomware analytics engine on the volume.


|format
|string
a|File formats observed by the Anti-ransomware analytics engine on the
volume.


|===


[#anti_ransomware]
[.api-collapsible-fifth-title]
anti_ransomware

Anti-ransomware related information of the volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|attack_probability
|string
a|Probability of a ransomware attack.
`none` No files are suspected of ransomware activity.
```

```
`low` A number of files are suspected of ransomware activity.
`moderate` A moderate number of files are suspected of ransomware
activity.
`high` A large number of files are suspected of ransomware activity.


|attack_reports
|array[link:#anti_ransomware_attack_report[anti_ransomware_attack_report]]
a|

|dry_run_start_time
|string
a|Time when Anti-ransomware monitoring `state` is set to dry-run value for
starting evaluation mode.


|space
|link:#space[space]
a|

|state
|string
a|Anti-ransomware state.
`disabled` Anti-ransomware monitoring is disabled on the volume.  This is
the default state in a POST operation.
`disable_in_progress` Anti-ransomware monitoring is being disabled and a
cleanup operation is in effect. Valid in GET operation.
`dry_run` Anti-ransomware monitoring is enabled in the evaluation mode.
`enabled` Anti-ransomware monitoring is active on the volume.
`paused` Anti-ransomware monitoring is paused on the volume.
`enable_paused` Anti-ransomware monitoring is paused on the volume from
its earlier enabled state. Valid in GET operation.
`dry_run_paused` Anti-ransomware monitoring is paused on the volume from
its earlier dry_run state. Valid in GET operation.
For POST, the valid Anti-ransomware states are only `disabled`, `enabled`
and `dry_run`, whereas for PATCH, `paused` is also valid along with the
three valid states for POST.


|suspect_files
|array[link:#suspect_files[suspect_files]]
a|

|===


[#application]
```

```
[.api-collapsible-fifth-title]
application

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the application to which the volume belongs. Available only when
the volume is part of an application.


|uuid
|string
a|UUID of the application to which the volume belongs. Available only when
the volume is part of an application.


|===


[#autosize]
[.api-collapsible-fifth-title]
autosize

[cols=3*,options=header]
|===
|Name
|Type
|Description

|grow_threshold
|integer
a|Used space threshold size, in percentage, for the automatic growth of
the volume. When the amount of used space in the volume becomes greater
than this threhold, the volume automatically grows unless it has reached
the maximum size. The volume grows when 'space.used' is greater than this
percent of 'space.size'. The 'grow_threshold' size cannot be less than or
equal to the 'shrink_threshold' size..


|maximum
|integer
a|Maximum size in bytes up to which a volume grows automatically. This
```

```
size cannot be less than the current volume size, or less than or equal to
the minimum size of volume.


|minimum
|integer
a|Minimum size in bytes up to which the volume shrinks automatically. This
size cannot be greater than or equal to the maximum size of volume.


|mode
|string
a|Autosize mode for the volume.
grow &dash; Volume automatically grows when the amount of used space is
above the 'grow_threshold' value.
grow_shrink &dash; Volume grows or shrinks in response to the amount of
space used.
off &dash; Autosizing of the volume is disabled.


|shrink_threshold
|integer
a|Used space threshold size, in percentage, for the automatic shrinkage of
the volume.  When the amount of used space in the volume drops below this
threshold, the volume automatically shrinks unless it has reached the
minimum size. The volume shrinks when the 'space.used' is less than the
'shrink_threshold' percent of 'space.size'. The 'shrink_threshold' size
cannot be greater than or equal to the 'grow_threshold' size.


|===


[#snapshot_reference]
[.api-collapsible-fifth-title]
snapshot_reference

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|
```

```
|name
|string
a|

|uuid
|string
a|

|===


[#parent_svm]
[.api-collapsible-fifth-title]
parent_svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#parent_volume]
[.api-collapsible-fifth-title]
parent_volume

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#clone]
[.api-collapsible-fifth-title]
clone

[cols=3*,options=header]
|===
|Name
|Type
|Description

|is_flexclone
|boolean
a|Specifies if this volume is a normal FlexVol or FlexClone. This field
needs to be set when creating a FlexClone. Valid in POST.


|parent_snapshot
|link:#snapshot_reference[snapshot_reference]
a|

|parent_svm
|link:#parent_svm[parent_svm]
a|
```

```
|parent_volume
|link:#parent_volume[parent_volume]
a|

|split_complete_percent
|integer
a|Percentage of FlexClone blocks split from its parent volume.


|split_estimate
|integer
a|Space required by the containing-aggregate to split the FlexClone
volume.


|split_initiated
|boolean
a|This field is set when split is executed on any FlexClone, that is when
the FlexClone volume is split from its parent FlexVol. This field needs to
be set for splitting a FlexClone form FlexVol. Valid in PATCH.


|===


[#consistency_group]
[.api-collapsible-fifth-title]
consistency_group

Consistency group the volume is part of.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|The name of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.


|uuid
```

```
|string
a|The UUID of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.


|===


[#aggregates]
[.api-collapsible-fifth-title]
aggregates

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the aggregate hosting the FlexGroup Constituent.


|uuid
|string
a|Unique identifier for the aggregate.


|===


[#destination_aggregate]
[.api-collapsible-fifth-title]
destination_aggregate

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
```

```
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
300 seconds.


|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
a|Aggregate


|percent_complete
|integer
a|Completion percentage


|state
|string
```

```
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
|string
a|Tiering policy for FabricPool


|===


[#logical_space]
[.api-collapsible-fifth-title]
logical_space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.


|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.


|used_by_afs
```

```
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|used
|integer
a|The total space used by Snapshot copies in the volume, in bytes.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.


|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.


|footprint
|integer
a|Data used for this volume in the aggregate, in bytes.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.


|logical_space
|link:#logical_space[logical_space]
a|

|metadata
|integer
a|Space used by the volume metadata in the aggregate, in bytes.
```

```
|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
aggregate, in bytes.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|snapshot
|link:#snapshot[snapshot]
a|

|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, in bytes.


|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|used_percent
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, as a percent.


|===
```

```
[#constituents]
[.api-collapsible-fifth-title]
constituents

[cols=3*,options=header]
|===
|Name
|Type
|Description

|aggregates
|link:#aggregates[aggregates]
a|

|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|FlexGroup Constituents name


|space
|link:#space[space]
a|

|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
```

```
|string
a|Specifies the name of the efficiency policy. Valid for PATCH.


|===


[#efficiency]
[.api-collapsible-fifth-title]
efficiency

[cols=3*,options=header]
|===
|Name
|Type
|Description

|application_io_size
|string
a|Block size to use by compression. Valid for POST.


|compaction
|string
a|The system can be enabled/disabled compaction.
inline &dash; Data will be compacted first and written to the volume.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compaction enabled and some are disabled.


|compression
|string
a|The system can be enabled/disabled compression.
inline &dash; Data will be compressed first and written to the volume.
background &dash; Data will be written to the volume and compressed later.
both &dash; Inline compression compresses the data and write to the
volume, background compression compresses only the blocks on which inline
compression is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compression enabled and some are disabled.


|cross_volume_dedupe
|string
a|The system can be enabled/disabled cross volume dedupe. it can be
```

```
enabled only when dedupe is enabled.
inline &dash; Data will be cross volume deduped first and written to the
volume.
background &dash; Data will be written to the volume and cross volume
deduped later.
both &dash; Inline cross volume dedupe dedupes the data and write to the
volume, background cross volume dedupe dedupes only the blocks on which
inline dedupe is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are cross volume dedupe enabled and some are disabled.


|dedupe
|string
a|The system can be enabled/disabled dedupe.
inline &dash; Data will be deduped first and written to the volume.
background &dash; Data will be written to the volume and deduped later.
both &dash; Inline dedupe dedupes the data and write to the volume,
background dedupe dedupes only the blocks on which inline dedupe is not
run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are dedupe enabled and some are disabled.


|last_op_begin
|string
a|Last sis operation begin timestamp.


|last_op_end
|string
a|Last sis operation end timestamp.


|last_op_err
|string
a|Last sis operation error text.


|last_op_size
|integer
a|Last sis operation size.


|last_op_state
```

```
|string
a|Last sis operation state.


|op_state
|string
a|Sis status of the volume.


|path
|string
a|Absolute volume path of the volume.


|policy
|link:#policy[policy]
a|

|progress
|string
a|Sis progress of the volume.


|schedule
|string
a|Schedule associated with volume.


|state
|string
a|Storage efficiency state of the volume. Currently, this field supports
POST/PATCH only for RW (Read-Write) volumes on FSx for ONTAP.
disabled &dash; All storage efficiency features are disabled.
mixed &dash; Read-only field for FlexGroup volumes, storage efficiency is
enabled on certain constituents and disabled on others.
On FSx for ONTAP &dash;
   enabled &dash; All supported storage efficiency features for the
volume are enabled.
   custom &dash; Read-only field currently only supported for the FSx
for ONTAP, user-defined storage efficiency features are enabled.
For other platforms &dash;
   enabled &dash; At least one storage efficiency feature for the
volume is enabled.

* enum: ["disabled", "enabled", "mixed", "custom"]
* Introduced in: 9.9
```

```
|storage_efficiency_mode
|string
a|Storage efficiency mode used by volume. This parameter is supported only
on AFF platform.


|type
|string
a|Sis Type of the volume.


|===


[#status]
[.api-collapsible-fifth-title]
status

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Encryption progress message code.


|message
|string
a|Encryption progress message.


|===


[#encryption]
[.api-collapsible-fifth-title]
encryption

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|enabled
|boolean
a|Creates an encrypted or an unencrypted volume. For POST, when set to
'true', a new key is generated and used to encrypt the given volume. In
that case, the underlying SVM must be configured with the key manager.
When set to 'false', the volume created will be unencrypted. For PATCH,
when set to 'true', it encrypts an unencrypted volume. Specifying the
parameter as 'false' in a PATCH operation for an encrypted volume is only
supported when moving the volume to another aggregate.


|key_id
|string
a|The key ID used for creating encrypted volume. A new key-id is generated
for creating an encrypted volume. This key-id is associated with the
generated key.


|key_manager_attribute
|string
a|Specifies an additional key manager attribute that is an identifier-
value pair, separated by '='. For example, CRN=unique-value. This
parameter is required when using the POST method and an IBM Key Lore key
manager is configured on the SVM.


|rekey
|boolean
a|If set to 'true', re-encrypts the volume with a new key. Valid in PATCH.


|state
|string
a|Volume encryption state.
encrypted &dash; The volume is completely encrypted.
encrypting &dash; Encryption operation is in progress.
partial &dash; Some constituents are encrypted and some are not.
Applicable only for FlexGroup volume.
rekeying. Encryption of volume with a new key is in progress.
unencrypted &dash; The volume is a plain-text one.


|status
|link:#status[status]
a|
```

```
|type
|string
a|Volume encryption type.
none &dash; The volume is a plain-text one.
volume &dash; The volume is encrypted with NVE (NetApp Volume Encryption).
aggregate &dash; The volume is encrypted with NAE (NetApp Aggregate
Encryption).


|===


[#error_state]
[.api-collapsible-fifth-title]
error_state

[cols=3*,options=header]
|===
|Name
|Type
|Description

|has_bad_blocks
|boolean
a|Indicates whether the volume has any corrupt data blocks. If the damaged
data block is accessed, an IO error, such as EIO for NFS or
STATUS_FILE_CORRUPT for CIFS, is returned.


|is_inconsistent
|boolean
a|Indicates whether the file system has any inconsistencies.
true &dash; File system is inconsistent.
false &dash; File system in not inconsistent.


|===


[#files]
[.api-collapsible-fifth-title]
files

[cols=3*,options=header]
|===
|Name
|Type
```

```
|Description

|maximum
|integer
a|The maximum number of files (inodes) for user-visible data allowed on
the volume. This value can be increased or decreased. Increasing the
maximum number of files does not immediately cause additional disk space
to be used to track files. Instead, as more files are created on the
volume, the system dynamically increases the number of disk blocks that
are used to track files. The space assigned to track files is never freed,
and this value cannot be decreased below the current number of files that
can be tracked within the assigned space for the volume. Valid in PATCH.


|used
|integer
a|Number of files (inodes) used for user-visible data permitted on the
volume. This field is valid only when the volume is online.


|===


[#flash_pool]
[.api-collapsible-fifth-title]
flash_pool

[cols=3*,options=header]
|===
|Name
|Type
|Description

|cache_eligibility
|string
a|If this parameter is specified, the command displays information only
about the volume or volumes with the specified Flash Pool caching
attributes.


|cache_retention_priority
|string
a|If this parameter is specified, the command displays the volumes that
match the specified cache retention priority policy. A cache retention
priority defines how long the blocks of a volume will be cached in the
Flash Pool once they become cold.
```

```
|caching_policy
|string
a|This optionally specifies the caching policy to apply to the volume. A
caching policy defines how the system caches a volume's data in Flash
Cache modules. If a caching policy is not assigned to a volume, the system
uses the caching policy that is assigned to the containing SVM. If a
caching policy is not assigned to the containing SVM, the system uses the
default cluster-wide policy.


|===


[#flexgroup]
[.api-collapsible-fifth-title]
flexgroup

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the FlexGroup volume that the constituent is part of.


|uuid
|string
a|Unique identifier for the FlexGroup volume that the constituent is part
of.


|===


[#guarantee]
[.api-collapsible-fifth-title]
guarantee

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|honored
|boolean
a|Is the space guarantee of this volume honored in the aggregate?


|type
|string
a|The type of space guarantee of this volume in the aggregate.


|===


[#iops]
[.api-collapsible-fifth-title]
iops

The rate of I/O operations observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.
```

```
|===


[#latency]
[.api-collapsible-fifth-title]
latency

The round trip latency in microseconds observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#cloud]
[.api-collapsible-fifth-title]
cloud

Performance numbers (IOPS and latency) for cloud store. These numbers are
relevant only for volumes hosted on FabricPools.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===
```

```
[#flexcache]
[.api-collapsible-fifth-title]
flexcache

Performance number for FlexCache used to measure cache effectiveness.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bandwidth_savings
|integer
a|Bandwidth savings denoting the amount of data served locally by the
cache, in bytes.


|cache_miss_percent
|integer
a|Cache miss percentage.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.
```

```
|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

The rate of throughput bytes per second observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#metric]
[.api-collapsible-fifth-title]
```

```
metric

Performance numbers, such as IOPS, latency and throughput.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|cloud
|link:#cloud[cloud]
a|Performance numbers (IOPS and latency) for cloud store. These numbers
are relevant only for volumes hosted on FabricPools.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|flexcache
|link:#flexcache[flexcache]
a|Performance number for FlexCache used to measure cache effectiveness.


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
```

```
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput
|link:#throughput[throughput]
a|The rate of throughput bytes per second observed at the storage object.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
300 seconds.


|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
```

```
a|Aggregate


|percent_complete
|integer
a|Completion percentage


|start_time
|string
a|Start time of volume move.


|state
|string
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
|string
a|Tiering policy for FabricPool


|===


[#export_policy]
[.api-collapsible-fifth-title]
export_policy

Export Policy


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
```

```
|link:#_links[_links]
a|

|id
|integer
a|

|name
|string
a|

|===


[#junction_parent]
[.api-collapsible-fifth-title]
junction_parent

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the parent volume that contains the junction inode of this
volume. The junction parent volume must belong to the same SVM that owns
this volume.


|uuid
|string
a|Unique identifier for the parent volume.


|===


[#nas]
[.api-collapsible-fifth-title]
nas
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|export_policy
|link:#export_policy[export_policy]
a|Export Policy


|gid
|integer
a|The UNIX group ID of the volume. Valid in POST or PATCH.


|junction_parent
|link:#junction_parent[junction_parent]
a|

|path
|string
a|The fully-qualified path in the owning SVM's namespace at which the
volume is mounted. The path is case insensitive and must be unique within
a SVM's namespace. Path must begin with '/' and must not end with '/'.
Only one volume can be mounted at any given junction path. An empty path
in POST creates an unmounted volume. An empty path in PATCH deactivates
and unmounts the volume. Taking a volume offline or restricted state
removes its junction path. This attribute is reported in GET only when the
volume is mounted.


|security_style
|string
a|Security style associated with the volume. Valid in POST or PATCH.
mixed &dash; Mixed-style security
ntfs &dash; NTFS/WIndows-style security
unified &dash; Unified-style security, unified UNIX, NFS and CIFS
permissions
unix &dash; Unix-style security.


|uid
|integer
a|The UNIX user ID of the volume. Valid in POST or PATCH.
```

```
|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write) and 1 (execute).
First digit selects the set user ID(4), set group ID (2) and sticky (1)
attributes. The second digit selects permission for the owner of the file;
the third selects permissions for other users in the same group; the
fourth for other users not in the group. Valid in POST or PATCH. For
security style "mixed" or "unix", the default setting is 0755 in octal
(493 in decimal) and for security style "ntfs", the default setting is
0000. In cases where only owner, group and other permissions are given (as
in 755, representing the second, third and fourth dight), first digit is
assumed to be zero.


|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|max_throughput_iops
|integer
a|Specifies the maximum throughput in IOPS, 0 means none. This is mutually
exclusive with name and UUID during POST and PATCH.


|max_throughput_mbps
|integer
a|Specifies the maximum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.


|min_throughput_iops
|integer
a|Specifies the minimum throughput in IOPS, 0 means none. Setting
```

```
"min_throughput" is supported on AFF platforms only, unless FabricPool
tiering policies are set. This is mutually exclusive with name and UUID
during POST and PATCH.


|min_throughput_mbps
|integer
a|Specifies the minimum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.


|name
|string
a|The QoS policy group name. This is mutually exclusive with UUID and
other QoS attributes during POST and PATCH.


|uuid
|string
a|The QoS policy group UUID. This is mutually exclusive with name and
other QoS attributes during POST and PATCH.


|===


[#qos]
[.api-collapsible-fifth-title]
qos

QoS information


[cols=3*,options=header]
|===
|Name
|Type
|Description

|policy
|link:#policy[policy]
a|

|===


[#quota]
```

```
[.api-collapsible-fifth-title]
quota

Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|enabled
|boolean
a|This option is used to enable or disable the quota for the volume. This
option is valid only in PATCH. Quotas are enabled for FlexVols or
FlexGroup volumes when the quota state is "on". Quotas are disabled for
FlexVols or FlexGroup volumes when the quota state is "off".


|state
|string
a|Quota state of the volume


|===


[#retention]
[.api-collapsible-fifth-title]
retention

[cols=3*,options=header]
|===
|Name
|Type
|Description

|default
|string
a|Specifies the default retention period that is applied to files while
committing them to the WORM state without an associated retention period.
The retention value represents a duration and must be specified in the
ISO-8601 duration format. The retention period can be in years, months,
days, hours, and minutes. A duration specified for years, months, and days
is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M",
```

"P+++<num>+++D" respectively, for example "P10Y" represents a duration of 10 years. A duration in hours and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string must contain only a single time element that is, either years, months, days, hours, or minutes. A duration which combines different periods is not supported, for example "P1Y10M" is not supported. Apart from the duration specified in the ISO-8601 format, the duration field also accepts the string "infinite" to set an infinite retention period and the string "unspecified" to set an unspecified retention period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++

|maximum
|string
a|Specifies the maximum allowed retention period for files committed to the WORM state on the volume. The retention value represents a duration and must be specified in the ISO-8601 duration format. The retention period can be in years, months, days, hours, and minutes. A duration specified for years, months, and days is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively, for example "P10Y" represents a duration of 10 years. A duration in hours and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string must contain only a single time element that is, either years, months, days, hours, or minutes. A duration which combines different periods is not supported, for example "P1Y10M" is not supported. Apart from the duration specified in the ISO-8601 format, the duration field also accepts the string "infinite" to set an infinite retention period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++

|minimum
|string
a|Specifies the minimum allowed retention period for files committed to the WORM state on the volume. The retention value represents a duration and must be specified in the ISO-8601 duration format. The retention period can be in years, months, days, hours, and minutes. A duration specified for years, month,s and days is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively, for example "P10Y" represents a duration of 10 years. A duration in hours and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string must contain only a single time element that is, either years, months, days, hours, or minutes. A duration which combines different periods is not supported, for example "P1Y10M" is not supported. Apart from the duration specified in the ISO-8601 format, the duration field also accepts the string "infinite" to set an infinite

```
retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|===


[#snaplock]
[.api-collapsible-fifth-title]
snaplock

[cols=3*,options=header]
|===
|Name
|Type
|Description

|append_mode_enabled
|boolean
a|Specifies if the volume append mode is enabled or disabled. When it is
enabled, all the files created with write permissions on the volume are,
by default, WORM appendable files. The user can append the data to a WORM
appendable file but cannot modify the existing contents of the file nor
delete the file until it expires.


|autocommit_period
|string
a|Specifies the autocommit period for SnapLock volume. All files which are
not modified for a period greater than the autocommit period of the volume
are committed to the WORM state. The autocommit period value represents a
duration and must be specified in the ISO-8601 duration format. The
autocommit period can be in years, months, days, hours, and minutes. A
period specified for years, months, and days is represented in the ISO-
8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D"
respectively, for example "P10Y" represents a duration of 10 years. A
duration in hours and minutes is represented by "PT+++<num>+++H" and
"PT+++<num>+++M" respectively. The period string must contain only a
single time element that is, either years, months, days, hours, or
minutes. A duration which combines different periods is not supported, for
example "P1Y10M" is not supported. Apart from the duration specified in
the ISO-8601 format, the autocommit field also accepts the string
"none".+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|compliance_clock_time
|string
```

```
a|This is the volume compliance clock time which is used to manage the
SnapLock objects in the volume.


|expiry_time
|string
a|Expiry time of the volume.


|is_audit_log
|boolean
a|Indicates if this volume has been configured as SnapLock audit log
volume for the SVM .


|litigation_count
|integer
a|Litigation count indicates the number of active legal-holds on the
volume.


|privileged_delete
|string
a|Specifies the privileged-delete attribute of a SnapLock volume. On a
SnapLock Enterprise (SLE) volume, a designated privileged user can
selectively delete files irrespective of the retention time of the file.
SLE volumes can have privileged delete as disabled, enabled or
permanently_disabled and for SnapLock Compliance (SLC) volumes it is
always permanently_disabled.


|retention
|link:#retention[retention]
a|

|type
|string
a|The SnapLock type of the volume.
compliance &dash; A SnapLock Compliance(SLC) volume provides the highest
level of WORM protection and an administrator cannot destroy a SLC volume
if it contains unexpired WORM files.
 enterprise &dash; An administrator can delete a SnapLock Enterprise(SLE)
volume.
 non_snaplock &dash; Indicates the volume is non-snaplock.


|unspecified_retention_file_count
```

```
|integer
a|Indicates the number of files with an unspecified retention time in the
volume.


|===


[#destinations]
[.api-collapsible-fifth-title]
destinations

[cols=3*,options=header]
|===
|Name
|Type
|Description

|is_cloud
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to a cloud destination.


|is_ontap
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to an ONTAP destination.

* readOnly: 1
* Introduced in: 9.9


|===


[#snapmirror]
[.api-collapsible-fifth-title]
snapmirror

Specifies attributes for SnapMirror protection.


[cols=3*,options=header]
|===
|Name
|Type
```

```
|Description

|destinations
|link:#destinations[destinations]
a|

|is_protected
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data.


|===


[#snapshot_policy]
[.api-collapsible-fifth-title]
snapshot_policy

This is a reference to the Snapshot copy policy.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#logical_space]
[.api-collapsible-fifth-title]
logical_space
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.


|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.


|used
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
vbn_zero, future_blk_cnt), in bytes.


|used_by_afs
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|used_by_snapshots
|integer
a|Size that is logically used across all Snapshot copies in the volume, in
bytes.


|used_percent
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
vbn_zero, future_blk_cnt), as a percentage.
```

```
|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|autodelete_trigger
|string
a|Specifies when the system should trigger an autodelete of Snapshot
copies. When set to _volume_, autodelete is triggered based on volume
fullness. When set to _snap_reserve_, autodelete is triggered based on
Snapshot reserve fullness. The default value is _volume_.


|reserve_available
|integer
a|Size available for Snapshot copies within the Snapshot copy reserve, in
bytes.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|reserve_size
|integer
a|Size in the volume that has been set aside as a reserve for Snapshot
copy usage, in bytes.


|space_used_percent
```

```
|integer
a|Percentage of snapshot reserve size that has been used.


|used
|integer
a|The total space used by Snapshot copies in the volume, in bytes.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.


|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.


|block_storage_inactive_user_data_percent
|integer
```

```
a|Percentage of size that is physically used in the performance tier of
the volume.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.


|cross_volume_dedupe_metafiles_footprint
|integer
a|Cross volume deduplication metadata footprint, in bytes.


|cross_volume_dedupe_metafiles_temporary_footprint
|integer
a|Cross volume temporary deduplication metadata footprint, in bytes.


|dedupe_metafiles_footprint
|integer
a|Deduplication metadata footprint, in bytes.


|dedupe_metafiles_temporary_footprint
|integer
a|Temporary deduplication metadata footprint, in bytes.


|delayed_free_footprint
|integer
a|Delayed free blocks footprint, in bytes.


|expected_available
|integer
a|Size that should be available for the volume, irrespective of available
size in the aggregate, in bytes.


|file_operation_metadata
|integer
a|File operation metadata footprint, in bytes.


|filesystem_size
```

```
|integer
a|Total usable size of the volume, in bytes.


|filesystem_size_fixed
|boolean
a|Specifies whether the file system is to remain of the same size when set
to true or to grow when set to false. This option is automatically set to
true when a volume becomes SnapMirrored.


|footprint
|integer
a|Data used for this volume in the aggregate, in bytes.


|fractional_reserve
|integer
a|Used to change the amount of space reserved for overwrites of reserved
objects in a volume.


|full_threshold_percent
|integer
a|Volume full threshold percentage at which EMS warnings can be sent.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.


|logical_space
|link:#logical_space[logical_space]
a|

|metadata
|integer
a|Space used by the volume metadata in the aggregate, in bytes.


|nearly_full_threshold_percent
|integer
a|Volume nearly full threshold percentage at which EMS warnings can be
sent.
```

```
|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|overwrite_reserve
|integer
a|Reserved space for overwrites, in bytes.


|overwrite_reserve_used
|integer
a|Overwrite logical reserve space used, in bytes.


|percent_used
|integer
a|Percentage of the volume size that is used.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
aggregate, in bytes.


|physical_used
|integer
a|Size that is physically used in the volume, in bytes.


|physical_used_percent
|integer
a|Size that is physically used in the volume, as a percentage.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|size_available_for_snapshots
|integer
a|Available space for Snapshot copies from snap-reserve, in bytes.
```

```
|snapmirror_destination_footprint
|integer
a|SnapMirror destination footprint, in bytes.


|snapshot
|link:#snapshot[snapshot]
a|

|snapshot_reserve_unusable
|integer
a|Snapshot reserve that is not available for Snapshot copy creation, in
bytes.


|snapshot_spill
|integer
a|Space used by the snapshot copies beyond the snap-reserve, in bytes.


|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, in bytes.


|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|user_data
|integer
a|User data, in bytes.


|volume_guarantee_footprint
|integer
a|Space reserved for future writes in the volume, in bytes.
```

```
|===


[#iops_raw]
[.api-collapsible-fifth-title]
iops_raw

The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#latency_raw]
[.api-collapsible-fifth-title]
latency_raw

The raw latency in microseconds observed at the storage object. This can
```

```
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#cloud]
[.api-collapsible-fifth-title]
cloud

These are raw performance numbers (IOPS and latency) for the cloud store.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster. These numbers are relevant only for
volumes hosted on FabricPools.


[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#flexcache_raw]
[.api-collapsible-fifth-title]
flexcache_raw

Performance numbers for FlexCache used to measure cache effectiveness.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|cache_miss_blocks
|integer
a|Blocks retrieved from origin in case of a cache miss. This can be
divided by the raw client_requested_blocks and multiplied by 100 to
calculate the cache miss percentage.


|client_requested_blocks
|integer
a|Total blocks requested by the client.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput_raw]
[.api-collapsible-fifth-title]
throughput_raw

Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
```

```
time.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#statistics]
[.api-collapsible-fifth-title]
statistics

These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|cloud
|link:#cloud[cloud]
a|These are raw performance numbers (IOPS and latency) for the cloud
store. These numbers are aggregated across all nodes in the cluster and
increase with the uptime of the cluster. These numbers are relevant only
for volumes hosted on FabricPools.


|flexcache_raw
|link:#flexcache_raw[flexcache_raw]
a|Performance numbers for FlexCache used to measure cache effectiveness.


|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput_raw
|link:#throughput_raw[throughput_raw]
a|Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
```

```
time.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

SVM containing the volume. Required on POST.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#tiering]
[.api-collapsible-fifth-title]
tiering

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|min_cooling_days
|integer
a|This parameter specifies the minimum number of days that user data
blocks of the volume must be cooled before they can be considered cold and
tiered out to the cloud tier. Note that this parameter is only used for
tiering purposes and does not affect the reporting of inactive data. The
value specified should be greater than the frequency with which
applications in the volume shift between different sets of data. This
parameter cannot be set when volume tiering policy is either "none" or
"all". The default value of this parameter depends on the volume's tiering
policy. See the tiering policy section of this documentation for
corresponding default values. If the tiering policy on the volume gets
changed, then this parameter will be reset to the default value
corresponding to the new tiering policy.


|object_tags
|array[string]
a|This parameter specifies tags of a volume for objects stored on a
FabricPool-enabled aggregate. Each tag is a key,value pair and should be
in the format "key=value".


|policy
|string
a|Policy that determines whether the user data blocks of a volume in a
FabricPool will be tiered to the cloud store when they become cold.
FabricPool combines flash (performance tier) with a cloud store into a
single aggregate. Temperature of a volume block increases if it is
accessed frequently and decreases when it is not. Valid in POST or PATCH.
all &dash; This policy allows tiering of both Snapshot copies and active
file system user data to the cloud store as soon as possible by ignoring
the temperature on the volume blocks.
auto &dash; This policy allows tiering of both snapshot and active file
system user data to the cloud store
none &dash; Volume blocks will not be tiered to the cloud store.
snapshot_only &dash; This policy allows tiering of only the volume
Snapshot copies not associated with the active file system. The default
tiering policy is "snapshot-only" for a FlexVol and "none" for a
FlexGroup. The default minimum cooling period for the "snapshot-only"
tiering policy is 2 days and for the "auto" tiering policy is 31 days.
```

```
|supported
|boolean
a|This parameter specifies whether or not FabricPools are selected when
provisioning a FlexGroup without specifying "aggregates.name" or
"aggregates.uuid". Only FabricPool aggregates are used if this parameter
is set to true and only non FabricPool aggregates are used if this
parameter is set to false. Tiering support for a FlexGroup can be changed
by moving all of the constituents to the required aggregates. Note that in
order to tier data, not only does the volume need to support tiering by
using FabricPools, the tiering "policy" must not be 'none'. A volume that
uses FabricPools but has a tiering "policy" of 'none' supports tiering,
but will not tier any data.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|access_time_enabled
|boolean
a|Indicates whether or not access time updates are enabled on the volume.


|activity_tracking
|link:#activity_tracking[activity_tracking]
a|

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.


|analytics
|link:#analytics[analytics]
```

```
a|

|anti_ransomware
|link:#anti_ransomware[anti_ransomware]
a|Anti-ransomware related information of the volume.


|anti_ransomware_state
|string
a|The Anti-ransomware state of the volume. If no "anti_ransomware_state"
property is specified, the volume inherits the value from its parent SVM's
"anti_ransomware_default_volume_state" property. If this value is
"disabled", Anti-ransomware is disabled on the volume. If this value is
"enabled", Anti-ransomware is enabled on the volume and alerts are raised
if any suspect is detected for those volumes. If this value is "dry_run",
Anti-ransomware is enabled in the dry-run or learning mode on the volume.
The "dry_run" state is same as the "enabled" state except that the
analytics data is used here for learning. No alerts are raised for any
detections or violations. If this value is "paused", Anti-ransomware is
paused on the volume. Additionally, three more states are available, which
are only valid for GET. If this value is "disable_in_progress", Anti-
ransomware monitoring is being disabled and a cleanup operation is in
effect. If this value is "enable_paused", Anti-ransomware is paused on the
volume from its earlier enabled state. If this value is "dry_run_paused",
Anti-ransomware monitoring is paused on the volume from its earlier
dry_run state. For POST, the valid Anti-ransomware states are only
"disabled", "enabled" and "dry_run", whereas for PATCH, "paused" is also
valid along with the three valid states for POST.


|application
|link:#application[application]
a|

|autosize
|link:#autosize[autosize]
a|

|clone
|link:#clone[clone]
a|

|cloud_retrieval_policy
|string
a|This parameter specifies the cloud retrieval policy for the volume. This
policy determines which tiered out blocks to retrieve from the capacity
```

```
tier to the performance tier. The available cloud retrieval policies are
"default" policy retrieves tiered data based on the underlying tiering
policy. If the tiering policy is 'auto', tiered data is retrieved only for
random client driven data reads. If the tiering policy is 'none' or
'snapshot_only', tiered data is retrieved for random and sequential client
driven data reads. If the tiering policy is 'all', tiered data is not
retrieved.
"on_read" policy retrieves tiered data for all client driven data reads.
"never" policy never retrieves tiered data.
"promote" policy retrieves all eligible tiered data automatically during
the next scheduled scan. It is only supported when the tiering policy is
'none' or 'snapshot_only'. If the tiering policy is 'snapshot_only', the
only data brought back is the data in the AFS. Data that is only in a
snapshot copy stays in the cloud and if tiering policy is 'none' then all
data is retrieved.


|comment
|string
a|A comment for the volume. Valid in POST or PATCH.


|consistency_group
|link:#consistency_group[consistency_group]
a|Consistency group the volume is part of.


|constituents
|array[link:#constituents[constituents]]
a|

|constituents_per_aggregate
|integer
a|Specifies the number of times to iterate over the aggregates listed with
the "aggregates.name" or "aggregates.uuid" when creating or expanding a
FlexGroup volume. If a volume is being created on a single aggregate, the
system creates a flexible volume if the "constituents_per_aggregate" field
is not specified, or a FlexGroup volume if it is specified. If a volume is
being created on multiple aggregates, the system always creates a
FlexGroup volume. The root constituent of a FlexGroup volume is always
placed on the first aggregate in the list.


|convert_unicode
|boolean
a|Specifies whether directory Unicode format conversion is enabled when
```

```
directories are accessed by NFS clients.


|create_time
|string
a|Creation time of the volume. This field is generated when the volume is
created.


|efficiency
|link:#efficiency[efficiency]
a|

|encryption
|link:#encryption[encryption]
a|

|error_state
|link:#error_state[error_state]
a|

|files
|link:#files[files]
a|

|flash_pool
|link:#flash_pool[flash_pool]
a|

|flexcache_endpoint_type
|string
a|FlexCache endpoint type.
none &dash; The volume is neither a FlexCache nor origin of any FlexCache.
cache &dash; The volume is a FlexCache volume.
origin &dash; The volume is origin of a FlexCache volume.


|flexgroup
|link:#flexgroup[flexgroup]
a|

|guarantee
|link:#guarantee[guarantee]
a|

|is_object_store
|boolean
```

```
a|Specifies whether the volume is provisioned for an object store server.


|is_svm_root
|boolean
a|Specifies whether the volume is a root volume of the SVM it belongs to.


|language
|string
a|Language encoding setting for volume. If no language is specified, the
volume inherits its SVM language encoding setting.


|max_dir_size
|integer
a|Maximum directory size. This value sets maximum size, in bytes, to which
a directory can grow. The default maximum directory size for FlexVol
volumes is model-dependent, and optimized for the size of system memory.
Before increasing the maximum directory size, involve technical support.


|metric
|link:#metric[metric]
a|Performance numbers, such as IOPS, latency and throughput.


|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|Volume name. The name of volume must start with an alphabetic character
(a to z or A to Z) or an underscore (_). The name must be 197 or fewer
characters in length for FlexGroups, and 203 or fewer characters in length
for all other types of volumes. Volume names must be unique within an SVM.
Required on POST.


|nas
|link:#nas[nas]
a|
```

```
|qos
|link:#qos[qos]
a|QoS information


|queue_for_encryption
|boolean
a|Specifies whether the volume is queued for encryption.


|quota
|link:#quota[quota]
a|Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


|scheduled_snapshot_naming_scheme
|string
a|Naming Scheme for automatic Snapshot copies:

* create_time - Automatic Snapshot copies are saved as per the start of
their current date and time.
* ordinal - Latest automatic snapshot copy is saved as
+++<scheduled_frequency>+++.0 and subsequent copies will follow the
create_time naming convention.+++</scheduled_frequency>+++


|size
|integer
a|Physical size of the volume, in bytes. The minimum size for a FlexVol
volume is 20MB and the minimum size for a FlexGroup volume is 200MB per
constituent. The recommended size for a FlexGroup volume is a minimum of
100GB per constituent. For all volumes, the default size is equal to the
minimum size.


|snaplock
|link:#snaplock[snaplock]
a|

|snapmirror
|link:#snapmirror[snapmirror]
a|Specifies attributes for SnapMirror protection.


|snapshot_count
```

```
|integer
a|Number of Snapshot copies in the volume.


|snapshot_policy
|link:#snapshot_policy[snapshot_policy]
a|This is a reference to the Snapshot copy policy.


|space
|link:#space[space]
a|

|state
|string
a|Volume state. Client access is supported only when volume is online and
junctioned. Taking volume to offline or restricted state removes its
junction path and blocks client access. When volume is in restricted state
some operations like parity reconstruction and iron on commit are allowed.
The 'mixed' state applies to FlexGroup volumes only and cannot be
specified as a target state. An 'error' state implies that the volume is
not in a state to serve data.


|statistics
|link:#statistics[statistics]
a|These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


|status
|array[string]
a|Describes the current status of a volume.


|style
|string
a|The style of the volume. If "style" is not specified, the volume type is
determined based on the specified aggregates. Specifying a single
aggregate, without "constituents_per_aggregate", creates a flexible
volume. Specifying multiple aggregates, or a single aggregate with
"constituents_per_aggregate", creates a FlexGroup. Specifying a volume
"style" creates a volume of that type. For example, if the style is
"flexvol" you must specify a single aggregate. If the style is
"flexgroup", the system either uses the specified aggregates or
automatically provisions aggregates if there are no specified aggregates.
```

```
The style "flexgroup_constiutent" is not supported when creating a volume.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroup volumes
flexgroup_constituent &dash; FlexGroup constituents.


|svm
|link:#svm[svm]
a|SVM containing the volume. Required on POST.


|tiering
|link:#tiering[tiering]
a|

|type
|string
a|Type of the volume.
rw &dash; read-write volume.
dp &dash; data-protection volume.
ls &dash; load-sharing `dp` volume. Valid in GET.


|use_mirrored_aggregates
|boolean
a|Specifies whether mirrored aggregates are selected when provisioning a
FlexGroup without specifying "aggregates.name" or "aggregates.uuid". Only
mirrored aggregates are used if this parameter is set to 'true' and only
unmirrored aggregates are used if this parameter is set to 'false'.
Aggregate level mirroring for a FlexGroup can be changed by moving all of
the constituents to the required aggregates. The default value is 'true'
for a MetroCluster configuration and is 'false' for a non-MetroCluster
configuration.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* readOnly: 1
* Introduced in: 9.6


|===
```

```
[#job_link]
[.api-collapsible-fifth-title]
job_link

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|uuid
|string
a|The UUID of the asynchronous job that is triggered by a POST, PATCH, or
DELETE operation.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===
```

```
[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[ID141da5d1ae70cae228e462d3863ee8e3]]
= Delete a volume

[.api-doc-operation .api-doc-operation-delete]#DELETE# [.api-doc-code-
block]#`/storage/volumes/{uuid}`#

*Introduced In:* 9.6
```

```
Deletes a volume. If the UUID belongs to a volume, all of its blocks are
freed and returned to its containing aggregate. If a volume is online, it
is offlined before deletion. If a volume is mounted, unmount the volume by
specifying the nas.path as empty before deleting it using the DELETE
operation.

== Related ONTAP commands

* `volume delete`
* `volume clone delete`


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|uuid
|string
|path
|True
a|Unique identifier of the volume.


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When doing a POST, PATCH, or DELETE operation on a single record, the
default is 0 seconds.  This means that if an asynchronous operation is
started, the server immediately returns HTTP code 202 (Accepted) along
with a link to the job.  If a non-zero value is specified for POST, PATCH,
or DELETE operations, ONTAP waits that length of time to see if the job
completes so it can return something other than 202.

* Default value: 1
* Max value: 120
* Min value: 0

|===
```

```
== Response
```

Status: 202, Accepted

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|job
|link:#job_link[job_link]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
```

```
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|
```

```
|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#job_link]
[.api-collapsible-fifth-title]
job_link

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|uuid
|string
a|The UUID of the asynchronous job that is triggered by a POST, PATCH, or
DELETE operation.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.
```

```
|===


//end collapsible .Definitions block
====



[[ID3d73cd5cb5242fe49f9fdea08832a44e]]
= Retrieve a volume

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{uuid}`#

*Introduced In:* 9.6

Retrieves a volume. The GET API can be used to retrieve the quota state
for a FlexVol or a FlexGroup volume.

== Expensive properties

There is an added cost to retrieving values for these properties. They are
not included by default in GET results and must be explicitly requested
using the `fields` query parameter. See
xref:{relative_path}getting_started_with_the_ontap_rest_api.html#Requestin
g_specific_fields[Requesting specific fields] to learn more.

* `is_svm_root`
* `analytics.+*+`
* `anti_ransomware.+*+`
* `application.+*+`
* `encryption.+*+`
* `convert_unicode`
* `clone.parent_snapshot.name`
* `clone.parent_snapshot.uuid`
* `clone.parent_svm.name`
* `clone.parent_svm.uuid`
* `clone.parent_volume.name`
* `clone.parent_volume.uuid`
* `clone.split_complete_percent`
* `clone.split_estimate`
* `clone.split_initiated`
* `efficiency.+*+`
* `error_state.+*+`
* `files.+*+`
```

* `max_dir_size`
* `nas.export_policy.id`
* `nas.gid`
* `nas.path`
* `nas.security_style`
* `nas.uid`
* `nas.unix_permissions`
* `nas.junction_parent.name`
* `nas.junction_parent.uuid`
* `snaplock.+*+`
* `restore_to.+*+`
* `snapshot_policy.uuid`
* `quota.+*+`
* `qos.+*+`
* `flexcache_endpoint_type`
* `space.block_storage_inactive_user_data`
* `space.capacity_tier_footprint`
* `space.performance_tier_footprint`
* `space.local_tier_footprint`
* `space.footprint`
* `space.over_provisioned`
* `space.metadata`
* `space.total_footprint`
* `space.dedupe_metafiles_footprint`
* `space.dedupe_metafiles_temporary_footprint`
* `space.delayed_free_footprint`
* `space.file_operation_metadata`
* `space.snapmirror_destination_footprint`
* `space.volume_guarantee_footprint`
* `space.cross_volume_dedupe_metafiles_footprint`
* `space.cross_volume_dedupe_metafiles_temporary_footprint`
* `space.snapshot_reserve_unusable`
* `space.snapshot_spill`
* `space.user_data`
* `space.logical_space.+*+`
* `space.snapshot.+*+`
* `space.used_by_afs`
* `space.afs_total`
* `space.available_percent`
* `space.full_threshold_percent`
* `space.nearly_full_threshold_percent`
* `space.overwrite_reserve`
* `space.overwrite_reserve_used`
* `space.size_available_for_snapshots`
* `space.percent_used`
* `space.fractional_reserve`

```
* `space.block_storage_inactive_user_data_percent`
* `space.physical_used`
* `space.physical_used_percent`
* `space.expected_available`
* `space.filesystem_size`
* `space.filesystem_size_fixed`
* `guarantee.+*+`
* `autosize.+*+`
* `movement.+*+`
* `statistics.+*+`

== Related ONTAP commands

* `volume show`
* `volume clone show`
* `volume efficiency show`
* `volume encryption show`
* `volume flexcache show`
* `volume flexgroup show`
* `volume move show`
* `volume quota show`
* `volume show-space`
* `volume snaplock show`
* `security anti-ransomware volume show`
* `security anti-ransomware volume attack generate-report`
* `security anti-ransomware volume space show`


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|uuid
|string
|path
|True
a|Unique identifier of the volume.
```

```
|is_constituent
|boolean
|query
|False
a|When set to false, only FlexVol and FlexGroup volumes are returned.
When set to true, only FlexGroup constituent volumes are returned. Default
for GET calls is false.

* Introduced in: 9.10
* Default value:


|fields
|array[string]
|query
|False
a|Specify the fields to return.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|access_time_enabled
|boolean
a|Indicates whether or not access time updates are enabled on the volume.


|activity_tracking
|link:#activity_tracking[activity_tracking]
a|

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.
```

```
|analytics
|link:#analytics[analytics]
a|

|anti_ransomware
|link:#anti_ransomware[anti_ransomware]
a|Anti-ransomware related information of the volume.


|anti_ransomware_state
|string
a|The Anti-ransomware state of the volume. If no "anti_ransomware_state"
property is specified, the volume inherits the value from its parent SVM's
"anti_ransomware_default_volume_state" property. If this value is
"disabled", Anti-ransomware is disabled on the volume. If this value is
"enabled", Anti-ransomware is enabled on the volume and alerts are raised
if any suspect is detected for those volumes. If this value is "dry_run",
Anti-ransomware is enabled in the dry-run or learning mode on the volume.
The "dry_run" state is same as the "enabled" state except that the
analytics data is used here for learning. No alerts are raised for any
detections or violations. If this value is "paused", Anti-ransomware is
paused on the volume. Additionally, three more states are available, which
are only valid for GET. If this value is "disable_in_progress", Anti-
ransomware monitoring is being disabled and a cleanup operation is in
effect. If this value is "enable_paused", Anti-ransomware is paused on the
volume from its earlier enabled state. If this value is "dry_run_paused",
Anti-ransomware monitoring is paused on the volume from its earlier
dry_run state. For POST, the valid Anti-ransomware states are only
"disabled", "enabled" and "dry_run", whereas for PATCH, "paused" is also
valid along with the three valid states for POST.


|application
|link:#application[application]
a|

|autosize
|link:#autosize[autosize]
a|

|clone
|link:#clone[clone]
a|
```

```
|cloud_retrieval_policy
|string
a|This parameter specifies the cloud retrieval policy for the volume. This
policy determines which tiered out blocks to retrieve from the capacity
tier to the performance tier. The available cloud retrieval policies are
"default" policy retrieves tiered data based on the underlying tiering
policy. If the tiering policy is 'auto', tiered data is retrieved only for
random client driven data reads. If the tiering policy is 'none' or
'snapshot_only', tiered data is retrieved for random and sequential client
driven data reads. If the tiering policy is 'all', tiered data is not
retrieved.
"on_read" policy retrieves tiered data for all client driven data reads.
"never" policy never retrieves tiered data.
"promote" policy retrieves all eligible tiered data automatically during
the next scheduled scan. It is only supported when the tiering policy is
'none' or 'snapshot_only'. If the tiering policy is 'snapshot_only', the
only data brought back is the data in the AFS. Data that is only in a
snapshot copy stays in the cloud and if tiering policy is 'none' then all
data is retrieved.


|comment
|string
a|A comment for the volume. Valid in POST or PATCH.


|consistency_group
|link:#consistency_group[consistency_group]
a|Consistency group the volume is part of.


|constituents
|array[link:#constituents[constituents]]
a|

|constituents_per_aggregate
|integer
a|Specifies the number of times to iterate over the aggregates listed with
the "aggregates.name" or "aggregates.uuid" when creating or expanding a
FlexGroup volume. If a volume is being created on a single aggregate, the
system creates a flexible volume if the "constituents_per_aggregate" field
is not specified, or a FlexGroup volume if it is specified. If a volume is
being created on multiple aggregates, the system always creates a
FlexGroup volume. The root constituent of a FlexGroup volume is always
placed on the first aggregate in the list.
```

```
|convert_unicode
|boolean
a|Specifies whether directory Unicode format conversion is enabled when
directories are accessed by NFS clients.


|create_time
|string
a|Creation time of the volume. This field is generated when the volume is
created.


|efficiency
|link:#efficiency[efficiency]
a|

|encryption
|link:#encryption[encryption]
a|

|error_state
|link:#error_state[error_state]
a|

|files
|link:#files[files]
a|

|flash_pool
|link:#flash_pool[flash_pool]
a|

|flexcache_endpoint_type
|string
a|FlexCache endpoint type.
none &dash; The volume is neither a FlexCache nor origin of any FlexCache.
cache &dash; The volume is a FlexCache volume.
origin &dash; The volume is origin of a FlexCache volume.


|flexgroup
|link:#flexgroup[flexgroup]
a|

|guarantee
|link:#guarantee[guarantee]
a|
```

```
|is_object_store
|boolean
a|Specifies whether the volume is provisioned for an object store server.


|is_svm_root
|boolean
a|Specifies whether the volume is a root volume of the SVM it belongs to.


|language
|string
a|Language encoding setting for volume. If no language is specified, the
volume inherits its SVM language encoding setting.


|max_dir_size
|integer
a|Maximum directory size. This value sets maximum size, in bytes, to which
a directory can grow. The default maximum directory size for FlexVol
volumes is model-dependent, and optimized for the size of system memory.
Before increasing the maximum directory size, involve technical support.


|metric
|link:#metric[metric]
a|Performance numbers, such as IOPS, latency and throughput.


|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|Volume name. The name of volume must start with an alphabetic character
(a to z or A to Z) or an underscore (_). The name must be 197 or fewer
characters in length for FlexGroups, and 203 or fewer characters in length
for all other types of volumes. Volume names must be unique within an SVM.
Required on POST.
```

```
|nas
|link:#nas[nas]
a|

|qos
|link:#qos[qos]
a|QoS information


|queue_for_encryption
|boolean
a|Specifies whether the volume is queued for encryption.


|quota
|link:#quota[quota]
a|Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


|scheduled_snapshot_naming_scheme
|string
a|Naming Scheme for automatic Snapshot copies:

* create_time - Automatic Snapshot copies are saved as per the start of
their current date and time.
* ordinal - Latest automatic snapshot copy is saved as
+++<scheduled_frequency>+++.0 and subsequent copies will follow the
create_time naming convention.+++</scheduled_frequency>+++


|size
|integer
a|Physical size of the volume, in bytes. The minimum size for a FlexVol
volume is 20MB and the minimum size for a FlexGroup volume is 200MB per
constituent. The recommended size for a FlexGroup volume is a minimum of
100GB per constituent. For all volumes, the default size is equal to the
minimum size.


|snaplock
|link:#snaplock[snaplock]
a|

|snapmirror
|link:#snapmirror[snapmirror]
a|Specifies attributes for SnapMirror protection.
```

```
|snapshot_count
|integer
a|Number of Snapshot copies in the volume.


|snapshot_policy
|link:#snapshot_policy[snapshot_policy]
a|This is a reference to the Snapshot copy policy.


|space
|link:#space[space]
a|

|state
|string
a|Volume state. Client access is supported only when volume is online and
junctioned. Taking volume to offline or restricted state removes its
junction path and blocks client access. When volume is in restricted state
some operations like parity reconstruction and iron on commit are allowed.
The 'mixed' state applies to FlexGroup volumes only and cannot be
specified as a target state. An 'error' state implies that the volume is
not in a state to serve data.


|statistics
|link:#statistics[statistics]
a|These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


|status
|array[string]
a|Describes the current status of a volume.


|style
|string
a|The style of the volume. If "style" is not specified, the volume type is
determined based on the specified aggregates. Specifying a single
aggregate, without "constituents_per_aggregate", creates a flexible
volume. Specifying multiple aggregates, or a single aggregate with
"constituents_per_aggregate", creates a FlexGroup. Specifying a volume
"style" creates a volume of that type. For example, if the style is
```

```
"flexvol" you must specify a single aggregate. If the style is
"flexgroup", the system either uses the specified aggregates or
automatically provisions aggregates if there are no specified aggregates.
The style "flexgroup_constiutent" is not supported when creating a volume.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroup volumes
flexgroup_constituent &dash; FlexGroup constituents.


|svm
|link:#svm[svm]
a|SVM containing the volume. Required on POST.


|tiering
|link:#tiering[tiering]
a|

|type
|string
a|Type of the volume.
rw &dash; read-write volume.
dp &dash; data-protection volume.
ls &dash; load-sharing `dp` volume. Valid in GET.


|use_mirrored_aggregates
|boolean
a|Specifies whether mirrored aggregates are selected when provisioning a
FlexGroup without specifying "aggregates.name" or "aggregates.uuid". Only
mirrored aggregates are used if this parameter is set to 'true' and only
unmirrored aggregates are used if this parameter is set to 'false'.
Aggregate level mirroring for a FlexGroup can be changed by moving all of
the constituents to the required aggregates. The default value is 'true'
for a MetroCluster configuration and is 'false' for a non-MetroCluster
configuration.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* readOnly: 1
* Introduced in: 9.6
```

```
|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "activity_tracking": {
    "state": "string",
    "unsupported_reason": {
      "code": "124518405",
      "message": "Volume activity tracking cannot be enabled on volumes
that contain LUNs."
    }
  },
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "analytics": {
    "scan_progress": 17,
    "state": "string",
    "unsupported_reason": {
      "code": "111411207",
      "message": "File system analytics cannot be enabled on volumes that
contain LUNs."
    }
  },
  "anti_ransomware": {
    "attack_probability": "string",
    "attack_reports": [
```

```
      {
        "_links": {
          "suspects": {
            "href": "/api/resourcelink"
          }
        },
        "time": "2021-06-01T20:36:41+05:30"
      }
    ],
    "dry_run_start_time": "string",
    "space": {
      "snapshot_count": 0,
      "used": 0,
      "used_by_logs": 0,
      "used_by_snapshots": 0
    },
    "state": "string",
    "suspect_files": [
      {
        "count": 0,
        "format": "string"
      }
    ]
  },
  "anti_ransomware_state": "string",
  "application": {
    "name": "string",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "autosize": {
    "mode": "string"
  },
  "clone": {
    "parent_snapshot": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "this_snapshot",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "parent_svm": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
```

```
        }
      },
      "name": "svm1",
      "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "parent_volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "volume1",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    },
    "split_complete_percent": 0,
    "split_estimate": 0
  },
  "cloud_retrieval_policy": "string",
  "comment": "string",
  "consistency_group": {
    "name": "consistency_group_1",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "constituents": [
    {
      "aggregates": {
        "name": "string",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      },
      "movement": {
        "cutover_window": 30,
        "destination_aggregate": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "percent_complete": 0,
        "state": "replicating",
        "tiering_policy": "string"
      },
      "name": "string",
      "space": {
```

```
        "available": 0,
        "block_storage_inactive_user_data": 0,
        "capacity_tier_footprint": 0,
        "footprint": 0,
        "local_tier_footprint": 0,
        "logical_space": {
          "available": 0,
          "used_by_afs": 0
        },
        "metadata": 0,
        "over_provisioned": 0,
        "performance_tier_footprint": 0,
        "snapshot": {
          "used": 0
        },
        "total_footprint": 0,
        "used": 0
      }
    }
  ],
  "create_time": "2018-06-04T19:00:00Z",
  "efficiency": {
    "application_io_size": "string",
    "compaction": "string",
    "compression": "string",
    "cross_volume_dedupe": "string",
    "dedupe": "string",
    "last_op_begin": "string",
    "last_op_end": "string",
    "last_op_err": "string",
    "last_op_size": 0,
    "last_op_state": "string",
    "op_state": "string",
    "path": "string",
    "policy": {
      "name": "string"
    },
    "progress": "string",
    "schedule": "string",
    "state": "string",
    "storage_efficiency_mode": "string",
    "type": "string"
  },
  "encryption": {
    "key_id": "string",
    "key_manager_attribute": "CRN=v1:bluemix:public:containers-
```

```
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
    "state": "string",
    "status": {
      "code": "string",
      "message": "string"
    },
    "type": "string"
  },
  "files": {
    "used": 0
  },
  "flash_pool": {
    "cache_eligibility": "string",
    "cache_retention_priority": "string",
    "caching_policy": "string"
  },
  "flexcache_endpoint_type": "string",
  "flexgroup": {
    "name": "my_flexgroup",
    "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
  },
  "guarantee": {
    "type": "string"
  },
  "language": "string",
  "metric": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "cloud": {
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
```

```
    },
    "duration": "PT15S",
    "flexcache": {
      "bandwidth_savings": 4096,
      "cache_miss_percent": 20,
      "duration": "PT1D",
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "iops": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "movement": {
    "cutover_window": 30,
    "destination_aggregate": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "percent_complete": 0,
    "start_time": "2020-12-07T03:45:12-05:00",
    "state": "replicating",
    "tiering_policy": "string"
  },
  "name": "vol_cs_dept",
  "nas": {
    "export_policy": {
```

```
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "id": 100,
      "name": "default"
    },
    "junction_parent": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "vs1_root",
      "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
    },
    "path": "/user/my_volume",
    "security_style": "string",
    "unix_permissions": 755
  },
  "qos": {
    "policy": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "max_throughput_iops": 10000,
      "max_throughput_mbps": 500,
      "min_throughput_iops": 2000,
      "min_throughput_mbps": 500,
      "name": "performance",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "quota": {
    "state": "string"
  },
  "scheduled_snapshot_naming_scheme": "string",
  "snaplock": {
    "append_mode_enabled": "",
    "autocommit_period": "P30M",
    "compliance_clock_time": "2018-06-04T19:00:00Z",
    "expiry_time": "Wed Sep  5 11:02:42 GMT 2018",
    "is_audit_log": 1,
```

```
    "litigation_count": 10,
    "privileged_delete": "enabled",
    "retention": {
      "default": "P30Y",
      "maximum": "P30Y",
      "minimum": "P30Y"
    },
    "type": "enterprise",
    "unspecified_retention_file_count": 10
  },
  "snapshot_count": 0,
  "snapshot_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "space": {
    "available": 0,
    "block_storage_inactive_user_data": 0,
    "block_storage_inactive_user_data_percent": 0,
    "capacity_tier_footprint": 0,
    "cross_volume_dedupe_metafiles_footprint": 0,
    "cross_volume_dedupe_metafiles_temporary_footprint": 0,
    "dedupe_metafiles_footprint": 0,
    "dedupe_metafiles_temporary_footprint": 0,
    "delayed_free_footprint": 0,
    "file_operation_metadata": 0,
    "filesystem_size": 0,
    "footprint": 0,
    "local_tier_footprint": 0,
    "logical_space": {
      "available": 0,
      "used": 0,
      "used_by_afs": 0,
      "used_by_snapshots": 0,
      "used_percent": 0
    },
    "metadata": 0,
    "over_provisioned": 0,
    "overwrite_reserve": 0,
    "overwrite_reserve_used": 0,
    "percent_used": 0,
```

```
    "performance_tier_footprint": 0,
    "size_available_for_snapshots": 0,
    "snapmirror_destination_footprint": 0,
    "snapshot": {
      "autodelete_trigger": "string",
      "reserve_available": 0,
      "reserve_size": 0,
      "space_used_percent": 0,
      "used": 0
    },
    "snapshot_reserve_unusable": 0,
    "snapshot_spill": 0,
    "total_footprint": 0,
    "used": 0,
    "user_data": 0,
    "volume_guarantee_footprint": 0
  },
  "state": "string",
  "statistics": {
    "cloud": {
      "iops_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "flexcache_raw": {
      "cache_miss_blocks": 10,
      "client_requested_blocks": 500,
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
```

```
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "status": [
    "string"
  ],
  "style": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "tiering": {
    "object_tags": [
      "string"
    ],
    "policy": "string"
  },
  "type": "string",
  "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|
```

```
|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|If volume activity tracking is not supported on the volume, this field
provides an appropriate error code.


|message
|string
a|If volume activity tracking is not supported on the volume, this field
provides an error message detailing why this is the case.


|===


[#activity_tracking]
[.api-collapsible-fifth-title]
```

```
activity_tracking

[cols=3*,options=header]
|===
|Name
|Type
|Description

|state
|string
a|Activity tracking state of the volume. If this value is "on", ONTAP
collects top metrics information for the volume in real time. There is a
slight impact to I/O performance in order to collect this information. If
this value is "off", no activity tracking information is collected or
available to view.

* enum: ["off", "on"]
* Introduced in: 9.10


|supported
|boolean
a|This field indicates whether or not volume activity tracking is
supported on the volume. If volume activity tracking is not supported, the
reason why is provided in the "activity_tracking.unsupported_reason"
field.


|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#aggregates]
[.api-collapsible-fifth-title]
aggregates

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|If file system analytics is not supported on the volume, this field
provides the error code explaining why.


|message
|string
a|If file system analytics is not supported on the volume, this field
provides the error message explaining why.


|===


[#analytics]
[.api-collapsible-fifth-title]
analytics

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|scan_progress
|integer
a|Percentage of files in the volume that the file system analytics
initialization scan has processed. Only returned when the state is
`initializing`.


|state
|string
a|File system analytics state of the volume. If this value is "on", ONTAP
collects extra file system analytics information for all directories on
the volume.  There will be a slight impact to I/O performance to collect
this information. If this value is "off", file system analytics
information is not collected and not available to be viewed. If this value
is "initializing", that means file system analytics was recently turned
on, and the initialization scan to gather information all all existing
files and directories is currently running. If this value is 'unknown'
that means there was an internal error when determining the file system
analytics state for the volume.

* enum: ["unknown", "initializing", "off", "on"]
* Introduced in: 9.8


|supported
|boolean
a|This field indicates whether or not file system analytics is supported
on the volume. If file system analytics is not supported, the reason will
be specified in the "analytics.unsupported_reason" field.


|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|suspects
|link:#href[href]
a|

|===


[#anti_ransomware_attack_report]
[.api-collapsible-fifth-title]
anti_ransomware_attack_report

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|time
|string
a|Timestamp at which ransomware attack is observed.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|snapshot_count
|integer
a|Total number of Anti-ransomware backup Snapshot copies.
```

```
|used
|integer
a|Total space in bytes used by the Anti-ransomware feature.


|used_by_logs
|integer
a|Space in bytes used by the Anti-ransomware analytics logs.


|used_by_snapshots
|integer
a|Space in bytes used by the Anti-ransomware backup Snapshot copies.


|===


[#suspect_files]
[.api-collapsible-fifth-title]
suspect_files

[cols=3*,options=header]
|===
|Name
|Type
|Description

|count
|integer
a|Total number of `suspect_files.format` files observed by the Anti-
ransomware analytics engine on the volume.


|format
|string
a|File formats observed by the Anti-ransomware analytics engine on the
volume.


|===


[#anti_ransomware]
[.api-collapsible-fifth-title]
```

```
anti_ransomware

Anti-ransomware related information of the volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|attack_probability
|string
a|Probability of a ransomware attack.
`none` No files are suspected of ransomware activity.
`low` A number of files are suspected of ransomware activity.
`moderate` A moderate number of files are suspected of ransomware
activity.
`high` A large number of files are suspected of ransomware activity.


|attack_reports
|array[link:#anti_ransomware_attack_report[anti_ransomware_attack_report]]
a|

|dry_run_start_time
|string
a|Time when Anti-ransomware monitoring `state` is set to dry-run value for
starting evaluation mode.


|space
|link:#space[space]
a|

|state
|string
a|Anti-ransomware state.
`disabled` Anti-ransomware monitoring is disabled on the volume.  This is
the default state in a POST operation.
`disable_in_progress` Anti-ransomware monitoring is being disabled and a
cleanup operation is in effect. Valid in GET operation.
`dry_run` Anti-ransomware monitoring is enabled in the evaluation mode.
`enabled` Anti-ransomware monitoring is active on the volume.
`paused` Anti-ransomware monitoring is paused on the volume.
`enable_paused` Anti-ransomware monitoring is paused on the volume from
its earlier enabled state. Valid in GET operation.
```

```
`dry_run_paused` Anti-ransomware monitoring is paused on the volume from
its earlier dry_run state. Valid in GET operation.
For POST, the valid Anti-ransomware states are only `disabled`, `enabled`
and `dry_run`, whereas for PATCH, `paused` is also valid along with the
three valid states for POST.


|suspect_files
|array[link:#suspect_files[suspect_files]]
a|

|===


[#application]
[.api-collapsible-fifth-title]
application

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the application to which the volume belongs. Available only when
the volume is part of an application.


|uuid
|string
a|UUID of the application to which the volume belongs. Available only when
the volume is part of an application.


|===


[#autosize]
[.api-collapsible-fifth-title]
autosize

[cols=3*,options=header]
|===
|Name
|Type
```

```
|Description

|grow_threshold
|integer
a|Used space threshold size, in percentage, for the automatic growth of
the volume. When the amount of used space in the volume becomes greater
than this threhold, the volume automatically grows unless it has reached
the maximum size. The volume grows when 'space.used' is greater than this
percent of 'space.size'. The 'grow_threshold' size cannot be less than or
equal to the 'shrink_threshold' size..


|maximum
|integer
a|Maximum size in bytes up to which a volume grows automatically. This
size cannot be less than the current volume size, or less than or equal to
the minimum size of volume.


|minimum
|integer
a|Minimum size in bytes up to which the volume shrinks automatically. This
size cannot be greater than or equal to the maximum size of volume.


|mode
|string
a|Autosize mode for the volume.
grow &dash; Volume automatically grows when the amount of used space is
above the 'grow_threshold' value.
grow_shrink &dash; Volume grows or shrinks in response to the amount of
space used.
off &dash; Autosizing of the volume is disabled.


|shrink_threshold
|integer
a|Used space threshold size, in percentage, for the automatic shrinkage of
the volume.  When the amount of used space in the volume drops below this
threshold, the volume automatically shrinks unless it has reached the
minimum size. The volume shrinks when the 'space.used' is less than the
'shrink_threshold' percent of 'space.size'. The 'shrink_threshold' size
cannot be greater than or equal to the 'grow_threshold' size.


|===
```

```
[#snapshot_reference]
[.api-collapsible-fifth-title]
snapshot_reference

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#parent_svm]
[.api-collapsible-fifth-title]
parent_svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
```

```
a|The unique identifier of the SVM.


|===


[#parent_volume]
[.api-collapsible-fifth-title]
parent_volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#clone]
[.api-collapsible-fifth-title]
clone

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|is_flexclone
|boolean
a|Specifies if this volume is a normal FlexVol or FlexClone. This field
needs to be set when creating a FlexClone. Valid in POST.


|parent_snapshot
|link:#snapshot_reference[snapshot_reference]
a|

|parent_svm
|link:#parent_svm[parent_svm]
a|

|parent_volume
|link:#parent_volume[parent_volume]
a|

|split_complete_percent
|integer
a|Percentage of FlexClone blocks split from its parent volume.


|split_estimate
|integer
a|Space required by the containing-aggregate to split the FlexClone
volume.


|split_initiated
|boolean
a|This field is set when split is executed on any FlexClone, that is when
the FlexClone volume is split from its parent FlexVol. This field needs to
be set for splitting a FlexClone form FlexVol. Valid in PATCH.


|===


[#consistency_group]
[.api-collapsible-fifth-title]
consistency_group

Consistency group the volume is part of.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|The name of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.


|uuid
|string
a|The UUID of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.


|===


[#aggregates]
[.api-collapsible-fifth-title]
aggregates

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the aggregate hosting the FlexGroup Constituent.


|uuid
|string
a|Unique identifier for the aggregate.


|===
```

```
[#destination_aggregate]
[.api-collapsible-fifth-title]
destination_aggregate

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
```

```
300 seconds.


|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
a|Aggregate


|percent_complete
|integer
a|Completion percentage


|state
|string
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
|string
a|Tiering policy for FabricPool


|===


[#logical_space]
[.api-collapsible-fifth-title]
logical_space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.
```

```
|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.


|used_by_afs
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|used
|integer
```

```
a|The total space used by Snapshot copies in the volume, in bytes.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.


|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.


|footprint
|integer
```

```
a|Data used for this volume in the aggregate, in bytes.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.


|logical_space
|link:#logical_space[logical_space]
a|

|metadata
|integer
a|Space used by the volume metadata in the aggregate, in bytes.


|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
aggregate, in bytes.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|snapshot
|link:#snapshot[snapshot]
a|

|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
```

```
efficiency, in bytes.


|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|used_percent
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, as a percent.


|===


[#constituents]
[.api-collapsible-fifth-title]
constituents

[cols=3*,options=header]
|===
|Name
|Type
|Description

|aggregates
|link:#aggregates[aggregates]
a|

|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|FlexGroup Constituents name


|space
|link:#space[space]
a|
```

```
|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Specifies the name of the efficiency policy. Valid for PATCH.


|===


[#efficiency]
[.api-collapsible-fifth-title]
efficiency

[cols=3*,options=header]
|===
|Name
|Type
|Description

|application_io_size
|string
a|Block size to use by compression. Valid for POST.


|compaction
|string
a|The system can be enabled/disabled compaction.
inline &dash; Data will be compacted first and written to the volume.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compaction enabled and some are disabled.


|compression
```

```
|string
a|The system can be enabled/disabled compression.
inline &dash; Data will be compressed first and written to the volume.
background &dash; Data will be written to the volume and compressed later.
both &dash; Inline compression compresses the data and write to the
volume, background compression compresses only the blocks on which inline
compression is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compression enabled and some are disabled.


|cross_volume_dedupe
|string
a|The system can be enabled/disabled cross volume dedupe. it can be
enabled only when dedupe is enabled.
inline &dash; Data will be cross volume deduped first and written to the
volume.
background &dash; Data will be written to the volume and cross volume
deduped later.
both &dash; Inline cross volume dedupe dedupes the data and write to the
volume, background cross volume dedupe dedupes only the blocks on which
inline dedupe is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are cross volume dedupe enabled and some are disabled.


|dedupe
|string
a|The system can be enabled/disabled dedupe.
inline &dash; Data will be deduped first and written to the volume.
background &dash; Data will be written to the volume and deduped later.
both &dash; Inline dedupe dedupes the data and write to the volume,
background dedupe dedupes only the blocks on which inline dedupe is not
run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are dedupe enabled and some are disabled.


|last_op_begin
|string
a|Last sis operation begin timestamp.
```

```
|last_op_end
|string
a|Last sis operation end timestamp.


|last_op_err
|string
a|Last sis operation error text.


|last_op_size
|integer
a|Last sis operation size.


|last_op_state
|string
a|Last sis operation state.


|op_state
|string
a|Sis status of the volume.


|path
|string
a|Absolute volume path of the volume.


|policy
|link:#policy[policy]
a|

|progress
|string
a|Sis progress of the volume.


|schedule
|string
a|Schedule associated with volume.


|state
|string
a|Storage efficiency state of the volume. Currently, this field supports
```

```
POST/PATCH only for RW (Read-Write) volumes on FSx for ONTAP.
disabled &dash; All storage efficiency features are disabled.
mixed &dash; Read-only field for FlexGroup volumes, storage efficiency is
enabled on certain constituents and disabled on others.
On FSx for ONTAP &dash;
   enabled &dash; All supported storage efficiency features for the
volume are enabled.
   custom &dash; Read-only field currently only supported for the FSx
for ONTAP, user-defined storage efficiency features are enabled.
For other platforms &dash;
   enabled &dash; At least one storage efficiency feature for the
volume is enabled.

* enum: ["disabled", "enabled", "mixed", "custom"]
* Introduced in: 9.9


|storage_efficiency_mode
|string
a|Storage efficiency mode used by volume. This parameter is supported only
on AFF platform.


|type
|string
a|Sis Type of the volume.


|===


[#status]
[.api-collapsible-fifth-title]
status

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Encryption progress message code.


|message
```

```
|string
a|Encryption progress message.


|===


[#encryption]
[.api-collapsible-fifth-title]
encryption

[cols=3*,options=header]
|===
|Name
|Type
|Description

|enabled
|boolean
a|Creates an encrypted or an unencrypted volume. For POST, when set to
'true', a new key is generated and used to encrypt the given volume. In
that case, the underlying SVM must be configured with the key manager.
When set to 'false', the volume created will be unencrypted. For PATCH,
when set to 'true', it encrypts an unencrypted volume. Specifying the
parameter as 'false' in a PATCH operation for an encrypted volume is only
supported when moving the volume to another aggregate.


|key_id
|string
a|The key ID used for creating encrypted volume. A new key-id is generated
for creating an encrypted volume. This key-id is associated with the
generated key.


|key_manager_attribute
|string
a|Specifies an additional key manager attribute that is an identifier-
value pair, separated by '='. For example, CRN=unique-value. This
parameter is required when using the POST method and an IBM Key Lore key
manager is configured on the SVM.


|rekey
|boolean
a|If set to 'true', re-encrypts the volume with a new key. Valid in PATCH.
```

```
|state
|string
a|Volume encryption state.
encrypted &dash; The volume is completely encrypted.
encrypting &dash; Encryption operation is in progress.
partial &dash; Some constituents are encrypted and some are not.
Applicable only for FlexGroup volume.
rekeying. Encryption of volume with a new key is in progress.
unencrypted &dash; The volume is a plain-text one.


|status
|link:#status[status]
a|

|type
|string
a|Volume encryption type.
none &dash; The volume is a plain-text one.
volume &dash; The volume is encrypted with NVE (NetApp Volume Encryption).
aggregate &dash; The volume is encrypted with NAE (NetApp Aggregate
Encryption).


|===


[#error_state]
[.api-collapsible-fifth-title]
error_state

[cols=3*,options=header]
|===
|Name
|Type
|Description

|has_bad_blocks
|boolean
a|Indicates whether the volume has any corrupt data blocks. If the damaged
data block is accessed, an IO error, such as EIO for NFS or
STATUS_FILE_CORRUPT for CIFS, is returned.


|is_inconsistent
|boolean
```

```
a|Indicates whether the file system has any inconsistencies.
true &dash; File system is inconsistent.
false &dash; File system in not inconsistent.


|===


[#files]
[.api-collapsible-fifth-title]
files

[cols=3*,options=header]
|===
|Name
|Type
|Description

|maximum
|integer
a|The maximum number of files (inodes) for user-visible data allowed on
the volume. This value can be increased or decreased. Increasing the
maximum number of files does not immediately cause additional disk space
to be used to track files. Instead, as more files are created on the
volume, the system dynamically increases the number of disk blocks that
are used to track files. The space assigned to track files is never freed,
and this value cannot be decreased below the current number of files that
can be tracked within the assigned space for the volume. Valid in PATCH.


|used
|integer
a|Number of files (inodes) used for user-visible data permitted on the
volume. This field is valid only when the volume is online.


|===


[#flash_pool]
[.api-collapsible-fifth-title]
flash_pool

[cols=3*,options=header]
|===
|Name
|Type
```

```
|Description

|cache_eligibility
|string
a|If this parameter is specified, the command displays information only
about the volume or volumes with the specified Flash Pool caching
attributes.


|cache_retention_priority
|string
a|If this parameter is specified, the command displays the volumes that
match the specified cache retention priority policy. A cache retention
priority defines how long the blocks of a volume will be cached in the
Flash Pool once they become cold.


|caching_policy
|string
a|This optionally specifies the caching policy to apply to the volume. A
caching policy defines how the system caches a volume's data in Flash
Cache modules. If a caching policy is not assigned to a volume, the system
uses the caching policy that is assigned to the containing SVM. If a
caching policy is not assigned to the containing SVM, the system uses the
default cluster-wide policy.


|===


[#flexgroup]
[.api-collapsible-fifth-title]
flexgroup

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the FlexGroup volume that the constituent is part of.


|uuid
|string
```

```
a|Unique identifier for the FlexGroup volume that the constituent is part
of.


|===


[#guarantee]
[.api-collapsible-fifth-title]
guarantee

[cols=3*,options=header]
|===
|Name
|Type
|Description

|honored
|boolean
a|Is the space guarantee of this volume honored in the aggregate?


|type
|string
a|The type of space guarantee of this volume in the aggregate.


|===


[#iops]
[.api-collapsible-fifth-title]
iops

The rate of I/O operations observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.
```

```
|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#latency]
[.api-collapsible-fifth-title]
latency

The round trip latency in microseconds observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.
```

```
|write
|integer
a|Peformance metric for write I/O operations.


|===


[#cloud]
[.api-collapsible-fifth-title]
cloud

Performance numbers (IOPS and latency) for cloud store. These numbers are
relevant only for volumes hosted on FabricPools.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
```

```
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#flexcache]
[.api-collapsible-fifth-title]
flexcache

Performance number for FlexCache used to measure cache effectiveness.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bandwidth_savings
|integer
a|Bandwidth savings denoting the amount of data served locally by the
cache, in bytes.


|cache_miss_percent
|integer
a|Cache miss percentage.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:
```

```
|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

The rate of throughput bytes per second observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.
```

```
|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#metric]
[.api-collapsible-fifth-title]
metric

Performance numbers, such as IOPS, latency and throughput.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|cloud
|link:#cloud[cloud]
a|Performance numbers (IOPS and latency) for cloud store. These numbers
are relevant only for volumes hosted on FabricPools.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|flexcache
|link:#flexcache[flexcache]
a|Performance number for FlexCache used to measure cache effectiveness.
```

```
|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput
|link:#throughput[throughput]
a|The rate of throughput bytes per second observed at the storage object.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
300 seconds.


|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
a|Aggregate


|percent_complete
|integer
a|Completion percentage


|start_time
|string
a|Start time of volume move.


|state
|string
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
|string
a|Tiering policy for FabricPool


|===
```

```
[#export_policy]
[.api-collapsible-fifth-title]
export_policy

Export Policy


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|id
|integer
a|

|name
|string
a|

|===


[#junction_parent]
[.api-collapsible-fifth-title]
junction_parent

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the parent volume that contains the junction inode of this
```

```
volume. The junction parent volume must belong to the same SVM that owns
this volume.


|uuid
|string
a|Unique identifier for the parent volume.


|===


[#nas]
[.api-collapsible-fifth-title]
nas

[cols=3*,options=header]
|===
|Name
|Type
|Description

|export_policy
|link:#export_policy[export_policy]
a|Export Policy


|gid
|integer
a|The UNIX group ID of the volume. Valid in POST or PATCH.


|junction_parent
|link:#junction_parent[junction_parent]
a|

|path
|string
a|The fully-qualified path in the owning SVM's namespace at which the
volume is mounted. The path is case insensitive and must be unique within
a SVM's namespace. Path must begin with '/' and must not end with '/'.
Only one volume can be mounted at any given junction path. An empty path
in POST creates an unmounted volume. An empty path in PATCH deactivates
and unmounts the volume. Taking a volume offline or restricted state
removes its junction path. This attribute is reported in GET only when the
volume is mounted.
```

```
|security_style
|string
a|Security style associated with the volume. Valid in POST or PATCH.
mixed &dash; Mixed-style security
ntfs &dash; NTFS/WIndows-style security
unified &dash; Unified-style security, unified UNIX, NFS and CIFS
permissions
unix &dash; Unix-style security.


|uid
|integer
a|The UNIX user ID of the volume. Valid in POST or PATCH.


|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write) and 1 (execute).
First digit selects the set user ID(4), set group ID (2) and sticky (1)
attributes. The second digit selects permission for the owner of the file;
the third selects permissions for other users in the same group; the
fourth for other users not in the group. Valid in POST or PATCH. For
security style "mixed" or "unix", the default setting is 0755 in octal
(493 in decimal) and for security style "ntfs", the default setting is
0000. In cases where only owner, group and other permissions are given (as
in 755, representing the second, third and fourth dight), first digit is
assumed to be zero.


|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|
```

```
|max_throughput_iops
|integer
a|Specifies the maximum throughput in IOPS, 0 means none. This is mutually
exclusive with name and UUID during POST and PATCH.


|max_throughput_mbps
|integer
a|Specifies the maximum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.


|min_throughput_iops
|integer
a|Specifies the minimum throughput in IOPS, 0 means none. Setting
"min_throughput" is supported on AFF platforms only, unless FabricPool
tiering policies are set. This is mutually exclusive with name and UUID
during POST and PATCH.


|min_throughput_mbps
|integer
a|Specifies the minimum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.


|name
|string
a|The QoS policy group name. This is mutually exclusive with UUID and
other QoS attributes during POST and PATCH.


|uuid
|string
a|The QoS policy group UUID. This is mutually exclusive with name and
other QoS attributes during POST and PATCH.


|===


[#qos]
[.api-collapsible-fifth-title]
qos

QoS information
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|policy
|link:#policy[policy]
a|

|===


[#quota]
[.api-collapsible-fifth-title]
quota

Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|enabled
|boolean
a|This option is used to enable or disable the quota for the volume. This
option is valid only in PATCH. Quotas are enabled for FlexVols or
FlexGroup volumes when the quota state is "on". Quotas are disabled for
FlexVols or FlexGroup volumes when the quota state is "off".


|state
|string
a|Quota state of the volume


|===


[#retention]
[.api-collapsible-fifth-title]
```

```
retention

[cols=3*,options=header]
|===
|Name
|Type
|Description

|default
|string
a|Specifies the default retention period that is applied to files while
committing them to the WORM state without an associated retention period.
The retention value represents a duration and must be specified in the
ISO-8601 duration format. The retention period can be in years, months,
days, hours, and minutes. A duration specified for years, months, and days
is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M",
"P+++<num>+++D" respectively, for example "P10Y" represents a duration of
10 years. A duration in hours and minutes is represented by
"PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string
must contain only a single time element that is, either years, months,
days, hours, or minutes. A duration which combines different periods is
not supported, for example "P1Y10M" is not supported. Apart from the
duration specified in the ISO-8601 format, the duration field also accepts
the string "infinite" to set an infinite retention period and the string
"unspecified" to set an unspecified retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|maximum
|string
a|Specifies the maximum allowed retention period for files committed to
the WORM state on the volume. The retention value represents a duration
and must be specified in the ISO-8601 duration format. The retention
period can be in years, months, days, hours, and minutes. A duration
specified for years, months, and days is represented in the ISO-8601
format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively,
for example "P10Y" represents a duration of 10 years. A duration in hours
and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M"
respectively. The retention string must contain only a single time element
that is, either years, months, days, hours, or minutes. A duration which
combines different periods is not supported, for example "P1Y10M" is not
supported. Apart from the duration specified in the ISO-8601 format, the
duration field also accepts the string "infinite" to set an infinite
retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++
```

```
|minimum
|string
a|Specifies the minimum allowed retention period for files committed to
the WORM state on the volume. The retention value represents a duration
and must be specified in the ISO-8601 duration format. The retention
period can be in years, months, days, hours, and minutes. A duration
specified for years, month,s and days is represented in the ISO-8601
format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively,
for example "P10Y" represents a duration of 10 years. A duration in hours
and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M"
respectively. The retention string must contain only a single time element
that is, either years, months, days, hours, or minutes. A duration which
combines different periods is not supported, for example "P1Y10M" is not
supported. Apart from the duration specified in the ISO-8601 format, the
duration field also accepts the string "infinite" to set an infinite
retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|===


[#snaplock]
[.api-collapsible-fifth-title]
snaplock

[cols=3*,options=header]
|===
|Name
|Type
|Description

|append_mode_enabled
|boolean
a|Specifies if the volume append mode is enabled or disabled. When it is
enabled, all the files created with write permissions on the volume are,
by default, WORM appendable files. The user can append the data to a WORM
appendable file but cannot modify the existing contents of the file nor
delete the file until it expires.


|autocommit_period
|string
a|Specifies the autocommit period for SnapLock volume. All files which are
not modified for a period greater than the autocommit period of the volume
are committed to the WORM state. The autocommit period value represents a
```

```
duration and must be specified in the ISO-8601 duration format. The
autocommit period can be in years, months, days, hours, and minutes. A
period specified for years, months, and days is represented in the ISO-
8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D"
respectively, for example "P10Y" represents a duration of 10 years. A
duration in hours and minutes is represented by "PT+++<num>+++H" and
"PT+++<num>+++M" respectively. The period string must contain only a
single time element that is, either years, months, days, hours, or
minutes. A duration which combines different periods is not supported, for
example "P1Y10M" is not supported. Apart from the duration specified in
the ISO-8601 format, the autocommit field also accepts the string
"none".+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|compliance_clock_time
|string
a|This is the volume compliance clock time which is used to manage the
SnapLock objects in the volume.


|expiry_time
|string
a|Expiry time of the volume.


|is_audit_log
|boolean
a|Indicates if this volume has been configured as SnapLock audit log
volume for the SVM .


|litigation_count
|integer
a|Litigation count indicates the number of active legal-holds on the
volume.


|privileged_delete
|string
a|Specifies the privileged-delete attribute of a SnapLock volume. On a
SnapLock Enterprise (SLE) volume, a designated privileged user can
selectively delete files irrespective of the retention time of the file.
SLE volumes can have privileged delete as disabled, enabled or
permanently_disabled and for SnapLock Compliance (SLC) volumes it is
always permanently_disabled.
```

```
|retention
|link:#retention[retention]
a|

|type
|string
a|The SnapLock type of the volume.
compliance &dash; A SnapLock Compliance(SLC) volume provides the highest
level of WORM protection and an administrator cannot destroy a SLC volume
if it contains unexpired WORM files.
 enterprise &dash; An administrator can delete a SnapLock Enterprise(SLE)
volume.
 non_snaplock &dash; Indicates the volume is non-snaplock.


|unspecified_retention_file_count
|integer
a|Indicates the number of files with an unspecified retention time in the
volume.


|===


[#destinations]
[.api-collapsible-fifth-title]
destinations

[cols=3*,options=header]
|===
|Name
|Type
|Description

|is_cloud
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to a cloud destination.


|is_ontap
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to an ONTAP destination.

* readOnly: 1
* Introduced in: 9.9
```

```
|===


[#snapmirror]
[.api-collapsible-fifth-title]
snapmirror

Specifies attributes for SnapMirror protection.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|destinations
|link:#destinations[destinations]
a|

|is_protected
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data.


|===


[#snapshot_policy]
[.api-collapsible-fifth-title]
snapshot_policy

This is a reference to the Snapshot copy policy.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|
```

```
|name
|string
a|

|uuid
|string
a|

|===


[#logical_space]
[.api-collapsible-fifth-title]
logical_space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.


|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.


|used
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
vbn_zero, future_blk_cnt), in bytes.


|used_by_afs
```

```
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|used_by_snapshots
|integer
a|Size that is logically used across all Snapshot copies in the volume, in
bytes.


|used_percent
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
vbn_zero, future_blk_cnt), as a percentage.


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|autodelete_trigger
|string
a|Specifies when the system should trigger an autodelete of Snapshot
copies. When set to _volume_, autodelete is triggered based on volume
fullness. When set to _snap_reserve_, autodelete is triggered based on
Snapshot reserve fullness. The default value is _volume_.


|reserve_available
|integer
a|Size available for Snapshot copies within the Snapshot copy reserve, in
```

```
bytes.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|reserve_size
|integer
a|Size in the volume that has been set aside as a reserve for Snapshot
copy usage, in bytes.


|space_used_percent
|integer
a|Percentage of snapshot reserve size that has been used.


|used
|integer
a|The total space used by Snapshot copies in the volume, in bytes.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.
```

```
|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.


|block_storage_inactive_user_data_percent
|integer
a|Percentage of size that is physically used in the performance tier of
the volume.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.


|cross_volume_dedupe_metafiles_footprint
|integer
a|Cross volume deduplication metadata footprint, in bytes.


|cross_volume_dedupe_metafiles_temporary_footprint
|integer
a|Cross volume temporary deduplication metadata footprint, in bytes.


|dedupe_metafiles_footprint
|integer
a|Deduplication metadata footprint, in bytes.


|dedupe_metafiles_temporary_footprint
|integer
a|Temporary deduplication metadata footprint, in bytes.


|delayed_free_footprint
```

```
|integer
a|Delayed free blocks footprint, in bytes.


|expected_available
|integer
a|Size that should be available for the volume, irrespective of available
size in the aggregate, in bytes.


|file_operation_metadata
|integer
a|File operation metadata footprint, in bytes.


|filesystem_size
|integer
a|Total usable size of the volume, in bytes.


|filesystem_size_fixed
|boolean
a|Specifies whether the file system is to remain of the same size when set
to true or to grow when set to false. This option is automatically set to
true when a volume becomes SnapMirrored.


|footprint
|integer
a|Data used for this volume in the aggregate, in bytes.


|fractional_reserve
|integer
a|Used to change the amount of space reserved for overwrites of reserved
objects in a volume.


|full_threshold_percent
|integer
a|Volume full threshold percentage at which EMS warnings can be sent.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.
```

```
|logical_space
|link:#logical_space[logical_space]
a|

|metadata
|integer
a|Space used by the volume metadata in the aggregate, in bytes.


|nearly_full_threshold_percent
|integer
a|Volume nearly full threshold percentage at which EMS warnings can be
sent.


|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|overwrite_reserve
|integer
a|Reserved space for overwrites, in bytes.


|overwrite_reserve_used
|integer
a|Overwrite logical reserve space used, in bytes.


|percent_used
|integer
a|Percentage of the volume size that is used.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
aggregate, in bytes.


|physical_used
|integer
a|Size that is physically used in the volume, in bytes.
```

```
|physical_used_percent
|integer
a|Size that is physically used in the volume, as a percentage.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|size_available_for_snapshots
|integer
a|Available space for Snapshot copies from snap-reserve, in bytes.


|snapmirror_destination_footprint
|integer
a|SnapMirror destination footprint, in bytes.


|snapshot
|link:#snapshot[snapshot]
a|

|snapshot_reserve_unusable
|integer
a|Snapshot reserve that is not available for Snapshot copy creation, in
bytes.


|snapshot_spill
|integer
a|Space used by the snapshot copies beyond the snap-reserve, in bytes.


|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, in bytes.
```

```
|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|user_data
|integer
a|User data, in bytes.


|volume_guarantee_footprint
|integer
a|Space reserved for future writes in the volume, in bytes.


|===


[#iops_raw]
[.api-collapsible-fifth-title]
iops_raw

The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
```

```
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#latency_raw]
[.api-collapsible-fifth-title]
latency_raw

The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.
```

```
|===


[#cloud]
[.api-collapsible-fifth-title]
cloud

These are raw performance numbers (IOPS and latency) for the cloud store.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster. These numbers are relevant only for
volumes hosted on FabricPools.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.
```

```
|timestamp
|string
a|The timestamp of the performance data.


|===


[#flexcache_raw]
[.api-collapsible-fifth-title]
flexcache_raw

Performance numbers for FlexCache used to measure cache effectiveness.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cache_miss_blocks
|integer
a|Blocks retrieved from origin in case of a cache miss. This can be
divided by the raw client_requested_blocks and multiplied by 100 to
calculate the cache miss percentage.


|client_requested_blocks
|integer
a|Total blocks requested by the client.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.
```

```
|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput_raw]
[.api-collapsible-fifth-title]
throughput_raw

Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
time.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===
```

```
[#statistics]
[.api-collapsible-fifth-title]
statistics

These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cloud
|link:#cloud[cloud]
a|These are raw performance numbers (IOPS and latency) for the cloud
store. These numbers are aggregated across all nodes in the cluster and
increase with the uptime of the cluster. These numbers are relevant only
for volumes hosted on FabricPools.


|flexcache_raw
|link:#flexcache_raw[flexcache_raw]
a|Performance numbers for FlexCache used to measure cache effectiveness.


|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
```

```
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput_raw
|link:#throughput_raw[throughput_raw]
a|Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
time.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

SVM containing the volume. Required on POST.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.
```

```
|uuid
|string
a|The unique identifier of the SVM.


|===


[#tiering]
[.api-collapsible-fifth-title]
tiering

[cols=3*,options=header]
|===
|Name
|Type
|Description

|min_cooling_days
|integer
a|This parameter specifies the minimum number of days that user data
blocks of the volume must be cooled before they can be considered cold and
tiered out to the cloud tier. Note that this parameter is only used for
tiering purposes and does not affect the reporting of inactive data. The
value specified should be greater than the frequency with which
applications in the volume shift between different sets of data. This
parameter cannot be set when volume tiering policy is either "none" or
"all". The default value of this parameter depends on the volume's tiering
policy. See the tiering policy section of this documentation for
corresponding default values. If the tiering policy on the volume gets
changed, then this parameter will be reset to the default value
corresponding to the new tiering policy.


|object_tags
|array[string]
a|This parameter specifies tags of a volume for objects stored on a
FabricPool-enabled aggregate. Each tag is a key,value pair and should be
in the format "key=value".


|policy
|string
a|Policy that determines whether the user data blocks of a volume in a
FabricPool will be tiered to the cloud store when they become cold.
```

```
FabricPool combines flash (performance tier) with a cloud store into a
single aggregate. Temperature of a volume block increases if it is
accessed frequently and decreases when it is not. Valid in POST or PATCH.
all &dash; This policy allows tiering of both Snapshot copies and active
file system user data to the cloud store as soon as possible by ignoring
the temperature on the volume blocks.
auto &dash; This policy allows tiering of both snapshot and active file
system user data to the cloud store
none &dash; Volume blocks will not be tiered to the cloud store.
snapshot_only &dash; This policy allows tiering of only the volume
Snapshot copies not associated with the active file system. The default
tiering policy is "snapshot-only" for a FlexVol and "none" for a
FlexGroup. The default minimum cooling period for the "snapshot-only"
tiering policy is 2 days and for the "auto" tiering policy is 31 days.


|supported
|boolean
a|This parameter specifies whether or not FabricPools are selected when
provisioning a FlexGroup without specifying "aggregates.name" or
"aggregates.uuid". Only FabricPool aggregates are used if this parameter
is set to true and only non FabricPool aggregates are used if this
parameter is set to false. Tiering support for a FlexGroup can be changed
by moving all of the constituents to the required aggregates. Note that in
order to tier data, not only does the volume need to support tiering by
using FabricPools, the tiering "policy" must not be 'none'. A volume that
uses FabricPools but has a tiering "policy" of 'none' supports tiering,
but will not tier any data.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code
```

```
|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====
```

```
[[ID1f095ec2d51d03e52016f55863ef60b4]]
= Update volume attributes

[.api-doc-operation .api-doc-operation-patch]#PATCH# [.api-doc-code-
block]#`/storage/volumes/{uuid}`#

*Introduced In:* 9.6

Updates the attributes of a volume. For movement, use the "validate_only"
field on the request to validate but not perform the operation. The PATCH
API can be used to enable or disable quotas for a FlexVol or a FlexGroup
volume. An empty path in PATCH deactivates and unmounts the volume. Taking
a volume offline removes its junction path.

A PATCH request for volume encryption performs conversion/rekey operations
asynchronously. You can retrieve the conversion/rekey progress details by
calling a GET request on the corresponding volume endpoint.

== Optional properties

* `queue_for_encryption` - Queue volumes for encryption when
`encryption.enabled=true`.  If this option is not provided or is false,
conversion of volumes starts immediately. When there are volumes in the
queue and less than four encryptions are running, volumes are encrypted in
the order in which they are queued.
* `encryption.action` - You can pause an ongoing rekey/conversion
operation or resume a paused rekey/conversion operation using this field.
The following actions are supported for this field: &dash;
conversion_pause - Pause an encryption conversion operation currently in
progress &dash; conversion_resume - Resume a paused encryption conversion
operation &dash; rekey_pause - Pause an encryption rekey operation
currently in progress &dash; rekey_resume - Resume a paused encryption
rekey operation

== Related ONTAP commands

* `volume unmount`
* `volume mount`
* `volume online`
* `volume offline`
* `volume modify`
* `volume clone modify`
* `volume efficiency modify`
* `volume quota on`
* `volume quota off`
* `volume snaplock modify`
```

```
* `volume encryption conversion start`
* `volume encryption rekey start`
* `security anti-ransomware volume enable`
* `security anti-ransomware volume disable`
* `security anti-ransomware volume dry-run`
* `security anti-ransomware volume pause`
* `security anti-ransomware volume resume`


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|uuid
|string
|path
|True
a|Unique identifier of the volume.


|restore_to.snapshot.uuid
|string
|query
|False
a|UUID of the Snapshot copy to restore volume to the point in time the
Snapshot copy was taken.


|restore_to.snapshot.name
|string
|query
|False
a|Name of the Snapshot copy to restore volume to the point in time the
Snapshot copy was taken.


|restore_to.path
|string
|query
|False
```

```
a|Path to the file which is restored from the Snapshot copy.

* Introduced in: 9.10


|restore_to.restore_path
|string
|query
|False
a|Specifies the destination location inside the volume where the file is
restored.

* Introduced in: 9.10


|restore_to.start_byte
|number
|query
|False
a|Starting byte offset of the source file, in multiples of 4096.

* Introduced in: 9.10


|restore_to.byte_count
|number
|query
|False
a|Number of bytes to restore from the source file, in multiples of 4096.

* Introduced in: 9.10


|preserve_lun_ids
|boolean
|query
|False
a|Specifies whether LUN IDs need to be preserved during a Snapshot copy
restore operation.

* Introduced in: 9.10
* Default value:


|nvfail
|string
|query
```

```
|False
a|When this option is "on", the filer performs additional work at boot
time if it finds that there has been any potential data loss due to an
NVRAM failure. In such situations, it causes the invalidation of all NFS
file handles on all volumes affected by the problem so that client-side
users are forced to remount the affected file system (and thus not
continue to use potentially incorrect data). It is also possible to
specify a set of files per volume that are renamed in such cases. The
filer sends error messages to the console whenever such problems are
found.

* Introduced in: 9.10
* enum: ["off", "on"]


|snapshot_directory_access_enabled
|boolean
|query
|False
a|This field, if true, enables the visible ".snapshot" directory from the
client. The ".snapshot" directory will be available in every directory on
the volume.

* Introduced in: 9.10
* Default value: 1


|sizing_method
|string
|query
|False
a|Represents the method to modify the size of a Flexgroup. The following
methods are supported:

* use_existing_resources - Increases or decreases the size of the
FlexGroup by increasing or decreasing the size of the current FlexGroup
resources
* add_new_resources - Increases the size of the FlexGroup by adding new
resources. This is limited to two new resources per available aggregate.
* Default value: 1
* enum: ["use_existing_resources", "add_new_resources"]


|scheduled_snapshot_naming_scheme
|string
|query
```

```
|False
a|Naming Scheme for automatic Snapshot copies:

* create_time - Automatic Snapshot copies are saved as per the start of
their current date and time.
* ordinal - Latest automatic snapshot copy is saved as
+++<scheduled_frequency>+++.0 and subsequent copies will follow the
create_time naming convention.+++</scheduled_frequency>+++
* Introduced in: 9.10
* Default value: 1
* enum: ["create_time", "ordinal"]

</scheduled_frequency>


|clone.match_parent_storage_tier
|boolean
|query
|False
a|Specifies whether the FlexClone volume splits the data blocks by
matching its parent storage tier. This option is applicable only if the
tiering policy and the tiering minimum cooling days of the parent volume
and the FlexClone volume are the same.

* Introduced in: 9.9


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When doing a POST, PATCH, or DELETE operation on a single record, the
default is 0 seconds.  This means that if an asynchronous operation is
started, the server immediately returns HTTP code 202 (Accepted) along
with a link to the job.  If a non-zero value is specified for POST, PATCH,
or DELETE operations, ONTAP waits that length of time to see if the job
completes so it can return something other than 202.

* Default value: 1
* Max value: 120
* Min value: 0


|validate_only
|boolean
|query
```

```
|False
a|Validate the operation and its parameters, without actually performing
the operation.

|===

== Request Body



[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|access_time_enabled
|boolean
a|Indicates whether or not access time updates are enabled on the volume.


|activity_tracking
|link:#activity_tracking[activity_tracking]
a|

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.


|analytics
|link:#analytics[analytics]
a|

|anti_ransomware
|link:#anti_ransomware[anti_ransomware]
a|Anti-ransomware related information of the volume.


|anti_ransomware_state
|string
a|The Anti-ransomware state of the volume. If no "anti_ransomware_state"
property is specified, the volume inherits the value from its parent SVM's
```

```
"anti_ransomware_default_volume_state" property. If this value is
"disabled", Anti-ransomware is disabled on the volume. If this value is
"enabled", Anti-ransomware is enabled on the volume and alerts are raised
if any suspect is detected for those volumes. If this value is "dry_run",
Anti-ransomware is enabled in the dry-run or learning mode on the volume.
The "dry_run" state is same as the "enabled" state except that the
analytics data is used here for learning. No alerts are raised for any
detections or violations. If this value is "paused", Anti-ransomware is
paused on the volume. Additionally, three more states are available, which
are only valid for GET. If this value is "disable_in_progress", Anti-
ransomware monitoring is being disabled and a cleanup operation is in
effect. If this value is "enable_paused", Anti-ransomware is paused on the
volume from its earlier enabled state. If this value is "dry_run_paused",
Anti-ransomware monitoring is paused on the volume from its earlier
dry_run state. For POST, the valid Anti-ransomware states are only
"disabled", "enabled" and "dry_run", whereas for PATCH, "paused" is also
valid along with the three valid states for POST.


|application
|link:#application[application]
a|

|autosize
|link:#autosize[autosize]
a|

|clone
|link:#clone[clone]
a|

|cloud_retrieval_policy
|string
a|This parameter specifies the cloud retrieval policy for the volume. This
policy determines which tiered out blocks to retrieve from the capacity
tier to the performance tier. The available cloud retrieval policies are
"default" policy retrieves tiered data based on the underlying tiering
policy. If the tiering policy is 'auto', tiered data is retrieved only for
random client driven data reads. If the tiering policy is 'none' or
'snapshot_only', tiered data is retrieved for random and sequential client
driven data reads. If the tiering policy is 'all', tiered data is not
retrieved.
"on_read" policy retrieves tiered data for all client driven data reads.
"never" policy never retrieves tiered data.
"promote" policy retrieves all eligible tiered data automatically during
the next scheduled scan. It is only supported when the tiering policy is
```

```
'none' or 'snapshot_only'. If the tiering policy is 'snapshot_only', the
only data brought back is the data in the AFS. Data that is only in a
snapshot copy stays in the cloud and if tiering policy is 'none' then all
data is retrieved.


|comment
|string
a|A comment for the volume. Valid in POST or PATCH.


|consistency_group
|link:#consistency_group[consistency_group]
a|Consistency group the volume is part of.


|constituents
|array[link:#constituents[constituents]]
a|

|constituents_per_aggregate
|integer
a|Specifies the number of times to iterate over the aggregates listed with
the "aggregates.name" or "aggregates.uuid" when creating or expanding a
FlexGroup volume. If a volume is being created on a single aggregate, the
system creates a flexible volume if the "constituents_per_aggregate" field
is not specified, or a FlexGroup volume if it is specified. If a volume is
being created on multiple aggregates, the system always creates a
FlexGroup volume. The root constituent of a FlexGroup volume is always
placed on the first aggregate in the list.


|convert_unicode
|boolean
a|Specifies whether directory Unicode format conversion is enabled when
directories are accessed by NFS clients.


|create_time
|string
a|Creation time of the volume. This field is generated when the volume is
created.


|efficiency
|link:#efficiency[efficiency]
a|
```

```
|encryption
|link:#encryption[encryption]
a|

|error_state
|link:#error_state[error_state]
a|

|files
|link:#files[files]
a|

|flash_pool
|link:#flash_pool[flash_pool]
a|

|flexcache_endpoint_type
|string
a|FlexCache endpoint type.
none &dash; The volume is neither a FlexCache nor origin of any FlexCache.
cache &dash; The volume is a FlexCache volume.
origin &dash; The volume is origin of a FlexCache volume.


|flexgroup
|link:#flexgroup[flexgroup]
a|

|guarantee
|link:#guarantee[guarantee]
a|

|is_object_store
|boolean
a|Specifies whether the volume is provisioned for an object store server.


|is_svm_root
|boolean
a|Specifies whether the volume is a root volume of the SVM it belongs to.


|language
|string
a|Language encoding setting for volume. If no language is specified, the
volume inherits its SVM language encoding setting.
```

```
|max_dir_size
|integer
a|Maximum directory size. This value sets maximum size, in bytes, to which
a directory can grow. The default maximum directory size for FlexVol
volumes is model-dependent, and optimized for the size of system memory.
Before increasing the maximum directory size, involve technical support.


|metric
|link:#metric[metric]
a|Performance numbers, such as IOPS, latency and throughput.


|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|Volume name. The name of volume must start with an alphabetic character
(a to z or A to Z) or an underscore (_). The name must be 197 or fewer
characters in length for FlexGroups, and 203 or fewer characters in length
for all other types of volumes. Volume names must be unique within an SVM.
Required on POST.


|nas
|link:#nas[nas]
a|

|qos
|link:#qos[qos]
a|QoS information


|queue_for_encryption
|boolean
a|Specifies whether the volume is queued for encryption.


|quota
```

```
|link:#quota[quota]
a|Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


|scheduled_snapshot_naming_scheme
|string
a|Naming Scheme for automatic Snapshot copies:

* create_time - Automatic Snapshot copies are saved as per the start of
their current date and time.
* ordinal - Latest automatic snapshot copy is saved as
+++<scheduled_frequency>+++.0 and subsequent copies will follow the
create_time naming convention.+++</scheduled_frequency>+++


|size
|integer
a|Physical size of the volume, in bytes. The minimum size for a FlexVol
volume is 20MB and the minimum size for a FlexGroup volume is 200MB per
constituent. The recommended size for a FlexGroup volume is a minimum of
100GB per constituent. For all volumes, the default size is equal to the
minimum size.


|snaplock
|link:#snaplock[snaplock]
a|

|snapmirror
|link:#snapmirror[snapmirror]
a|Specifies attributes for SnapMirror protection.


|snapshot_count
|integer
a|Number of Snapshot copies in the volume.


|snapshot_policy
|link:#snapshot_policy[snapshot_policy]
a|This is a reference to the Snapshot copy policy.


|space
|link:#space[space]
a|
```

```
|state
|string
a|Volume state. Client access is supported only when volume is online and
junctioned. Taking volume to offline or restricted state removes its
junction path and blocks client access. When volume is in restricted state
some operations like parity reconstruction and iron on commit are allowed.
The 'mixed' state applies to FlexGroup volumes only and cannot be
specified as a target state. An 'error' state implies that the volume is
not in a state to serve data.


|statistics
|link:#statistics[statistics]
a|These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


|status
|array[string]
a|Describes the current status of a volume.


|style
|string
a|The style of the volume. If "style" is not specified, the volume type is
determined based on the specified aggregates. Specifying a single
aggregate, without "constituents_per_aggregate", creates a flexible
volume. Specifying multiple aggregates, or a single aggregate with
"constituents_per_aggregate", creates a FlexGroup. Specifying a volume
"style" creates a volume of that type. For example, if the style is
"flexvol" you must specify a single aggregate. If the style is
"flexgroup", the system either uses the specified aggregates or
automatically provisions aggregates if there are no specified aggregates.
The style "flexgroup_constiutent" is not supported when creating a volume.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroup volumes
flexgroup_constituent &dash; FlexGroup constituents.


|svm
|link:#svm[svm]
a|SVM containing the volume. Required on POST.


|tiering
```

```
|link:#tiering[tiering]
a|

|type
|string
a|Type of the volume.
rw &dash; read-write volume.
dp &dash; data-protection volume.
ls &dash; load-sharing `dp` volume. Valid in GET.


|use_mirrored_aggregates
|boolean
a|Specifies whether mirrored aggregates are selected when provisioning a
FlexGroup without specifying "aggregates.name" or "aggregates.uuid". Only
mirrored aggregates are used if this parameter is set to 'true' and only
unmirrored aggregates are used if this parameter is set to 'false'.
Aggregate level mirroring for a FlexGroup can be changed by moving all of
the constituents to the required aggregates. The default value is 'true'
for a MetroCluster configuration and is 'false' for a non-MetroCluster
configuration.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* readOnly: 1
* Introduced in: 9.6


|===


.Example request
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
```

```
  "activity_tracking": {
    "state": "string",
    "unsupported_reason": {
      "code": "124518405",
      "message": "Volume activity tracking cannot be enabled on volumes
that contain LUNs."
    }
  },
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "analytics": {
    "scan_progress": 17,
    "state": "string",
    "unsupported_reason": {
      "code": "111411207",
      "message": "File system analytics cannot be enabled on volumes that
contain LUNs."
    }
  },
  "anti_ransomware": {
    "attack_probability": "string",
    "attack_reports": [
      {
        "_links": {
          "suspects": {
            "href": "/api/resourcelink"
          }
        },
        "time": "2021-06-01T20:36:41+05:30"
      }
    ],
    "dry_run_start_time": "string",
    "space": {
      "snapshot_count": 0,
      "used": 0,
      "used_by_logs": 0,
      "used_by_snapshots": 0
```

```
    },
    "state": "string",
    "suspect_files": [
      {
        "count": 0,
        "format": "string"
      }
    ]
  },
  "anti_ransomware_state": "string",
  "application": {
    "name": "string",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "autosize": {
    "mode": "string"
  },
  "clone": {
    "parent_snapshot": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "this_snapshot",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "parent_svm": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "svm1",
      "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "parent_volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "volume1",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    },
    "split_complete_percent": 0,
```

```
    "split_estimate": 0
  },
  "cloud_retrieval_policy": "string",
  "comment": "string",
  "consistency_group": {
    "name": "consistency_group_1",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "constituents": [
    {
      "aggregates": {
        "name": "string",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      },
      "movement": {
        "cutover_window": 30,
        "destination_aggregate": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "percent_complete": 0,
        "state": "replicating",
        "tiering_policy": "string"
      },
      "name": "string",
      "space": {
        "available": 0,
        "block_storage_inactive_user_data": 0,
        "capacity_tier_footprint": 0,
        "footprint": 0,
        "local_tier_footprint": 0,
        "logical_space": {
          "available": 0,
          "used_by_afs": 0
        },
        "metadata": 0,
        "over_provisioned": 0,
        "performance_tier_footprint": 0,
        "snapshot": {
          "used": 0
        },
```

```
        "total_footprint": 0,
        "used": 0
      }
    }
  ],
  "create_time": "2018-06-04T19:00:00Z",
  "efficiency": {
    "application_io_size": "string",
    "compaction": "string",
    "compression": "string",
    "cross_volume_dedupe": "string",
    "dedupe": "string",
    "last_op_begin": "string",
    "last_op_end": "string",
    "last_op_err": "string",
    "last_op_size": 0,
    "last_op_state": "string",
    "op_state": "string",
    "path": "string",
    "policy": {
      "name": "string"
    },
    "progress": "string",
    "schedule": "string",
    "state": "string",
    "storage_efficiency_mode": "string",
    "type": "string"
  },
  "encryption": {
    "key_id": "string",
    "key_manager_attribute": "CRN=v1:bluemix:public:containers-
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
    "state": "string",
    "status": {
      "code": "string",
      "message": "string"
    },
    "type": "string"
  },
  "files": {
    "used": 0
  },
  "flash_pool": {
    "cache_eligibility": "string",
    "cache_retention_priority": "string",
```

```
    "caching_policy": "string"
  },
  "flexcache_endpoint_type": "string",
  "flexgroup": {
    "name": "my_flexgroup",
    "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
  },
  "guarantee": {
    "type": "string"
  },
  "language": "string",
  "metric": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "cloud": {
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "duration": "PT15S",
    "flexcache": {
      "bandwidth_savings": 4096,
      "cache_miss_percent": 20,
      "duration": "PT1D",
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "iops": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency": {
```

```
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "movement": {
    "cutover_window": 30,
    "destination_aggregate": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "percent_complete": 0,
    "start_time": "2020-12-07T03:45:12-05:00",
    "state": "replicating",
    "tiering_policy": "string"
  },
  "name": "vol_cs_dept",
  "nas": {
    "export_policy": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "id": 100,
      "name": "default"
    },
    "junction_parent": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "vs1_root",
```

```
      "uuid": "75c9cfb0-3eb4-11eb-9fb4-005056bb088a"
    },
    "path": "/user/my_volume",
    "security_style": "string",
    "unix_permissions": 755
  },
  "qos": {
    "policy": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "max_throughput_iops": 10000,
      "max_throughput_mbps": 500,
      "min_throughput_iops": 2000,
      "min_throughput_mbps": 500,
      "name": "performance",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "quota": {
    "state": "string"
  },
  "scheduled_snapshot_naming_scheme": "string",
  "snaplock": {
    "append_mode_enabled": "",
    "autocommit_period": "P30M",
    "compliance_clock_time": "2018-06-04T19:00:00Z",
    "expiry_time": "Wed Sep  5 11:02:42 GMT 2018",
    "is_audit_log": 1,
    "litigation_count": 10,
    "privileged_delete": "enabled",
    "retention": {
      "default": "P30Y",
      "maximum": "P30Y",
      "minimum": "P30Y"
    },
    "type": "enterprise",
    "unspecified_retention_file_count": 10
  },
  "snapshot_count": 0,
  "snapshot_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
```

```
      }
    },
    "name": "default",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "space": {
    "available": 0,
    "block_storage_inactive_user_data": 0,
    "block_storage_inactive_user_data_percent": 0,
    "capacity_tier_footprint": 0,
    "cross_volume_dedupe_metafiles_footprint": 0,
    "cross_volume_dedupe_metafiles_temporary_footprint": 0,
    "dedupe_metafiles_footprint": 0,
    "dedupe_metafiles_temporary_footprint": 0,
    "delayed_free_footprint": 0,
    "file_operation_metadata": 0,
    "filesystem_size": 0,
    "footprint": 0,
    "local_tier_footprint": 0,
    "logical_space": {
      "available": 0,
      "used": 0,
      "used_by_afs": 0,
      "used_by_snapshots": 0,
      "used_percent": 0
    },
    "metadata": 0,
    "over_provisioned": 0,
    "overwrite_reserve": 0,
    "overwrite_reserve_used": 0,
    "percent_used": 0,
    "performance_tier_footprint": 0,
    "size_available_for_snapshots": 0,
    "snapmirror_destination_footprint": 0,
    "snapshot": {
      "autodelete_trigger": "string",
      "reserve_available": 0,
      "reserve_size": 0,
      "space_used_percent": 0,
      "used": 0
    },
    "snapshot_reserve_unusable": 0,
    "snapshot_spill": 0,
    "total_footprint": 0,
    "used": 0,
    "user_data": 0,
```

```
    "volume_guarantee_footprint": 0
  },
  "state": "string",
  "statistics": {
    "cloud": {
      "iops_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "flexcache_raw": {
      "cache_miss_blocks": 10,
      "client_requested_blocks": 500,
      "status": "ok",
      "timestamp": "2017-01-25T11:20:13Z"
    },
    "iops_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "latency_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "status": "ok",
    "throughput_raw": {
      "read": 200,
      "total": 1000,
      "write": 100
    },
    "timestamp": "2017-01-25T11:20:13Z"
  },
  "status": [
    "string"
  ],
  "style": "string",
```

```
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "tiering": {
    "object_tags": [
      "string"
    ],
    "policy": "string"
  },
  "type": "string",
  "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
}
====

== Response
```

Status: 202, Accepted

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|job
|link:#job_link[job_link]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
====

== Error
```

Status: Default

```
ONTAP Error Response Codes

|===
| Error Code | Description

| 787141
| The specified "aggregates.name" and "aggregates.uuid" refer to different
aggregates.

| 917829
| Volume autosize grow threshold must be larger than autosize shrink
threshold.
```

```
| 917831
| Volume minimum autosize must be smaller than the maximum autosize.

| 918193
| Cannot modify tiering min cooling days when vol move is in progress.

| 918194
| Tiering min cooling days not supported for SVMDR.

| 918195
| Tiering min cooling days not supported for non data volumes.

| 918196
| Tiering min cooling days not allowed for the provided tiering policy.

| 918248
| Specifying a value is not valid for initiating volume FlexClone split
operation.

| 918251
| Specifying a value is not valid for a Snapshot copy restore operation.

| 918252
| specified "nas.path" is invalid.

| 918265
| Volume is on the same aggregate.

| 918266
| "movement.destination_aggregate" and "movement.state" are mutually
exclusive, unless the state is "cutover-wait".

| 918267
| The specified "movement.destination_aggregate" does not exist.

| 918291
| Invalid volume cloud retrieval policy for the provided tiering policy.

| 918292
| cloud retrieval policy not supported for non data volume.

| 918293
| Cannot modify cloud retrieval policy when vol move is in progress.

| 918521
| The volume maximum autosize must be smaller than or equal to the maximum
```

```
volume size.

| 918532
| The FlexClone match-parent-storage-tier option requires an effective
cluster version of 9.9.1 or later.

| 918533
| The FlexClone match-parent-storage-tier option not applicable for
FlexClone volumes hosted on non-FabricPool storage.

| 918534
| The tiering policy values are different for the FlexClone volume and its
parent volume. The match-parent-storage-tier option cannot be set to true.

| 918535
| The tiering minimum cooling day values are different for the FlexClone
volume and its parent volume. The match-parent-storage-tier option cannot
be set to true.

| 918537
| Could not get the FlexClone volume tiering policy or its parent volume
tiering policy. Wait a minute and try again.

| 918538
| The match-parent-storage-tier option is not supported for clone
creation.

| 13107404
| When adding new resources to a FlexGroup by specifying "aggregates.name"
or "aggregates.uuid", the FlexGroup cannot be resized using "size". These
operations must be done separately.

| 13109187
| When adding new resources to a FlexGroup using "sizing_method", "size"
must be specified.  Neither "aggregates.name" nor "aggregates.uuid" are
allowed to be specified, as the aggregates are selected automatically by
the system.

| 13109198
| Resizing by adding new resources is only supported for FlexGroups.

| 111411201
| File system analytics cannot be enabled on the target volume because of
the specified reason.

| 111411202
| File system analytics cannot be disabled on the target volume because of
```

```
the specified reason.

| 111411205
| File system analytics requires an effective cluster version of 9.8 or
later.

| 111411206
| The specified "analytics.state" is invalid.

| 111411207
| File system analytics cannot be enabled on volumes that contain LUNs.
|===



[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====
```

```
== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|code
|string
a|If volume activity tracking is not supported on the volume, this field
provides an appropriate error code.


|message
|string
a|If volume activity tracking is not supported on the volume, this field
provides an error message detailing why this is the case.


|===


[#activity_tracking]
[.api-collapsible-fifth-title]
activity_tracking

[cols=3*,options=header]
|===
|Name
|Type
|Description

|state
|string
a|Activity tracking state of the volume. If this value is "on", ONTAP
collects top metrics information for the volume in real time. There is a
slight impact to I/O performance in order to collect this information. If
this value is "off", no activity tracking information is collected or
available to view.

* enum: ["off", "on"]
* Introduced in: 9.10


|supported
|boolean
a|This field indicates whether or not volume activity tracking is
supported on the volume. If volume activity tracking is not supported, the
reason why is provided in the "activity_tracking.unsupported_reason"
field.
```

```
|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#aggregates]
[.api-collapsible-fifth-title]
aggregates

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#unsupported_reason]
[.api-collapsible-fifth-title]
unsupported_reason

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|code
|string
a|If file system analytics is not supported on the volume, this field
provides the error code explaining why.


|message
|string
a|If file system analytics is not supported on the volume, this field
provides the error message explaining why.


|===


[#analytics]
[.api-collapsible-fifth-title]
analytics

[cols=3*,options=header]
|===
|Name
|Type
|Description

|scan_progress
|integer
a|Percentage of files in the volume that the file system analytics
initialization scan has processed. Only returned when the state is
`initializing`.


|state
|string
a|File system analytics state of the volume. If this value is "on", ONTAP
collects extra file system analytics information for all directories on
the volume.  There will be a slight impact to I/O performance to collect
this information. If this value is "off", file system analytics
information is not collected and not available to be viewed. If this value
is "initializing", that means file system analytics was recently turned
on, and the initialization scan to gather information all all existing
files and directories is currently running. If this value is 'unknown'
that means there was an internal error when determining the file system
analytics state for the volume.

* enum: ["unknown", "initializing", "off", "on"]
* Introduced in: 9.8
```

```
|supported
|boolean
a|This field indicates whether or not file system analytics is supported
on the volume. If file system analytics is not supported, the reason will
be specified in the "analytics.unsupported_reason" field.


|unsupported_reason
|link:#unsupported_reason[unsupported_reason]
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|suspects
|link:#href[href]
a|

|===


[#anti_ransomware_attack_report]
[.api-collapsible-fifth-title]
anti_ransomware_attack_report

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|
```

```
|time
|string
a|Timestamp at which ransomware attack is observed.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|snapshot_count
|integer
a|Total number of Anti-ransomware backup Snapshot copies.


|used
|integer
a|Total space in bytes used by the Anti-ransomware feature.


|used_by_logs
|integer
a|Space in bytes used by the Anti-ransomware analytics logs.


|used_by_snapshots
|integer
a|Space in bytes used by the Anti-ransomware backup Snapshot copies.


|===


[#suspect_files]
[.api-collapsible-fifth-title]
suspect_files

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|count
|integer
a|Total number of `suspect_files.format` files observed by the Anti-
ransomware analytics engine on the volume.


|format
|string
a|File formats observed by the Anti-ransomware analytics engine on the
volume.


|===


[#anti_ransomware]
[.api-collapsible-fifth-title]
anti_ransomware

Anti-ransomware related information of the volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|attack_probability
|string
a|Probability of a ransomware attack.
`none` No files are suspected of ransomware activity.
`low` A number of files are suspected of ransomware activity.
`moderate` A moderate number of files are suspected of ransomware
activity.
`high` A large number of files are suspected of ransomware activity.


|attack_reports
|array[link:#anti_ransomware_attack_report[anti_ransomware_attack_report]]
a|

|dry_run_start_time
```

```
|string
a|Time when Anti-ransomware monitoring `state` is set to dry-run value for
starting evaluation mode.


|space
|link:#space[space]
a|

|state
|string
a|Anti-ransomware state.
`disabled` Anti-ransomware monitoring is disabled on the volume.  This is
the default state in a POST operation.
`disable_in_progress` Anti-ransomware monitoring is being disabled and a
cleanup operation is in effect. Valid in GET operation.
`dry_run` Anti-ransomware monitoring is enabled in the evaluation mode.
`enabled` Anti-ransomware monitoring is active on the volume.
`paused` Anti-ransomware monitoring is paused on the volume.
`enable_paused` Anti-ransomware monitoring is paused on the volume from
its earlier enabled state. Valid in GET operation.
`dry_run_paused` Anti-ransomware monitoring is paused on the volume from
its earlier dry_run state. Valid in GET operation.
For POST, the valid Anti-ransomware states are only `disabled`, `enabled`
and `dry_run`, whereas for PATCH, `paused` is also valid along with the
three valid states for POST.


|suspect_files
|array[link:#suspect_files[suspect_files]]
a|

|===


[#application]
[.api-collapsible-fifth-title]
application

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
```

```
a|Name of the application to which the volume belongs. Available only when
the volume is part of an application.


|uuid
|string
a|UUID of the application to which the volume belongs. Available only when
the volume is part of an application.


|===


[#autosize]
[.api-collapsible-fifth-title]
autosize

[cols=3*,options=header]
|===
|Name
|Type
|Description

|grow_threshold
|integer
a|Used space threshold size, in percentage, for the automatic growth of
the volume. When the amount of used space in the volume becomes greater
than this threhold, the volume automatically grows unless it has reached
the maximum size. The volume grows when 'space.used' is greater than this
percent of 'space.size'. The 'grow_threshold' size cannot be less than or
equal to the 'shrink_threshold' size..


|maximum
|integer
a|Maximum size in bytes up to which a volume grows automatically. This
size cannot be less than the current volume size, or less than or equal to
the minimum size of volume.


|minimum
|integer
a|Minimum size in bytes up to which the volume shrinks automatically. This
size cannot be greater than or equal to the maximum size of volume.


|mode
```

```
|string
a|Autosize mode for the volume.
grow &dash; Volume automatically grows when the amount of used space is
above the 'grow_threshold' value.
grow_shrink &dash; Volume grows or shrinks in response to the amount of
space used.
off &dash; Autosizing of the volume is disabled.


|shrink_threshold
|integer
a|Used space threshold size, in percentage, for the automatic shrinkage of
the volume.  When the amount of used space in the volume drops below this
threshold, the volume automatically shrinks unless it has reached the
minimum size. The volume shrinks when the 'space.used' is less than the
'shrink_threshold' percent of 'space.size'. The 'shrink_threshold' size
cannot be greater than or equal to the 'grow_threshold' size.


|===


[#snapshot_reference]
[.api-collapsible-fifth-title]
snapshot_reference

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===
```

```
[#parent_svm]
[.api-collapsible-fifth-title]
parent_svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#parent_volume]
[.api-collapsible-fifth-title]
parent_volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
```

```
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#clone]
[.api-collapsible-fifth-title]
clone

[cols=3*,options=header]
|===
|Name
|Type
|Description

|is_flexclone
|boolean
a|Specifies if this volume is a normal FlexVol or FlexClone. This field
needs to be set when creating a FlexClone. Valid in POST.


|parent_snapshot
|link:#snapshot_reference[snapshot_reference]
a|

|parent_svm
|link:#parent_svm[parent_svm]
a|

|parent_volume
|link:#parent_volume[parent_volume]
a|

|split_complete_percent
|integer
a|Percentage of FlexClone blocks split from its parent volume.


|split_estimate
|integer
```

```
a|Space required by the containing-aggregate to split the FlexClone
volume.


|split_initiated
|boolean
a|This field is set when split is executed on any FlexClone, that is when
the FlexClone volume is split from its parent FlexVol. This field needs to
be set for splitting a FlexClone form FlexVol. Valid in PATCH.


|===


[#consistency_group]
[.api-collapsible-fifth-title]
consistency_group

Consistency group the volume is part of.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|The name of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.


|uuid
|string
a|The UUID of the consistency group to which the volume belongs. Available
only when the volume is part of a consistency group. If this volume
belongs to a child consistency group, then this will be the UUID of the
parent consistency group.


|===


[#aggregates]
```

```
[.api-collapsible-fifth-title]
aggregates

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the aggregate hosting the FlexGroup Constituent.


|uuid
|string
a|Unique identifier for the aggregate.


|===


[#destination_aggregate]
[.api-collapsible-fifth-title]
destination_aggregate

Aggregate


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|
```

```
|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
300 seconds.


|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
a|Aggregate


|percent_complete
|integer
a|Completion percentage


|state
|string
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
```

```
|string
a|Tiering policy for FabricPool


|===


[#logical_space]
[.api-collapsible-fifth-title]
logical_space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.


|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.


|used_by_afs
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|used
|integer
a|The total space used by Snapshot copies in the volume, in bytes.


|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.
```

```
|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.


|footprint
|integer
a|Data used for this volume in the aggregate, in bytes.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.


|logical_space
|link:#logical_space[logical_space]
a|

|metadata
|integer
a|Space used by the volume metadata in the aggregate, in bytes.


|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
```

```
aggregate, in bytes.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|snapshot
|link:#snapshot[snapshot]
a|

|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, in bytes.


|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|used_percent
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, as a percent.


|===


[#constituents]
[.api-collapsible-fifth-title]
constituents

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|aggregates
|link:#aggregates[aggregates]
a|

|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|FlexGroup Constituents name


|space
|link:#space[space]
a|

|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Specifies the name of the efficiency policy. Valid for PATCH.


|===


[#efficiency]
[.api-collapsible-fifth-title]
efficiency
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|application_io_size
|string
a|Block size to use by compression. Valid for POST.


|compaction
|string
a|The system can be enabled/disabled compaction.
inline &dash; Data will be compacted first and written to the volume.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compaction enabled and some are disabled.


|compression
|string
a|The system can be enabled/disabled compression.
inline &dash; Data will be compressed first and written to the volume.
background &dash; Data will be written to the volume and compressed later.
both &dash; Inline compression compresses the data and write to the
volume, background compression compresses only the blocks on which inline
compression is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are compression enabled and some are disabled.


|cross_volume_dedupe
|string
a|The system can be enabled/disabled cross volume dedupe. it can be
enabled only when dedupe is enabled.
inline &dash; Data will be cross volume deduped first and written to the
volume.
background &dash; Data will be written to the volume and cross volume
deduped later.
both &dash; Inline cross volume dedupe dedupes the data and write to the
volume, background cross volume dedupe dedupes only the blocks on which
inline dedupe is not run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
```

```
volumes are cross volume dedupe enabled and some are disabled.


|dedupe
|string
a|The system can be enabled/disabled dedupe.
inline &dash; Data will be deduped first and written to the volume.
background &dash; Data will be written to the volume and deduped later.
both &dash; Inline dedupe dedupes the data and write to the volume,
background dedupe dedupes only the blocks on which inline dedupe is not
run.
none &dash; None
mixed &dash; Read only field for FlexGroups, where some of the constituent
volumes are dedupe enabled and some are disabled.


|last_op_begin
|string
a|Last sis operation begin timestamp.


|last_op_end
|string
a|Last sis operation end timestamp.


|last_op_err
|string
a|Last sis operation error text.


|last_op_size
|integer
a|Last sis operation size.


|last_op_state
|string
a|Last sis operation state.


|op_state
|string
a|Sis status of the volume.


|path
```

```
|string
a|Absolute volume path of the volume.


|policy
|link:#policy[policy]
a|

|progress
|string
a|Sis progress of the volume.


|schedule
|string
a|Schedule associated with volume.


|state
|string
a|Storage efficiency state of the volume. Currently, this field supports
POST/PATCH only for RW (Read-Write) volumes on FSx for ONTAP.
disabled &dash; All storage efficiency features are disabled.
mixed &dash; Read-only field for FlexGroup volumes, storage efficiency is
enabled on certain constituents and disabled on others.
On FSx for ONTAP &dash;
   enabled &dash; All supported storage efficiency features for the
volume are enabled.
   custom &dash; Read-only field currently only supported for the FSx
for ONTAP, user-defined storage efficiency features are enabled.
For other platforms &dash;
   enabled &dash; At least one storage efficiency feature for the
volume is enabled.

* enum: ["disabled", "enabled", "mixed", "custom"]
* Introduced in: 9.9


|storage_efficiency_mode
|string
a|Storage efficiency mode used by volume. This parameter is supported only
on AFF platform.


|type
|string
a|Sis Type of the volume.
```

```
|===


[#status]
[.api-collapsible-fifth-title]
status

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Encryption progress message code.


|message
|string
a|Encryption progress message.


|===


[#encryption]
[.api-collapsible-fifth-title]
encryption

[cols=3*,options=header]
|===
|Name
|Type
|Description

|enabled
|boolean
a|Creates an encrypted or an unencrypted volume. For POST, when set to
'true', a new key is generated and used to encrypt the given volume. In
that case, the underlying SVM must be configured with the key manager.
When set to 'false', the volume created will be unencrypted. For PATCH,
when set to 'true', it encrypts an unencrypted volume. Specifying the
parameter as 'false' in a PATCH operation for an encrypted volume is only
supported when moving the volume to another aggregate.
```

```
|key_id
|string
a|The key ID used for creating encrypted volume. A new key-id is generated
for creating an encrypted volume. This key-id is associated with the
generated key.


|key_manager_attribute
|string
a|Specifies an additional key manager attribute that is an identifier-
value pair, separated by '='. For example, CRN=unique-value. This
parameter is required when using the POST method and an IBM Key Lore key
manager is configured on the SVM.


|rekey
|boolean
a|If set to 'true', re-encrypts the volume with a new key. Valid in PATCH.


|state
|string
a|Volume encryption state.
encrypted &dash; The volume is completely encrypted.
encrypting &dash; Encryption operation is in progress.
partial &dash; Some constituents are encrypted and some are not.
Applicable only for FlexGroup volume.
rekeying. Encryption of volume with a new key is in progress.
unencrypted &dash; The volume is a plain-text one.


|status
|link:#status[status]
a|

|type
|string
a|Volume encryption type.
none &dash; The volume is a plain-text one.
volume &dash; The volume is encrypted with NVE (NetApp Volume Encryption).
aggregate &dash; The volume is encrypted with NAE (NetApp Aggregate
Encryption).


|===
```

```
[#error_state]
[.api-collapsible-fifth-title]
error_state

[cols=3*,options=header]
|===
|Name
|Type
|Description

|has_bad_blocks
|boolean
a|Indicates whether the volume has any corrupt data blocks. If the damaged
data block is accessed, an IO error, such as EIO for NFS or
STATUS_FILE_CORRUPT for CIFS, is returned.


|is_inconsistent
|boolean
a|Indicates whether the file system has any inconsistencies.
true &dash; File system is inconsistent.
false &dash; File system in not inconsistent.


|===


[#files]
[.api-collapsible-fifth-title]
files

[cols=3*,options=header]
|===
|Name
|Type
|Description

|maximum
|integer
a|The maximum number of files (inodes) for user-visible data allowed on
the volume. This value can be increased or decreased. Increasing the
maximum number of files does not immediately cause additional disk space
to be used to track files. Instead, as more files are created on the
volume, the system dynamically increases the number of disk blocks that
are used to track files. The space assigned to track files is never freed,
```

```
and this value cannot be decreased below the current number of files that
can be tracked within the assigned space for the volume. Valid in PATCH.


|used
|integer
a|Number of files (inodes) used for user-visible data permitted on the
volume. This field is valid only when the volume is online.


|===


[#flash_pool]
[.api-collapsible-fifth-title]
flash_pool

[cols=3*,options=header]
|===
|Name
|Type
|Description

|cache_eligibility
|string
a|If this parameter is specified, the command displays information only
about the volume or volumes with the specified Flash Pool caching
attributes.


|cache_retention_priority
|string
a|If this parameter is specified, the command displays the volumes that
match the specified cache retention priority policy. A cache retention
priority defines how long the blocks of a volume will be cached in the
Flash Pool once they become cold.


|caching_policy
|string
a|This optionally specifies the caching policy to apply to the volume. A
caching policy defines how the system caches a volume's data in Flash
Cache modules. If a caching policy is not assigned to a volume, the system
uses the caching policy that is assigned to the containing SVM. If a
caching policy is not assigned to the containing SVM, the system uses the
default cluster-wide policy.
```

```
|===


[#flexgroup]
[.api-collapsible-fifth-title]
flexgroup

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|Name of the FlexGroup volume that the constituent is part of.


|uuid
|string
a|Unique identifier for the FlexGroup volume that the constituent is part
of.


|===


[#guarantee]
[.api-collapsible-fifth-title]
guarantee

[cols=3*,options=header]
|===
|Name
|Type
|Description

|honored
|boolean
a|Is the space guarantee of this volume honored in the aggregate?


|type
|string
a|The type of space guarantee of this volume in the aggregate.
```

```
|===


[#iops]
[.api-collapsible-fifth-title]
iops

The rate of I/O operations observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#latency]
[.api-collapsible-fifth-title]
latency

The round trip latency in microseconds observed at the storage object.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#cloud]
[.api-collapsible-fifth-title]
cloud

Performance numbers (IOPS and latency) for cloud store. These numbers are
relevant only for volumes hosted on FabricPools.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|duration
|string
```

```
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#flexcache]
[.api-collapsible-fifth-title]
flexcache

Performance number for FlexCache used to measure cache effectiveness.


[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|bandwidth_savings
|integer
a|Bandwidth savings denoting the amount of data served locally by the
cache, in bytes.


|cache_miss_percent
|integer
a|Cache miss percentage.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput]
[.api-collapsible-fifth-title]
```

```
throughput

The rate of throughput bytes per second observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#metric]
[.api-collapsible-fifth-title]
metric

Performance numbers, such as IOPS, latency and throughput.


[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|cloud
|link:#cloud[cloud]
a|Performance numbers (IOPS and latency) for cloud store. These numbers
are relevant only for volumes hosted on FabricPools.


|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|flexcache
|link:#flexcache[flexcache]
a|Performance number for FlexCache used to measure cache effectiveness.


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.
```

```
|throughput
|link:#throughput[throughput]
a|The rate of throughput bytes per second observed at the storage object.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#movement]
[.api-collapsible-fifth-title]
movement

Volume movement. All attributes are modify, that is, not writable through
POST. Set PATCH state to destination_aggregate to initiate a volume move
operation. Volume movement on FlexGroup constituents are not supported.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cutover_window
|integer
a|Time window in seconds for cutover. The allowed range is between 30 to
300 seconds.


|destination_aggregate
|link:#destination_aggregate[destination_aggregate]
a|Aggregate


|percent_complete
|integer
a|Completion percentage


|start_time
|string
```

```
a|Start time of volume move.


|state
|string
a|State of volume move operation. PATCH the state to "aborted" to abort
the move operation. PATCH the state to "cutover" to trigger cutover. PATCH
the state to "paused" to pause the volume move operation in progress.
PATCH the state to "replicating" to resume the paused volume move
operation. PATCH the state to "cutover_wait" to go into cutover manually.
When volume move operation is waiting to go into "cutover" state, this is
indicated by the "cutover_pending" state. A change of state is only
supported if volume movement is in progress.


|tiering_policy
|string
a|Tiering policy for FabricPool


|===


[#export_policy]
[.api-collapsible-fifth-title]
export_policy

Export Policy


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|id
|integer
a|

|name
|string
a|
```

```
|===


[#junction_parent]
[.api-collapsible-fifth-title]
junction_parent

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the parent volume that contains the junction inode of this
volume. The junction parent volume must belong to the same SVM that owns
this volume.


|uuid
|string
a|Unique identifier for the parent volume.


|===


[#nas]
[.api-collapsible-fifth-title]
nas

[cols=3*,options=header]
|===
|Name
|Type
|Description

|export_policy
|link:#export_policy[export_policy]
a|Export Policy
```

```
|gid
|integer
a|The UNIX group ID of the volume. Valid in POST or PATCH.


|junction_parent
|link:#junction_parent[junction_parent]
a|

|path
|string
a|The fully-qualified path in the owning SVM's namespace at which the
volume is mounted. The path is case insensitive and must be unique within
a SVM's namespace. Path must begin with '/' and must not end with '/'.
Only one volume can be mounted at any given junction path. An empty path
in POST creates an unmounted volume. An empty path in PATCH deactivates
and unmounts the volume. Taking a volume offline or restricted state
removes its junction path. This attribute is reported in GET only when the
volume is mounted.


|security_style
|string
a|Security style associated with the volume. Valid in POST or PATCH.
mixed &dash; Mixed-style security
ntfs &dash; NTFS/WIndows-style security
unified &dash; Unified-style security, unified UNIX, NFS and CIFS
permissions
unix &dash; Unix-style security.


|uid
|integer
a|The UNIX user ID of the volume. Valid in POST or PATCH.


|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write) and 1 (execute).
First digit selects the set user ID(4), set group ID (2) and sticky (1)
attributes. The second digit selects permission for the owner of the file;
the third selects permissions for other users in the same group; the
fourth for other users not in the group. Valid in POST or PATCH. For
security style "mixed" or "unix", the default setting is 0755 in octal
```

```
(493 in decimal) and for security style "ntfs", the default setting is
0000. In cases where only owner, group and other permissions are given (as
in 755, representing the second, third and fourth dight), first digit is
assumed to be zero.


|===


[#policy]
[.api-collapsible-fifth-title]
policy

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|max_throughput_iops
|integer
a|Specifies the maximum throughput in IOPS, 0 means none. This is mutually
exclusive with name and UUID during POST and PATCH.


|max_throughput_mbps
|integer
a|Specifies the maximum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.


|min_throughput_iops
|integer
a|Specifies the minimum throughput in IOPS, 0 means none. Setting
"min_throughput" is supported on AFF platforms only, unless FabricPool
tiering policies are set. This is mutually exclusive with name and UUID
during POST and PATCH.


|min_throughput_mbps
|integer
a|Specifies the minimum throughput in Megabytes per sec, 0 means none.
This is mutually exclusive with name and UUID during POST and PATCH.
```

```
|name
|string
a|The QoS policy group name. This is mutually exclusive with UUID and
other QoS attributes during POST and PATCH.


|uuid
|string
a|The QoS policy group UUID. This is mutually exclusive with name and
other QoS attributes during POST and PATCH.


|===


[#qos]
[.api-collapsible-fifth-title]
qos

QoS information


[cols=3*,options=header]
|===
|Name
|Type
|Description

|policy
|link:#policy[policy]
a|

|===


[#quota]
[.api-collapsible-fifth-title]
quota

Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|enabled
|boolean
a|This option is used to enable or disable the quota for the volume. This
option is valid only in PATCH. Quotas are enabled for FlexVols or
FlexGroup volumes when the quota state is "on". Quotas are disabled for
FlexVols or FlexGroup volumes when the quota state is "off".


|state
|string
a|Quota state of the volume


|===


[#retention]
[.api-collapsible-fifth-title]
retention

[cols=3*,options=header]
|===
|Name
|Type
|Description

|default
|string
a|Specifies the default retention period that is applied to files while
committing them to the WORM state without an associated retention period.
The retention value represents a duration and must be specified in the
ISO-8601 duration format. The retention period can be in years, months,
days, hours, and minutes. A duration specified for years, months, and days
is represented in the ISO-8601 format as "P+++<num>+++Y", "P+++<num>+++M",
"P+++<num>+++D" respectively, for example "P10Y" represents a duration of
10 years. A duration in hours and minutes is represented by
"PT+++<num>+++H" and "PT+++<num>+++M" respectively. The retention string
must contain only a single time element that is, either years, months,
days, hours, or minutes. A duration which combines different periods is
not supported, for example "P1Y10M" is not supported. Apart from the
duration specified in the ISO-8601 format, the duration field also accepts
the string "infinite" to set an infinite retention period and the string
```

```
"unspecified" to set an unspecified retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|maximum
|string
a|Specifies the maximum allowed retention period for files committed to
the WORM state on the volume. The retention value represents a duration
and must be specified in the ISO-8601 duration format. The retention
period can be in years, months, days, hours, and minutes. A duration
specified for years, months, and days is represented in the ISO-8601
format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively,
for example "P10Y" represents a duration of 10 years. A duration in hours
and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M"
respectively. The retention string must contain only a single time element
that is, either years, months, days, hours, or minutes. A duration which
combines different periods is not supported, for example "P1Y10M" is not
supported. Apart from the duration specified in the ISO-8601 format, the
duration field also accepts the string "infinite" to set an infinite
retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|minimum
|string
a|Specifies the minimum allowed retention period for files committed to
the WORM state on the volume. The retention value represents a duration
and must be specified in the ISO-8601 duration format. The retention
period can be in years, months, days, hours, and minutes. A duration
specified for years, month,s and days is represented in the ISO-8601
format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D" respectively,
for example "P10Y" represents a duration of 10 years. A duration in hours
and minutes is represented by "PT+++<num>+++H" and "PT+++<num>+++M"
respectively. The retention string must contain only a single time element
that is, either years, months, days, hours, or minutes. A duration which
combines different periods is not supported, for example "P1Y10M" is not
supported. Apart from the duration specified in the ISO-8601 format, the
duration field also accepts the string "infinite" to set an infinite
retention
period.+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|===


[#snaplock]
```

```
[.api-collapsible-fifth-title]
snaplock

[cols=3*,options=header]
|===
|Name
|Type
|Description

|append_mode_enabled
|boolean
a|Specifies if the volume append mode is enabled or disabled. When it is
enabled, all the files created with write permissions on the volume are,
by default, WORM appendable files. The user can append the data to a WORM
appendable file but cannot modify the existing contents of the file nor
delete the file until it expires.


|autocommit_period
|string
a|Specifies the autocommit period for SnapLock volume. All files which are
not modified for a period greater than the autocommit period of the volume
are committed to the WORM state. The autocommit period value represents a
duration and must be specified in the ISO-8601 duration format. The
autocommit period can be in years, months, days, hours, and minutes. A
period specified for years, months, and days is represented in the ISO-
8601 format as "P+++<num>+++Y", "P+++<num>+++M", "P+++<num>+++D"
respectively, for example "P10Y" represents a duration of 10 years. A
duration in hours and minutes is represented by "PT+++<num>+++H" and
"PT+++<num>+++M" respectively. The period string must contain only a
single time element that is, either years, months, days, hours, or
minutes. A duration which combines different periods is not supported, for
example "P1Y10M" is not supported. Apart from the duration specified in
the ISO-8601 format, the autocommit field also accepts the string
"none".+++</num>++++++</num>++++++</num>++++++</num>++++++</num>+++


|compliance_clock_time
|string
a|This is the volume compliance clock time which is used to manage the
SnapLock objects in the volume.


|expiry_time
|string
a|Expiry time of the volume.
```

```
|is_audit_log
|boolean
a|Indicates if this volume has been configured as SnapLock audit log
volume for the SVM .


|litigation_count
|integer
a|Litigation count indicates the number of active legal-holds on the
volume.


|privileged_delete
|string
a|Specifies the privileged-delete attribute of a SnapLock volume. On a
SnapLock Enterprise (SLE) volume, a designated privileged user can
selectively delete files irrespective of the retention time of the file.
SLE volumes can have privileged delete as disabled, enabled or
permanently_disabled and for SnapLock Compliance (SLC) volumes it is
always permanently_disabled.


|retention
|link:#retention[retention]
a|

|type
|string
a|The SnapLock type of the volume.
compliance &dash; A SnapLock Compliance(SLC) volume provides the highest
level of WORM protection and an administrator cannot destroy a SLC volume
if it contains unexpired WORM files.
 enterprise &dash; An administrator can delete a SnapLock Enterprise(SLE)
volume.
 non_snaplock &dash; Indicates the volume is non-snaplock.


|unspecified_retention_file_count
|integer
a|Indicates the number of files with an unspecified retention time in the
volume.


|===
```

```
[#destinations]
[.api-collapsible-fifth-title]
destinations

[cols=3*,options=header]
|===
|Name
|Type
|Description

|is_cloud
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to a cloud destination.


|is_ontap
|boolean
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data to an ONTAP destination.

* readOnly: 1
* Introduced in: 9.9


|===


[#snapmirror]
[.api-collapsible-fifth-title]
snapmirror

Specifies attributes for SnapMirror protection.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|destinations
|link:#destinations[destinations]
a|

|is_protected
|boolean
```

```
a|Specifies whether a volume is a SnapMirror source volume, using
SnapMirror to protect its data.


|===


[#snapshot_policy]
[.api-collapsible-fifth-title]
snapshot_policy

This is a reference to the Snapshot copy policy.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|

|uuid
|string
a|

|===


[#logical_space]
[.api-collapsible-fifth-title]
logical_space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|available
|integer
```

```
a|The amount of space available in this volume with storage efficiency
space considered used, in bytes.


|enforcement
|boolean
a|Specifies whether space accounting for operations on the volume is done
along with storage efficiency.


|reporting
|boolean
a|Specifies whether space reporting on the volume is done along with
storage efficiency.


|used
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
vbn_zero, future_blk_cnt), in bytes.


|used_by_afs
|integer
a|The virtual space used by AFS alone (includes volume reserves) and along
with storage efficiency, in bytes.


|used_by_snapshots
|integer
a|Size that is logically used across all Snapshot copies in the volume, in
bytes.


|used_percent
|integer
a|SUM of (physical-used, shared_refs, compression_saved_in_plane0,
vbn_zero, future_blk_cnt), as a percentage.


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|autodelete_enabled
|boolean
a|Specifies whether Snapshot copy autodelete is currently enabled on this
volume.


|autodelete_trigger
|string
a|Specifies when the system should trigger an autodelete of Snapshot
copies. When set to _volume_, autodelete is triggered based on volume
fullness. When set to _snap_reserve_, autodelete is triggered based on
Snapshot reserve fullness. The default value is _volume_.


|reserve_available
|integer
a|Size available for Snapshot copies within the Snapshot copy reserve, in
bytes.


|reserve_percent
|integer
a|The space that has been set aside as a reserve for Snapshot copy usage,
in percent.


|reserve_size
|integer
a|Size in the volume that has been set aside as a reserve for Snapshot
copy usage, in bytes.


|space_used_percent
|integer
a|Percentage of snapshot reserve size that has been used.


|used
|integer
a|The total space used by Snapshot copies in the volume, in bytes.
```

```
|===


[#space]
[.api-collapsible-fifth-title]
space

[cols=3*,options=header]
|===
|Name
|Type
|Description

|afs_total
|integer
a|Total size of AFS, excluding snap-reserve, in bytes.


|available
|integer
a|The available space, in bytes.


|available_percent
|integer
a|The space available, as a percent.


|block_storage_inactive_user_data
|integer
a|The size that is physically used in the block storage of the volume and
has a cold temperature. In bytes. This parameter is only supported if the
volume is in an aggregate that is either attached to a cloud store or
could be attached to a cloud store.


|block_storage_inactive_user_data_percent
|integer
a|Percentage of size that is physically used in the performance tier of
the volume.


|capacity_tier_footprint
|integer
a|Space used by capacity tier for this volume in the FabricPool aggregate,
in bytes.
```

```
|cross_volume_dedupe_metafiles_footprint
|integer
a|Cross volume deduplication metadata footprint, in bytes.


|cross_volume_dedupe_metafiles_temporary_footprint
|integer
a|Cross volume temporary deduplication metadata footprint, in bytes.


|dedupe_metafiles_footprint
|integer
a|Deduplication metadata footprint, in bytes.


|dedupe_metafiles_temporary_footprint
|integer
a|Temporary deduplication metadata footprint, in bytes.


|delayed_free_footprint
|integer
a|Delayed free blocks footprint, in bytes.


|expected_available
|integer
a|Size that should be available for the volume, irrespective of available
size in the aggregate, in bytes.


|file_operation_metadata
|integer
a|File operation metadata footprint, in bytes.


|filesystem_size
|integer
a|Total usable size of the volume, in bytes.


|filesystem_size_fixed
|boolean
a|Specifies whether the file system is to remain of the same size when set
to true or to grow when set to false. This option is automatically set to
```

```
true when a volume becomes SnapMirrored.


|footprint
|integer
a|Data used for this volume in the aggregate, in bytes.


|fractional_reserve
|integer
a|Used to change the amount of space reserved for overwrites of reserved
objects in a volume.


|full_threshold_percent
|integer
a|Volume full threshold percentage at which EMS warnings can be sent.


|local_tier_footprint
|integer
a|Space used by the local tier for this volume in the aggregate, in bytes.


|logical_space
|link:#logical_space[logical_space]
a|

|metadata
|integer
a|Space used by the volume metadata in the aggregate, in bytes.


|nearly_full_threshold_percent
|integer
a|Volume nearly full threshold percentage at which EMS warnings can be
sent.


|over_provisioned
|integer
a|The amount of space not available for this volume in the aggregate, in
bytes.


|overwrite_reserve
|integer
```

```
a|Reserved space for overwrites, in bytes.


|overwrite_reserve_used
|integer
a|Overwrite logical reserve space used, in bytes.


|percent_used
|integer
a|Percentage of the volume size that is used.


|performance_tier_footprint
|integer
a|Space used by the performance tier for this volume in the FabricPool
aggregate, in bytes.


|physical_used
|integer
a|Size that is physically used in the volume, in bytes.


|physical_used_percent
|integer
a|Size that is physically used in the volume, as a percentage.


|size
|integer
a|Total provisioned size. The default size is equal to the minimum size of
20MB, in bytes.


|size_available_for_snapshots
|integer
a|Available space for Snapshot copies from snap-reserve, in bytes.


|snapmirror_destination_footprint
|integer
a|SnapMirror destination footprint, in bytes.


|snapshot
|link:#snapshot[snapshot]
```

```
a|

|snapshot_reserve_unusable
|integer
a|Snapshot reserve that is not available for Snapshot copy creation, in
bytes.


|snapshot_spill
|integer
a|Space used by the snapshot copies beyond the snap-reserve, in bytes.


|total_footprint
|integer
a|Data and metadata used for this volume in the aggregate, in bytes.


|used
|integer
a|The virtual space used (includes volume reserves) before storage
efficiency, in bytes.


|used_by_afs
|integer
a|The space used by Active Filesystem, in bytes.


|user_data
|integer
a|User data, in bytes.


|volume_guarantee_footprint
|integer
a|Space reserved for future writes in the volume, in bytes.


|===


[#iops_raw]
[.api-collapsible-fifth-title]
iops_raw

The number of I/O operations observed at the storage object. This can be
```

```
used along with delta time to calculate the rate of I/O operations per
unit of time.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#latency_raw]
[.api-collapsible-fifth-title]
latency_raw

The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


[cols=3*,options=header]
|===
|Name
|Type
```

```
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#cloud]
[.api-collapsible-fifth-title]
cloud

These are raw performance numbers (IOPS and latency) for the cloud store.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster. These numbers are relevant only for
volumes hosted on FabricPools.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.
```

```
|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#flexcache_raw]
[.api-collapsible-fifth-title]
flexcache_raw

Performance numbers for FlexCache used to measure cache effectiveness.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cache_miss_blocks
|integer
```

```
a|Blocks retrieved from origin in case of a cache miss. This can be
divided by the raw client_requested_blocks and multiplied by 100 to
calculate the cache miss percentage.


|client_requested_blocks
|integer
a|Total blocks requested by the client.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#throughput_raw]
[.api-collapsible-fifth-title]
throughput_raw

Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
time.


[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#statistics]
[.api-collapsible-fifth-title]
statistics

These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|cloud
|link:#cloud[cloud]
a|These are raw performance numbers (IOPS and latency) for the cloud
store. These numbers are aggregated across all nodes in the cluster and
increase with the uptime of the cluster. These numbers are relevant only
for volumes hosted on FabricPools.
```

```
|flexcache_raw
|link:#flexcache_raw[flexcache_raw]
a|Performance numbers for FlexCache used to measure cache effectiveness.


|iops_raw
|link:#iops_raw[iops_raw]
a|The number of I/O operations observed at the storage object. This can be
used along with delta time to calculate the rate of I/O operations per
unit of time.


|latency_raw
|link:#latency_raw[latency_raw]
a|The raw latency in microseconds observed at the storage object. This can
be divided by the raw IOPS value to calculate the average latency per I/O
operation.


|status
|string
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput_raw
|link:#throughput_raw[throughput_raw]
a|Throughput bytes observed at the storage object. This can be used along
with delta time to calculate the rate of throughput bytes per unit of
time.


|timestamp
|string
a|The timestamp of the performance data.
```

```
|===


[#svm]
[.api-collapsible-fifth-title]
svm

SVM containing the volume. Required on POST.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#tiering]
[.api-collapsible-fifth-title]
tiering

[cols=3*,options=header]
|===
|Name
|Type
|Description

|min_cooling_days
|integer
a|This parameter specifies the minimum number of days that user data
blocks of the volume must be cooled before they can be considered cold and
```

```
tiered out to the cloud tier. Note that this parameter is only used for
tiering purposes and does not affect the reporting of inactive data. The
value specified should be greater than the frequency with which
applications in the volume shift between different sets of data. This
parameter cannot be set when volume tiering policy is either "none" or
"all". The default value of this parameter depends on the volume's tiering
policy. See the tiering policy section of this documentation for
corresponding default values. If the tiering policy on the volume gets
changed, then this parameter will be reset to the default value
corresponding to the new tiering policy.


|object_tags
|array[string]
a|This parameter specifies tags of a volume for objects stored on a
FabricPool-enabled aggregate. Each tag is a key,value pair and should be
in the format "key=value".


|policy
|string
a|Policy that determines whether the user data blocks of a volume in a
FabricPool will be tiered to the cloud store when they become cold.
FabricPool combines flash (performance tier) with a cloud store into a
single aggregate. Temperature of a volume block increases if it is
accessed frequently and decreases when it is not. Valid in POST or PATCH.
all &dash; This policy allows tiering of both Snapshot copies and active
file system user data to the cloud store as soon as possible by ignoring
the temperature on the volume blocks.
auto &dash; This policy allows tiering of both snapshot and active file
system user data to the cloud store
none &dash; Volume blocks will not be tiered to the cloud store.
snapshot_only &dash; This policy allows tiering of only the volume
Snapshot copies not associated with the active file system. The default
tiering policy is "snapshot-only" for a FlexVol and "none" for a
FlexGroup. The default minimum cooling period for the "snapshot-only"
tiering policy is 2 days and for the "auto" tiering policy is 31 days.


|supported
|boolean
a|This parameter specifies whether or not FabricPools are selected when
provisioning a FlexGroup without specifying "aggregates.name" or
"aggregates.uuid". Only FabricPool aggregates are used if this parameter
is set to true and only non FabricPool aggregates are used if this
parameter is set to false. Tiering support for a FlexGroup can be changed
```

```
by moving all of the constituents to the required aggregates. Note that in
order to tier data, not only does the volume need to support tiering by
using FabricPools, the tiering "policy" must not be 'none'. A volume that
uses FabricPools but has a tiering "policy" of 'none' supports tiering,
but will not tier any data.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|access_time_enabled
|boolean
a|Indicates whether or not access time updates are enabled on the volume.


|activity_tracking
|link:#activity_tracking[activity_tracking]
a|

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.


|analytics
|link:#analytics[analytics]
a|

|anti_ransomware
|link:#anti_ransomware[anti_ransomware]
a|Anti-ransomware related information of the volume.
```

```
|anti_ransomware_state
|string
a|The Anti-ransomware state of the volume. If no "anti_ransomware_state"
property is specified, the volume inherits the value from its parent SVM's
"anti_ransomware_default_volume_state" property. If this value is
"disabled", Anti-ransomware is disabled on the volume. If this value is
"enabled", Anti-ransomware is enabled on the volume and alerts are raised
if any suspect is detected for those volumes. If this value is "dry_run",
Anti-ransomware is enabled in the dry-run or learning mode on the volume.
The "dry_run" state is same as the "enabled" state except that the
analytics data is used here for learning. No alerts are raised for any
detections or violations. If this value is "paused", Anti-ransomware is
paused on the volume. Additionally, three more states are available, which
are only valid for GET. If this value is "disable_in_progress", Anti-
ransomware monitoring is being disabled and a cleanup operation is in
effect. If this value is "enable_paused", Anti-ransomware is paused on the
volume from its earlier enabled state. If this value is "dry_run_paused",
Anti-ransomware monitoring is paused on the volume from its earlier
dry_run state. For POST, the valid Anti-ransomware states are only
"disabled", "enabled" and "dry_run", whereas for PATCH, "paused" is also
valid along with the three valid states for POST.


|application
|link:#application[application]
a|

|autosize
|link:#autosize[autosize]
a|

|clone
|link:#clone[clone]
a|

|cloud_retrieval_policy
|string
a|This parameter specifies the cloud retrieval policy for the volume. This
policy determines which tiered out blocks to retrieve from the capacity
tier to the performance tier. The available cloud retrieval policies are
"default" policy retrieves tiered data based on the underlying tiering
policy. If the tiering policy is 'auto', tiered data is retrieved only for
random client driven data reads. If the tiering policy is 'none' or
'snapshot_only', tiered data is retrieved for random and sequential client
driven data reads. If the tiering policy is 'all', tiered data is not
retrieved.
```

```
"on_read" policy retrieves tiered data for all client driven data reads.
"never" policy never retrieves tiered data.
"promote" policy retrieves all eligible tiered data automatically during
the next scheduled scan. It is only supported when the tiering policy is
'none' or 'snapshot_only'. If the tiering policy is 'snapshot_only', the
only data brought back is the data in the AFS. Data that is only in a
snapshot copy stays in the cloud and if tiering policy is 'none' then all
data is retrieved.


|comment
|string
a|A comment for the volume. Valid in POST or PATCH.


|consistency_group
|link:#consistency_group[consistency_group]
a|Consistency group the volume is part of.


|constituents
|array[link:#constituents[constituents]]
a|

|constituents_per_aggregate
|integer
a|Specifies the number of times to iterate over the aggregates listed with
the "aggregates.name" or "aggregates.uuid" when creating or expanding a
FlexGroup volume. If a volume is being created on a single aggregate, the
system creates a flexible volume if the "constituents_per_aggregate" field
is not specified, or a FlexGroup volume if it is specified. If a volume is
being created on multiple aggregates, the system always creates a
FlexGroup volume. The root constituent of a FlexGroup volume is always
placed on the first aggregate in the list.


|convert_unicode
|boolean
a|Specifies whether directory Unicode format conversion is enabled when
directories are accessed by NFS clients.


|create_time
|string
a|Creation time of the volume. This field is generated when the volume is
created.
```

```
|efficiency
|link:#efficiency[efficiency]
a|

|encryption
|link:#encryption[encryption]
a|

|error_state
|link:#error_state[error_state]
a|

|files
|link:#files[files]
a|

|flash_pool
|link:#flash_pool[flash_pool]
a|

|flexcache_endpoint_type
|string
a|FlexCache endpoint type.
none &dash; The volume is neither a FlexCache nor origin of any FlexCache.
cache &dash; The volume is a FlexCache volume.
origin &dash; The volume is origin of a FlexCache volume.


|flexgroup
|link:#flexgroup[flexgroup]
a|

|guarantee
|link:#guarantee[guarantee]
a|

|is_object_store
|boolean
a|Specifies whether the volume is provisioned for an object store server.


|is_svm_root
|boolean
a|Specifies whether the volume is a root volume of the SVM it belongs to.
```

```
|language
|string
a|Language encoding setting for volume. If no language is specified, the
volume inherits its SVM language encoding setting.


|max_dir_size
|integer
a|Maximum directory size. This value sets maximum size, in bytes, to which
a directory can grow. The default maximum directory size for FlexVol
volumes is model-dependent, and optimized for the size of system memory.
Before increasing the maximum directory size, involve technical support.


|metric
|link:#metric[metric]
a|Performance numbers, such as IOPS, latency and throughput.


|movement
|link:#movement[movement]
a|Volume movement. All attributes are modify, that is, not writable
through POST. Set PATCH state to destination_aggregate to initiate a
volume move operation. Volume movement on FlexGroup constituents are not
supported.


|name
|string
a|Volume name. The name of volume must start with an alphabetic character
(a to z or A to Z) or an underscore (_). The name must be 197 or fewer
characters in length for FlexGroups, and 203 or fewer characters in length
for all other types of volumes. Volume names must be unique within an SVM.
Required on POST.


|nas
|link:#nas[nas]
a|

|qos
|link:#qos[qos]
a|QoS information


|queue_for_encryption
|boolean
```

```
a|Specifies whether the volume is queued for encryption.


|quota
|link:#quota[quota]
a|Quotas track the space or file usage of a user, group, or qtree in a
FlexVol or a FlexGroup volume.


|scheduled_snapshot_naming_scheme
|string
a|Naming Scheme for automatic Snapshot copies:

* create_time - Automatic Snapshot copies are saved as per the start of
their current date and time.
* ordinal - Latest automatic snapshot copy is saved as
+++<scheduled_frequency>+++.0 and subsequent copies will follow the
create_time naming convention.+++</scheduled_frequency>+++


|size
|integer
a|Physical size of the volume, in bytes. The minimum size for a FlexVol
volume is 20MB and the minimum size for a FlexGroup volume is 200MB per
constituent. The recommended size for a FlexGroup volume is a minimum of
100GB per constituent. For all volumes, the default size is equal to the
minimum size.


|snaplock
|link:#snaplock[snaplock]
a|

|snapmirror
|link:#snapmirror[snapmirror]
a|Specifies attributes for SnapMirror protection.


|snapshot_count
|integer
a|Number of Snapshot copies in the volume.


|snapshot_policy
|link:#snapshot_policy[snapshot_policy]
a|This is a reference to the Snapshot copy policy.
```

```
|space
|link:#space[space]
a|

|state
|string
a|Volume state. Client access is supported only when volume is online and
junctioned. Taking volume to offline or restricted state removes its
junction path and blocks client access. When volume is in restricted state
some operations like parity reconstruction and iron on commit are allowed.
The 'mixed' state applies to FlexGroup volumes only and cannot be
specified as a target state. An 'error' state implies that the volume is
not in a state to serve data.


|statistics
|link:#statistics[statistics]
a|These are raw performance numbers, such as IOPS latency and throughput.
These numbers are aggregated across all nodes in the cluster and increase
with the uptime of the cluster.


|status
|array[string]
a|Describes the current status of a volume.


|style
|string
a|The style of the volume. If "style" is not specified, the volume type is
determined based on the specified aggregates. Specifying a single
aggregate, without "constituents_per_aggregate", creates a flexible
volume. Specifying multiple aggregates, or a single aggregate with
"constituents_per_aggregate", creates a FlexGroup. Specifying a volume
"style" creates a volume of that type. For example, if the style is
"flexvol" you must specify a single aggregate. If the style is
"flexgroup", the system either uses the specified aggregates or
automatically provisions aggregates if there are no specified aggregates.
The style "flexgroup_constiutent" is not supported when creating a volume.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroup volumes
flexgroup_constituent &dash; FlexGroup constituents.


|svm
```

```
|link:#svm[svm]
a|SVM containing the volume. Required on POST.


|tiering
|link:#tiering[tiering]
a|

|type
|string
a|Type of the volume.
rw &dash; read-write volume.
dp &dash; data-protection volume.
ls &dash; load-sharing `dp` volume. Valid in GET.


|use_mirrored_aggregates
|boolean
a|Specifies whether mirrored aggregates are selected when provisioning a
FlexGroup without specifying "aggregates.name" or "aggregates.uuid". Only
mirrored aggregates are used if this parameter is set to 'true' and only
unmirrored aggregates are used if this parameter is set to 'false'.
Aggregate level mirroring for a FlexGroup can be changed by moving all of
the constituents to the required aggregates. The default value is 'true'
for a MetroCluster configuration and is 'false' for a non-MetroCluster
configuration.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* readOnly: 1
* Introduced in: 9.6


|===


[#job_link]
[.api-collapsible-fifth-title]
job_link

[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|uuid
|string
a|The UUID of the asynchronous job that is triggered by a POST, PATCH, or
DELETE operation.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



:leveloffset: -1


= Manage files and directories

:leveloffset: +1


[[ID8c48026d5b54f9e2e5686bf5c8bf94f6]]
= Storage volumes volume.uuid files path endpoint overview



== Overview
```

```
This API is used to read a file, write to a file, retrieve a list of files
and directories, and retrieve or modify certain properties of files and
directories. The path field is used to specify the path to the directory
or file to be acted on. The path field requires using "%2E" to represent
"." and "%2F" to represent "/" for the path provided.

== File data

Read and write data from/to a named file. To read a file, the Accept
request HTTP header must be specified as multipart/form-data, and a value
for the `length` query property, which represents the number of bytes to
be read, must be specified. The API will fail if the length of data being
read/written exceeds 1 MB. This API should only be used on normal files or
streams associated with files. The results for other file types, such as
LUNs is undefined.

The following APIs are used to read or write data to a file:

&ndash; GET
/api/storage/volumes/{volume.uuid}/files/\{path}?byte_offset=0&length=40
-H "Accept: multipart/form-data"

&ndash; POST    /api/storage/volumes/{volume.uuid}/files/\{path} -H
"Content-Type: multipart/form-data" --form "file=the data to be written to
the new file"

&ndash; PATCH
/api/storage/volumes/{volume.uuid}/files/\{path}?byte_offset=10 -H
"Content-Type: multipart/form-data" --form "file=the new data to be
written or overwritten to the existing file starting at byte_offset"

== Listing directories and files

A list of files and directories and their properties can be retrieved for
a specified path.

The following APIs are used to view a list of files and directories:

&ndash; GET       /api/storage/volumes/{volume.uuid}/files

&ndash; GET       /api/storage/volumes/{volume.uuid}/files/\{path}

&ndash; GET
/api/storage/volumes/{volume.uuid}/files/\{path}?fields=*

== File information
```

The metadata and detailed information about a single directory or file can be retrieved by setting the `return_metadata` query property to `true`. The information returned includes type, creation_time, modified_time, changed_time, accessed_time, unix_permissions, ownder_id, group_id, size, hard_links_count, inode_number, is_empty, bytes_used, unique_bytes, inode_generation, is_vm_aligned, is_junction, links, and analytics (if requested).

The following API is used to view the properties of a single file or directory:

– GET /api/storage/volumes/{volume.uuid}/files/\{path}?return_metadata=true

== File usage

Custom details about the usage of a file can be retrieved by specifying a value for the `byte_offset` and `length` query properties.

The following API is used to view the unique bytes, and bytes used, by a file based on the range defined by `byte_offset` and `length`:

– GET /api/storage/volumes/{volume.uuid}/files/\{path}?return_metadata=true&byte_offset=\{int}&length=\{int}

== Create a directory

The following API is used to create a directory:

– POST /api/storage/volumes/{volume.uuid}/files/\{path} -d '{ "type" : "directory", "unix-permissions" : "644"}'

== Delete an entire directory

A directory can be deleted. The behavior of this call is equivalent to rm -rf.

The following API is used to delete an entire directory:

– DELETE /api/storage/volumes/{volume.uuid}/files/\{path}?recurse=true

== Delete a file or an empty directory

The following API is used to delete a file or an empty directory:

```
&ndash; DELETE    /api/storage/volumes/{volume.uuid}/files/\{path}

&ndash; DELETE
/api/storage/volumes/{volume.uuid}/files/\{path}?recurse=false

== File system analytics

File system analytics provide a quick method for obtaining information
summarizing properties of all files within any directory tree of a volume.
When file system analytics are enabled on a volume, `analytics.+*+` fields
may be requested, and will be populated in the response records
corresponding to directories. The API does not support file system
analytics for requests that are made beyond the boundary of the specified
`volume.uuid`.

The following APIs are used to obtain analytics information for a
directory:

&ndash; GET
/api/storage/volumes/{volume.uuid}/files/\{path}?fields=analytics

&ndash; GET    /api/storage/volumes/{volume.uuid}/files/\{path}?fields=**

== QoS

QoS policies and settings enforce Service Level Objectives (SLO) on a
file. A pre-created QoS policy can be used by specifying the `qos.name` or
`qos.uuid` properties.

The following APIs are used to assign a QoS policy to a file:

&ndash; PATCH   /api/storage/volumes/{volume.uuid}/files/\{path} -d '{
"qos_policy.name" : "policy" }'

&ndash; PATCH   /api/storage/volumes/{volume.uuid}/files/\{path} -d '{
"qos_policy.uuid" : "b89bc5dd-94a3-11e8-a7a3-0050568edf84" }'

== Symlinks

The following APIs are used to create a symlink and read the contents of a
symlink:

&ndash; POST   /api/storage/volumes/{volume.uuid}/files/\{path}  -d '{
"target" : "directory2/file1" }'

&ndash; GET
/api/storage/volumes/{volume.uuid}/files/\{path}?return_metadata=true&fiel
```

```
ds=target

== Rename a file or a directory

The following API can be used to rename a file or a directory. Note that
you need to provide the path relative to the root of the volume in the
`path` body parameter.

&ndash; PATCH   /api/storage/volumes/{volume.uuid}/files/\{path} -d '{
"path" : "directory1/directory2" }'

&ndash; PATCH   /api/storage/volumes/{volume.uuid}/files/\{path} -d '{
"path" : "directory1/directory2/file1" }'

== Examples

=== Writing to a new file

----

# The API:
POST /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X POST "https://<mgmt-ip>/api/storage/volumes/54c06ce2-5430-11ea-
90f9-005056a73aff/files/aNewFile" -H "Content-Type: multipart/form-data"
--form "file=the data to be written to the new file"
----

=== Writing to an existing file

----

# The API:
PATCH /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/volumes/54c06ce2-5430-11ea-
90f9-005056a73aff/files/aNewFile?byte_offset=39" -H "Content-Type:
multipart/form-data" --form "file=*here is a little more data"
----

=== Reading a file

----

# The API:
```

```
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/54c06ce2-5430-11ea-
90f9-005056a73aff/files/aNewFile?byte_offset=0&length=100" -H "Accept:
multipart/form-data"

# Response for file data:
--ec51b3541741ade7
Content-Disposition: form-data; name="bytes_read"
Content-Type: text/plain
66
--ec51b3541741ade7
Content-Disposition: form-data; filename="aNewFile"
Content-Type: application/octet-stream
the data to be written to the new file*here is a little more data
--ec51b3541741ade7--
----

=== Creating a directory

You can use the POST request to create a directory.

----

# The API:
POST /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X POST "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/dir1"  -H 'accept: application/hal+json' -d '{
"type" : "directory", "unix_permissions" : "644" }'

# The response:
{
"num_records": 1,
"records": [
  {
    "path": "dir1",
    "type": "directory",
    "unix_permissions": 644
  }
]
 }
----
```

```
=== Creating a stream on a file

----

# The API:
POST /api/storage/volumes/{volume.uuid}/files/{path}?overwrite=true

# The call:
curl -X POST "https://<mgmt-ip>/api/storage/volumes/54c06ce2-5430-11ea-
90f9-005056a73aff/files/aNewFile?overwrite=true&byte_offset=-
1&stream_name=someStream" -H "Content-Type: multipart/form-data" --form
"file=the data to be written to the new file"
----

=== Retrieving the list of files in a directory

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/d1%2Fd2%2Fd3"

# Response for file records:
{
"records": [
  {
    "path": "d1/d2/d3",
    "name": ".",
    "type": "directory",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3%2F%2E"
      },
      "metadata": {
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2F%2E?return_metadata=true"
      }
    }
  },
  {
    "path": "d1/d2/d3",
    "name": "..",
```

```
    "type": "directory",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3%2F%2E%2E"
      },
      "metadata": {
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2F%2E%2E?return_metadata=true"
      }
    }
  },
  {
    "path": "d1/d2/d3",
    "name": "f1",
    "type": "file",
    "_links": {
      "metadata": {
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2File1?return_metadata=true"
      }
    }
  },
  {
    "path": "d1/d2/d3",
    "name": "d5",
    "type": "directory",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3%2Fd5"
      },
      "metadata": {
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2Fd5?return_metadata=true"
      }
    }
  }
],
"num_records": 4,
"_links": {
  "self": {
    "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3"
  }
}
```

```
}
----

=== Retrieving a list of files based on file type

You can filter the list of files you retrieve based on multiple file types
by including a query parameter in the following format
type="file\|symlink"

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/d1%2Fd2%2Fd3?type=file&#124;directory"

# Response for file records:
{
"records": [
  {
    "path": "d1/d2/d3",
    "name": ".",
    "type": "directory",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3%2F%2E"
      },
      "metadata": {
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2F%2E?return_metadata=true"
      }
    }
  },
  {
    "path": "d1/d2/d3",
    "name": "..",
    "type": "directory",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3%2F%2E%2E"
      },
      "metadata": {
```

```
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2F%2E%2E?return_metadata=true"
      }
    }
  },
  {
    "path": "d1/d2/d3",
    "name": "f1",
    "type": "file",
    "_links": {
      "metadata": {
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2File1?return_metadata=true"
      }
    }
  },
  {
    "path": "d1/d2/d3",
    "name": "d5",
    "type": "directory",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3%2Fd5"
      },
      "metadata": {
        "href": "/api/storage/volumes/e8274d79-3bba-11ea-b780-
005056a7d72a/files/d1%2Fd2%2Fd3%2Fd5?return_metadata=true"
      }
    }
  }
],
"num_records": 4,
"_links": {
  "self": {
    "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d1%2Fd2%2Fd3"
  }
}
}
----

=== Retrieving the properties of a directory or a file

----
```

```
# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}?return_metadata=true

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/d1%2Fd2%2Fd3%2Ff1?return_metadata=true"

# Response for file properties:
{
"records": [
  {
    "path": "d1/d2/d3/f1",
    "name": "",
    "type": "file",
    "creation_time": "2019-06-12T21:27:28-04:00",
    "modified_time": "2019-06-12T21:27:28-04:00",
    "changed_time": "2019-06-12T21:27:28-04:00",
    "accessed_time": "2019-06-12T21:27:28-04:00",
    "unix_permissions": 644,
    "owner_id": 54738,
    "group_id": 30,
    "size": 200,
    "hard_links_count": 1,
    "inode_number": 1233,
    "bytes_used": 4096,
    "unique_bytes": 4096,
    "inode_generation": 214488325,
    "is_vm_aligned": false,
    "is_junction": false
  }
],
"num_records": 1,
"_links": {
  "self": {
    "href": "/api/storage/volumes/da8bb06c-823e-11e9-b790-
005056acdcb0/files/d1%2Fd2%2Fd3%2Ff1?return_metadata=true"
  }
}
}
----

=== Creating a symlink to a relative path

You can use the POST request to create a symlink.

----
```

```
# The API:
POST /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X POST "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/symlink1"  -H 'accept: application/hal+json' -d '{
"target" : "d1/f1"}'

# The response:
{
"num_records": 1,
"records": [
  {
    "path": "symlink1",
    "target": "d1/f1"
  }
]
}
----

=== Retrieving the target of a symlink

You can use the GET request to view the target of a symlink.

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/symlink1?return_metadata=true&fields=target"

# The response:
{
"records": [
  {
    "path": "symlink1",
    "target": "d1/f1"
  }
],
"num_records": 1,
"_links": {
  "self": {
    "href": "/api/storage/volumes/54c06ce2-5430-11ea-90f9-
005056a73aff/files/symlink1?return_metadata=true&fields=target"
```

```
  }
}
}
----

=== Retrieving the usage information for a file

You can use the GET request to retrieve the unique bytes held in a file
with or without specifing the offset.

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/f1?return_metadata=true&byte_offset=100&length=200"

# The response:
{
"records": [
  {
    "path": "d1/d2/d3/f1",
    "type": "file",
    "creation_time": "2019-06-12T21:27:28-04:00",
    "modified_time": "2019-06-12T21:27:28-04:00",
    "changed_time": "2019-06-12T21:27:28-04:00",
    "accessed_time": "2019-06-12T21:27:28-04:00",
    "unix_permissions": 644,
    "owner_id": 54738,
    "group_id": 30,
    "size": 200,
    "hard_links_count": 1,
    "inode_number": 1233,
    "bytes_used": 4096,
    "unique_bytes": 4096,
    "inode_generation": 214488325,
    "is_vm_aligned": false,
    "is_junction": false
  }
],
"num_records": 1,
"_links": {
  "self": {
    "href": "/api/storage/volumes/cb6b139-8d21-11e9-b926-
```

```
05056aca658/files/f1?return_metadata=true&byte_offset=100&length=200"
  }
}
}
----

=== Retrieving all information (including analytics) for a directory

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/1ef5d1b2-f9d7-11e9-
8043-00505682f860/files/d1?return_metadata=true&fields=**"

# Response for all fields of the directory:
{
"records": [
  {
    "svm": {
      "uuid": "58a996a2-f9d5-11e9-8043-00505682f860",
      "_links": {
        "self": {
          "href": "/api/svm/svms/58a996a2-f9d5-11e9-8043-00505682f860"
        }
      }
    },
    "volume": {
        "uuid": "1ef5d1b2-f9d7-11e9-8043-00505682f860",
        "_links": {
          "self": {
            "href": "/api/storage/volumes/1ef5d1b2-f9d7-11e9-8043-
00505682f860"
          }
      }
    },
    "path": "d1",
    "type": "directory",
    "creation_time": "2019-10-28T23:04:13+00:00",
    "modified_time": "2019-10-28T23:10:30+00:00",
    "changed_time": "2019-10-28T23:10:30+00:00",
    "accessed_time": "2019-10-28T23:10:38+00:00",
    "unix_permissions": 755,
    "owner_id": 1002,
```

```
    "group_id": 65533,
    "size": 4096,
    "hard_links_count": 5,
    "inode_number": 96,
    "is_empty": false,
    "bytes_used": 4096,
    "inode_generation": 214514951,
    "is_vm_aligned": false,
    "is_junction": false,
    "analytics": {
      "file_count": 668,
      "bytes_used": 209657856,
      "subdir_count": 18,
      "by_modified_time": {
        "bytes_used": {
          "values": [
            0,
            0,
            0,
            0,
            3112960,
            0,
            14041088,
            20545536,
            0,
            57933824,
            61947904,
            68804608,
            188686336,
            0,
            0,
            0,
            20971520,
            0
          ],
          "percentages": [
            0,
            0,
            0,
            0,
            1.48,
            0,
            6.7,
            9.8,
            0,
            27.63,
```

```
          29.55,
          32.82,
          90,
          0,
          0,
          0,
          10,
          0
        ],
        "labels": [
          "2019-W42",
          "2019-W41",
          "2019-W40",
          "2019-W39",
          "2019-W38",
          "2019-10",
          "2019-09",
          "2019-08",
          "2019-Q4",
          "2019-Q3",
          "2019-Q2",
          "2019-Q1",
          "2019",
          "2018",
          "2017",
          "2016",
          "--2015",
          "unknown"
        ]
      }
    },
    "by_accessed_time": {
      "bytes_used": {
        "values": [
          102760448,
          1867776,
          1245184,
          2179072,
          1556480,
          105873408,
          9027584,
          8093696,
          105873408,
          23969792,
          32382976,
          26460160,
```

```
            188686336,
            0,
            0,
            0,
            20971520,
            0
          ],
          "percentages": [
            49.01,
            0.89,
            0.59,
            1.04,
            0.74,
            50.5,
            4.31,
            3.86,
            50.5,
            11.43,
            15.45,
            12.62,
            90,
            0,
            0,
            0,
            10,
            0
          ],
          "labels": [
            "2019-W42",
            "2019-W41",
            "2019-W40",
            "2019-W39",
            "2019-W38",
            "2019-10",
            "2019-09",
            "2019-08",
            "2019-Q4",
            "2019-Q3",
            "2019-Q2",
            "2019-Q1",
            "2019",
            "2018",
            "2017",
            "2016",
            "--2015",
            "unknown"
```

```
          ]
        }
      }
    }
  }
],
"num_records": 1,
"_links": {
  "self": {
    "href": "/api/storage/volumes/1ef5d1b2-f9d7-11e9-8043-
00505682f860/files/d1?return_metadata=true&fields=**"
  }
}
}
----

=== Retrieving file system analytics information for a set of histogram
buckets

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-
05056aca658/files/d3?type=directory&fields=analytics&analytics.histogram_b
y_time_labels=2019-Q3,2019-Q2,2019-Q1,2018-Q4"

# Response with analytics data
{
"records": [
  {
    "path": "d3",
    "name": ".",
    "type": "directory",
    "analytics": {
      "file_count": 44,
      "bytes_used": 244240384,
      "subdir_count": 14,
      "by_modified_time": {
        "bytes_used": {
          "values": [
            57344,
            29720576,
```

```
            196141056,
            57344
          ],
          "percentages": [
            0.02,
            12.17,
            80.31,
            0.02
          ]
        }
      },
      "by_accessed_time": {
        "bytes_used": {
          "values": [
            69632,
            244170752,
            0,
            0
          ],
          "percentages": [
            0.03,
            99.97,
            0,
            0
          ]
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d3%2F%2E"
      },
      "metadata": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d3%2F%2E?return_metadata=true"
      }
    }
  },
  {
    "path": "d3",
    "name": "..",
    "type": "directory",
    "analytics": {
      "file_count": 515,
      "bytes_used": 3034574848,
```

```
      "subdir_count": 23,
      "by_modified_time": {
        "bytes_used": {
          "values": [
            61440,
            1756479488,
            214622208,
            1191936
          ],
          "percentages": [
            0,
            57.88,
            7.07,
            0.04
          ]
        }
      },
      "by_accessed_time": {
        "bytes_used": {
          "values": [
            282624,
            3034292224,
            0,
            0
          ],
          "percentages": [
            0.01,
            99.99,
            0,
            0
          ]
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d3%2F%2E%2E"
      },
      "metadata": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d3%2F%2E%2E?return_metadata=true"
      }
    }
  },
  {
```

```
    "path": "d3",
    "name": "d5",
    "type": "directory",
    "analytics": {
      "file_count": 10,
      "bytes_used": 47648768,
      "subdir_count": 4,
      "by_modified_time": {
        "bytes_used": {
          "values": [
            0,
            29638656,
            0,
            0
          ],
          "percentages": [
            0,
            62.20,
            0,
            0
          ]
        }
      },
      "by_accessed_time": {
        "bytes_used": {
          "values": [
            0,
            47648768,
            0,
            0
          ],
          "percentages": [
            0,
            100,
            0,
            0
          ]
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d3%2Fd5"
      },
      "metadata": {
```

```
        "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d3%2Fd5?return_metadata=true"
      }
    }
  }
],
"num_records": 3,
"analytics": {
  "by_modified_time": {
    "bytes_used": {
      "labels": [
        "2019-Q3",
        "2019-Q2",
        "2019-Q1",
        "2018-Q4"
      ]
    }
  },
  "by_accessed_time": {
    "bytes_used": {
      "labels": [
        "2019-Q3",
        "2019-Q2",
        "2019-Q1",
        "2018-Q4"
      ]
    }
  }
},
"_links": {
  "self": {
    "href": "/api/storage/volumes/cb6b1b39-8d21-11e9-b926-
005056aca658/files/d3?type=directory&fields=analytics&analytics.histogram_
by_time_labels=2019-Q3,2019-Q2,2019-Q1,2018-Q4"
  }
}
}
----

=== Identifying the largest subdirectories

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}
```

```
# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/1ef5d1b2-f9d7-11e9-
8043-
00505682f860/files/d1?fields=analytics.bytes_used&type=directory&order_by=
analytics.bytes_used%20desc"

# Response with the largest subdirectories sorted by their usage:
{
"records": [
  {
    "path": "d1",
    "name": "..",
    "type": "directory",
    "analytics": {
      "bytes_used": 56623104
    }
  },
  {
    "path": "d1",
    "name": ".",
    "type": "directory",
    "analytics": {
      "bytes_used": 35651584
    }
  },
  {
    "path": "d1",
    "name": "biggest",
    "type": "directory",
    "analytics": {
      "bytes_used": 17825792
    }
  },
  {
    "path": "d1",
    "name": "bigger",
    "type": "directory",
    "analytics": {
      "bytes_used": 10485760
    }
  },
  {
    "path": "d1",
    "name": "big",
    "type": "directory",
    "analytics": {
```

```
      "bytes_used": 5242880
    }
  }
],
"num_records": 5,
"_links": {
  "self": {
    "href": "/api/storage/volumes/1ef5d1b2-f9d7-11e9-8043-
00505682f860/files/d1?fields=analytics.bytes_used&type=directory&order_by=
analytics.bytes_used%20desc"
  }
}
}
----

=== Assigning a QoS policy to a file

You can use the PATCH request to assign a QoS policy to a file.

----

# The API:
PATCH /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/directory1%2Ffile1" -d '{ "qos_policy": { "name":
"policy" }}'

# The response:
{}
----

=== Retrieving QoS information for a file

You can use the GET request for all fields with return_metadata="true" to
retrieve QoS information for the file.

----

# The API:
GET /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/file?return_metadata=true&fields=**"
```

```
# The response:
{
"records": [
  {
    "svm": {
     "uuid": "42ee3002-67dd-11ea-8508-005056a7b8ac"
    },
    "volume": {
      "uuid": "c05eb66a-685f-11ea-8508-005056a7b8ac"
    },
    "path": "file",
    "type": "lun",
    "creation_time": "2020-03-17T10:58:40-04:00",
    "modified_time": "2020-03-24T18:15:40-04:00",
    "changed_time": "2020-03-24T18:15:40-04:00",
    "accessed_time": "2020-03-24T18:15:40-04:00",
    "unix_permissions": 644,
    "owner_id": 0,
    "group_id": 0,
    "size": 1048576,
    "hard_links_count": 2,
    "inode_number": 96,
    "bytes_used": 1056768,
    "inode_generation": 219748425,
    "is_vm_aligned": false,
    "is_junction": false,
    "is_snapshot": false,
    "qos_policy": {
      "name": "pg1",
      "uuid": "00725264-688f-11ea-8f10-005056a7b8ac"
    }
  }
] ,
"num_records": 1
}
----

=== Deleting an entire directory

You can use the DELETE request to remove an entire directory recursively.

----

# The API:
DELETE /api/storage/volumes/{volume.uuid}/files/{path}
```

```
# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/directory1%2Fdirectory2?recurse=true"

# The response:
{
"job": {
  "uuid": "27d287e8-fcd4-11e9-b8a4-005056a7b97b",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/27d287e8-fcd4-11e9-b8a4-005056a7b97b"
    }
  }
}
}
----

=== Deleting an entire directory with specified throttling threshold

You can specify the maximum number of directory delete operations per
second when removing an entire directory recursively.

----

# The API:
DELETE /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-
05056aca658/files/directory1%2Fdirectory2?recurse=true&throttle_deletion=1
00"

# The response:
{
"job": {
  "uuid": "27d287e8-fcd4-11e9-b8a4-005056a7b97b",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/27d287e8-fcd4-11e9-b8a4-005056a7b97b"
    }
  }
}
}
----
```

```
=== Deleting an empty directory

You can use the DELETE request to remove an empty directory.

----

# The API:
DELETE /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/directory1%2Fdirectory2"

# The response:
{}
----

=== Deleting a file

You can use the DELETE request to remove a file.

----

# The API:
DELETE /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/directory1%2Ffile2"

# The response:
{}
----

=== Renaming a file

You can use the PATCH request to rename a file.

----

# The API:
PATCH /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/directory1%2Fdirectory2%2Ffile1" -d '{ "path":
"directory1/file2" }'
```

```
# The response:
{}
----

=== Renaming a directory

You can use the PATCH request to rename a directory.

----

# The API:
PATCH /api/storage/volumes/{volume.uuid}/files/{path}

# The call:
curl -X PATCH "https://<mgmt-ip>/api/storage/volumes/cb6b1b39-8d21-11e9-
b926-05056aca658/files/directory1%2Fdirectory2" -d '{ "path": "d3/d4" }'

# The response:
{}
----




[[IDb11212e851c32b237fc7fe349aac0a11]]
= Delete an existing file or directory

[.api-doc-operation .api-doc-operation-delete]#DELETE# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/files/{path}`#

*Introduced In:* 9.8

Deletes an existing file or directory. Query-based DELETE operations are
not supported.


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
```

```
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|path
|string
|path
|True
a|The relative path of a directory in the volume. The path field requires
using "%2E" to represent "." and "%2F" to represent "/" for the path
provided.


|recurse
|boolean
|query
|False
a|Delete an entire directory. The behaviour of this call is equivalent to
rm -rf.

* Default value:


|throttle_deletion
|integer
|query
|False
a|The maximum number of directory delete operations per second. A valid
throttle_deletion number is an integer from 10 to 100000.


|return_records
|boolean
|query
|False
a|The default is false.  If set to true, the records are returned.

* Default value:


|return_timeout
|integer
```

```
|query
|False
a|The number of seconds to allow the call to execute before returning.
When doing a POST, PATCH, or DELETE operation on a single record, the
default is 0 seconds.  This means that if an asynchronous operation is
started, the server immediately returns HTTP code 202 (Accepted) along
with a link to the job.  If a non-zero value is specified for POST, PATCH,
or DELETE operations, ONTAP waits that length of time to see if the job
completes so it can return something other than 202.

* Default value: 1
* Max value: 120
* Min value: 0

|===

== Response
```

Status: 200, Ok

```
== Response
```

Status: 202, Accepted

```
== Error
```

Status: Default

```
ONTAP Error Response Codes

|===
| Error Code | Description

| 131074
| No such file or directory.

| 131102
| Read-only file system.

| 131138
| Directory not empty.

| 918235
| A volume with UUID {volume.uuid} was not found.
```

```
| 6488081
| The \{field} field is not supported for DELETE operations.
|===



[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
```

```
[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message
```

```
|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[ID2a88ad60995dae3cd8fe6a8e4016dfa7]]
= Retrieve files and directories

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/files/{path}`#

*Introduced In:* 9.7

Retrieves a list of files and directories for a given directory or returns
only the properties of a single given directory or file of a volume.

== Expensive properties

There is an added cost to retrieving values for these properties.  They
are not included by default in GET results and must be explicitly
requested using the `fields` query property. See
xref:{relative_path}getting_started_with_the_ontap_rest_api.html#Requestin
g_specific_fields[Requesting specific fields] to learn more.

*** `analytics`

*** `qos_policy.name`

*** `qos_policy.uuid`


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
```

```
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|path
|string
|path
|True
a|Relative path of a file or directory in the volume. The path field
requires using "%2E" to represent "." and "%2F" to represent "/" for the
path provided.


|byte_offset
|integer
|query
|False
a|The file offset to start reading from.

* Introduced in: 9.8


|length
|integer
|query
|False
a|Length of the range in bytes.

* Introduced in: 9.8


|return_metadata
|boolean
|query
|False
a|If true, the request returns metadata for the the directory or file
specified in the path.

* Introduced in: 9.8
* Default value:
```

```
|name
|string
|query
|False
a|Filter by name


|size
|integer
|query
|False
a|Filter by size


|inode_number
|integer
|query
|False
a|Filter by inode_number


|group_id
|integer
|query
|False
a|Filter by group_id


|qos_policy.name
|string
|query
|False
a|Filter by qos_policy.name

* Introduced in: 9.8


|qos_policy.uuid
|string
|query
|False
a|Filter by qos_policy.uuid

* Introduced in: 9.8
```

```
|is_vm_aligned
|boolean
|query
|False
a|Filter by is_vm_aligned


|creation_time
|string
|query
|False
a|Filter by creation_time


|accessed_time
|string
|query
|False
a|Filter by accessed_time


|modified_time
|string
|query
|False
a|Filter by modified_time


|volume.name
|string
|query
|False
a|Filter by volume.name


|owner_id
|integer
|query
|False
a|Filter by owner_id


|overwrite_enabled
|boolean
|query
|False
```

```
a|Filter by overwrite_enabled

* Introduced in: 9.8


|fill_enabled
|boolean
|query
|False
a|Filter by fill_enabled

* Introduced in: 9.8


|bytes_used
|integer
|query
|False
a|Filter by bytes_used


|is_snapshot
|boolean
|query
|False
a|Filter by is_snapshot

* Introduced in: 9.8


|inode_generation
|integer
|query
|False
a|Filter by inode_generation


|target
|string
|query
|False
a|Filter by target

* Introduced in: 9.8


|constituent.uuid
```

```
|string
|query
|False
a|Filter by constituent.uuid

* Introduced in: 9.10


|constituent.name
|string
|query
|False
a|Filter by constituent.name

* Introduced in: 9.10


|analytics.file_count
|integer
|query
|False
a|Filter by analytics.file_count

* Introduced in: 9.8


|analytics.bytes_used
|integer
|query
|False
a|Filter by analytics.bytes_used

* Introduced in: 9.8


|analytics.by_accessed_time.bytes_used.percentages
|number
|query
|False
a|Filter by analytics.by_accessed_time.bytes_used.percentages

* Introduced in: 9.8


|analytics.by_accessed_time.bytes_used.newest_label
|string
|query
```

```
|False
a|Filter by analytics.by_accessed_time.bytes_used.newest_label

* Introduced in: 9.8


|analytics.by_accessed_time.bytes_used.oldest_label
|string
|query
|False
a|Filter by analytics.by_accessed_time.bytes_used.oldest_label

* Introduced in: 9.8


|analytics.by_accessed_time.bytes_used.values
|integer
|query
|False
a|Filter by analytics.by_accessed_time.bytes_used.values

* Introduced in: 9.8


|analytics.by_accessed_time.bytes_used.labels
|string
|query
|False
a|Filter by analytics.by_accessed_time.bytes_used.labels

* Introduced in: 9.8


|analytics.by_modified_time.bytes_used.percentages
|number
|query
|False
a|Filter by analytics.by_modified_time.bytes_used.percentages

* Introduced in: 9.8


|analytics.by_modified_time.bytes_used.newest_label
|string
|query
|False
a|Filter by analytics.by_modified_time.bytes_used.newest_label
```

```
* Introduced in: 9.8


|analytics.by_modified_time.bytes_used.oldest_label
|string
|query
|False
a|Filter by analytics.by_modified_time.bytes_used.oldest_label

* Introduced in: 9.8


|analytics.by_modified_time.bytes_used.values
|integer
|query
|False
a|Filter by analytics.by_modified_time.bytes_used.values

* Introduced in: 9.8


|analytics.by_modified_time.bytes_used.labels
|string
|query
|False
a|Filter by analytics.by_modified_time.bytes_used.labels

* Introduced in: 9.8


|analytics.subdir_count
|integer
|query
|False
a|Filter by analytics.subdir_count

* Introduced in: 9.8


|type
|string
|query
|False
a|Filter by type
```

```
|changed_time
|string
|query
|False
a|Filter by changed_time


|is_empty
|boolean
|query
|False
a|Filter by is_empty


|is_junction
|boolean
|query
|False
a|Filter by is_junction


|unix_permissions
|integer
|query
|False
a|Filter by unix_permissions


|unique_bytes
|integer
|query
|False
a|Filter by unique_bytes

* Introduced in: 9.8


|hard_links_count
|integer
|query
|False
a|Filter by hard_links_count


|analytics.histogram_by_time_labels
|array[string]
|query
```

```
|False
a|Request that returned
xref:{relative_path}analytics_histogram_by_time.html[analytics_histogram_b
y_time]  objects including values associated with the specified labels.

As described in the object description, the labels may take the following
forms:<ul>
 _partial-date_
 +++<tt>+++-+++</tt>+++ _partial-date_
 _partial-date_ +++<tt>+++-+++</tt>+++
 _partial-date_+++<tt>+++-+++</tt>+++-_partial-date_
 +++<tt>+++unknown+++</tt>+++

</ul>Intervals that the system would not normally return may be specified.
In this case, the appropriate values and percentages summarizing all files
with a time-based attribute within the indicated period of time are
calculated and returned in the response.  However, there are some
restrictions:<ul>
 Any _partial-date_ specified as the beginning or end of an interval must
be tracked by the system. Valid __partial-date__s may be determined by
making an OPTIONS request to the
+++<tt>+++/storage/volumes/{volume.uuid}/files/\{path}+++</tt>+++
endpoint.
 Intervals may not mix week-based __partial-date__s in the form _yyyy_-
W__ww__ with other types of __partial-date__s.

</ul>

* Introduced in: 9.8


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|return_records
|boolean
```

```
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|analytics
```

```
|link:#analytics[analytics]
a|Additional file system analytics information that is invariant amongst
all elements in the collection.

This property is only populated if file system analytics is enabled on the
containing volume.

This analytics object captures properties that are invariant amongst all
elements included in the `records` array. The invariant properties are
included here, rather than within the information for each element, to
avoid returning an excessive amount of duplicated information when the
collection is large.


|num_records
|integer
a|Number of records.


|records
|array[link:#file_info[file_info]]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "analytics": {
    "by_accessed_time": {
      "bytes_used": {
        "labels": [
          "2019-07",
          "2019-06",
          "2019-05",
```

```
          2019,
          2018,
          "--2017",
          "unknown"
        ]
      }
    },
    "by_modified_time": {
      "bytes_used": {
        "labels": [
          "2019-07",
          "2019-06",
          "2019-05",
          2019,
          2018,
          "--2017",
          "unknown"
        ]
      }
    }
  },
  "records": [
    {
      "_links": {
        "metadata": {
          "href": "/api/resourcelink"
        },
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "accessed_time": "2019-06-12T11:00:16-04:00",
      "analytics": {
        "by_accessed_time": {
          "bytes_used": {
            "labels": [
              "2019-07",
              "2019-06",
              "2019-05",
              2019,
              2018,
              "--2017",
              "unknown"
            ],
            "newest_label": "2019-07",
            "oldest_label": "2019-07",
```

```
          "percentages": [
            0.1,
            11.24,
            0.18,
            15.75,
            0.75,
            83.5,
            0
          ],
          "values": [
            15925248,
            1735569408,
            27672576,
            2430595072,
            116105216,
            12889948160,
            0
          ]
        }
      },
      "by_modified_time": {
        "bytes_used": {
          "labels": [
            "2019-07",
            "2019-06",
            "2019-05",
            2019,
            2018,
            "--2017",
            "unknown"
          ],
          "newest_label": "2019-07",
          "oldest_label": "2019-07",
          "percentages": [
            0.1,
            11.24,
            0.18,
            15.75,
            0.75,
            83.5,
            0
          ],
          "values": [
            15925248,
            1735569408,
            27672576,
```

```
            2430595072,
            116105216,
            12889948160,
            0
          ]
        }
      },
      "bytes_used": 15436648448,
      "file_count": 21134,
      "subdir_count": 35
    },
    "bytes_used": 4096,
    "changed_time": "2019-06-12T11:00:16-04:00",
    "constituent": {
      "name": "fg__0001",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "creation_time": "2019-06-12T11:00:16-04:00",
    "group_id": 30,
    "hard_links_count": 1,
    "inode_generation": 214753547,
    "inode_number": 1695,
    "is_empty": "",
    "is_junction": "",
    "is_snapshot": "",
    "is_vm_aligned": "",
    "modified_time": "2019-06-12T11:00:16-04:00",
    "name": "test_file",
    "owner_id": 54738,
    "path": "d1/d2/d3",
    "qos_policy": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "qos1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "size": 200,
    "target": "some_directory/some_other_directory/some_file",
    "type": "file",
    "unique_bytes": 4096,
    "unix_permissions": 755,
    "volume": {
      "_links": {
```

```
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
```

```
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===
```

```
[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used

Number of bytes used on-disk, broken down by date of last access.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|labels
|array[string]
a|Labels for this histogram


|===


[#by_accessed_time]
[.api-collapsible-fifth-title]
by_accessed_time

File system analytics information, broken down by date of last access.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bytes_used
|link:#bytes_used[bytes_used]
a|Number of bytes used on-disk, broken down by date of last access.


|===


[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used
```

```
Number of bytes used on-disk, broken down by date of last modification.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|labels
|array[string]
a|Labels for this histogram


|===


[#by_modified_time]
[.api-collapsible-fifth-title]
by_modified_time

File system analytics information, broken down by date of last
modification.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bytes_used
|link:#bytes_used[bytes_used]
a|Number of bytes used on-disk, broken down by date of last modification.


|===


[#analytics]
[.api-collapsible-fifth-title]
analytics

Additional file system analytics information that is invariant amongst all
elements in the collection.

This property is only populated if file system analytics is enabled on the
```

```
containing volume.

This analytics object captures properties that are invariant amongst all
elements included in the `records` array. The invariant properties are
included here, rather than within the information for each element, to
avoid returning an excessive amount of duplicated information when the
collection is large.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|by_accessed_time
|link:#by_accessed_time[by_accessed_time]
a|File system analytics information, broken down by date of last access.


|by_modified_time
|link:#by_modified_time[by_modified_time]
a|File system analytics information, broken down by date of last
modification.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|metadata
|link:#href[href]
a|

|self
|link:#href[href]
a|
```

```
|===


[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used

Number of bytes used on-disk, broken down by date of last access.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|labels
|array[string]
a|Labels for this histogram


|newest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
```

```
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|oldest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

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 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.
```

```
|percentages
|array[number]
a|Percentages for this histogram


|values
|array[integer]
a|Values for this histogram


|===


[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used

Number of bytes used on-disk, broken down by date of last modification.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|labels
|array[string]
a|Labels for this histogram


|newest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
```

```
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|oldest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
```

```
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|percentages
|array[number]
a|Percentages for this histogram


|values
|array[integer]
a|Values for this histogram


|===


[#analytics]
[.api-collapsible-fifth-title]
analytics

Additional file system analytics information summarizing all descendents
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweeneleme
ntswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
```

```
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|by_accessed_time
|link:#by_accessed_time[by_accessed_time]
a|File system analytics information, broken down by date of last access.


|by_modified_time
|link:#by_modified_time[by_modified_time]
a|File system analytics information, broken down by date of last
modification.


|bytes_used
|integer
a|Number of bytes used on-disk


|file_count
|integer
a|Number of descendants


|subdir_count
|integer
a|Number of sub directories


|===


[#constituent]
[.api-collapsible-fifth-title]
constituent

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|name
|string
a|FlexGroup volume constituent name.


|uuid
|string
a|FlexGroup volume constituent UUID.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#qos_policy]
[.api-collapsible-fifth-title]
qos_policy

The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.
```

```
Note that a QoS policy can be set on a file, or a file's volume, but not
on both.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the QoS policy. To remove the file from a QoS policy, set
this property to an empty string "" or set it to "none" in a PATCH
request.


|uuid
|string
a|The unique identifier of the QoS policy. Valid in PATCH.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.
```

```
|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#file_info]
[.api-collapsible-fifth-title]
file_info

Information about a single file.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|accessed_time
|string
a|Last access time of the file in date-time format.


|analytics
|link:#analytics[analytics]
a|Additional file system analytics information summarizing all descendents
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweeneleme
```

```
ntswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.


|bytes_used
|integer
a|The actual number of bytes used on disk by this file. If byte_offset and
length parameters are specified, this will return the bytes used by the
file within the given range.


|changed_time
|string
a|Last time data or attributes changed on the file in date-time format.


|constituent
|link:#constituent[constituent]
a|

|creation_time
|string
a|Creation time of the file in date-time format.


|fill_enabled
|boolean
a|Returns "true" if the space reservation is enabled. The field
overwrite_enabled must also be set to the same value as this field.


|group_id
|integer
a|The integer ID of the group of the file owner.
```

```
|hard_links_count
|integer
a|The number of hard links to the file.


|inode_generation
|integer
a|Inode generation number.


|inode_number
|integer
a|The file inode number.


|is_empty
|boolean
a|Specifies whether or not a directory is empty. A directory is considered
empty if it only contains entries for "." and "..". This element is
present if the file is a directory. In some special error cases, such as
when the volume goes offline or when the directory is moved while
retrieving this info, this field might not get set.


|is_junction
|boolean
a|Returns "true" if the directory is a junction.


|is_snapshot
|boolean
a|Returns "true" if the directory is a Snapshot copy.


|is_vm_aligned
|boolean
a|Returns true if the file is vm-aligned. A vm-aligned file is a file that
is initially padded with zero-filled data so that its actual data starts
at an offset other than zero. The amount by which the start offset is
adjusted depends on the vm-align setting of the hosting volume.


|modified_time
|string
a|Last data modification time of the file in date-time format.
```

```
|name
|string
a|Name of the file.


|overwrite_enabled
|boolean
a|Returns "true" if the space reservation for overwrites is enabled. The
field fill_enabled must also be set to the same value as this field.


|owner_id
|integer
a|The integer ID of the file owner.


|path
|string
a|Path of the file.


|qos_policy
|link:#qos_policy[qos_policy]
a|The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.

Note that a QoS policy can be set on a file, or a file's volume, but not
on both.


|size
|integer
a|The size of the file, in bytes.


|target
|string
a|The relative or absolute path contained in a symlink, in the form
+++<some>+++/+++<path>+++.+++</path>++++++</some>+++
```

```
|type
|string
a|Type of the file.


|unique_bytes
|integer
a|Number of bytes uniquely held by this file. If byte_offset and length
parameters are specified, this will return bytes uniquely held by the file
within the given range.


|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write), and 1 (execute). The
first digit selects the set user ID(4), set group ID (2), and sticky (1)
attributes. The second digit selects permissions for the owner of the
file; the third selects permissions for other users in the same group; the
fourth selects permissions for other users not in the group.


|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
```

```
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[IDa8939f5462301d6895e522b69fc7c304]]
= Write to an existing file with the supplied data
```

```
[.api-doc-operation .api-doc-operation-patch]#PATCH# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/files/{path}`#

*Introduced In:* 9.8

Writes to an existing file with the supplied data or modifies the size,
name, space reservation information, QoS policy, or hole range information
of a file. Query-based PATCH operations are not supported.


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|path
|string
|path
|True
a|Relative path of a file in the volume. The path field requires using
"%2E" to represent "." and "%2F" to represent "/" for the path provided.


|byte_offset
|integer
|query
|False
a|How many bytes into the file to begin writing. Use -1 to append
(default).


|overwrite
|boolean
```

```
|query
|False
a|If false, and the file exists, the write will fail. Default is false.


|stream_name
|string
|query
|False
a|Name of stream associated with the file to write data to.


|data
|string
|formData
|False
a|Data to write to the file.


|return_records
|boolean
|query
|False
a|The default is false.  If set to true, the records are returned.

* Default value:

|===

== Request Body



[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|accessed_time
|string
a|Last access time of the file in date-time format.
```

```
|analytics
|link:#analytics[analytics]
a|Additional file system analytics information summarizing all descendents
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweenelemen
tswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.


|bytes_used
|integer
a|The actual number of bytes used on disk by this file. If byte_offset and
length parameters are specified, this will return the bytes used by the
file within the given range.


|changed_time
|string
a|Last time data or attributes changed on the file in date-time format.


|constituent
|link:#constituent[constituent]
a|

|creation_time
```

```
|string
a|Creation time of the file in date-time format.


|fill_enabled
|boolean
a|Returns "true" if the space reservation is enabled. The field
overwrite_enabled must also be set to the same value as this field.


|group_id
|integer
a|The integer ID of the group of the file owner.


|hard_links_count
|integer
a|The number of hard links to the file.


|inode_generation
|integer
a|Inode generation number.


|inode_number
|integer
a|The file inode number.


|is_empty
|boolean
a|Specifies whether or not a directory is empty. A directory is considered
empty if it only contains entries for "." and "..". This element is
present if the file is a directory. In some special error cases, such as
when the volume goes offline or when the directory is moved while
retrieving this info, this field might not get set.


|is_junction
|boolean
a|Returns "true" if the directory is a junction.


|is_snapshot
|boolean
a|Returns "true" if the directory is a Snapshot copy.
```

```
|is_vm_aligned
|boolean
a|Returns true if the file is vm-aligned. A vm-aligned file is a file that
is initially padded with zero-filled data so that its actual data starts
at an offset other than zero. The amount by which the start offset is
adjusted depends on the vm-align setting of the hosting volume.


|modified_time
|string
a|Last data modification time of the file in date-time format.


|name
|string
a|Name of the file.


|overwrite_enabled
|boolean
a|Returns "true" if the space reservation for overwrites is enabled. The
field fill_enabled must also be set to the same value as this field.


|owner_id
|integer
a|The integer ID of the file owner.


|path
|string
a|Path of the file.


|qos_policy
|link:#qos_policy[qos_policy]
a|The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.
```

```
Note that a QoS policy can be set on a file, or a file's volume, but not
on both.


|size
|integer
a|The size of the file, in bytes.


|target
|string
a|The relative or absolute path contained in a symlink, in the form
+++<some>+++/+++<path>+++.+++</path>++++++</some>+++


|type
|string
a|Type of the file.


|unique_bytes
|integer
a|Number of bytes uniquely held by this file. If byte_offset and length
parameters are specified, this will return bytes uniquely held by the file
within the given range.


|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write), and 1 (execute). The
first digit selects the set user ID(4), set group ID (2), and sticky (1)
attributes. The second digit selects permissions for the owner of the
file; the third selects permissions for other users in the same group; the
fourth selects permissions for other users not in the group.


|volume
|link:#volume[volume]
a|

|===


.Example request
[%collapsible%closed]
====
```

```
[source,json,subs=+macros]
{
  "_links": {
    "metadata": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "accessed_time": "2019-06-12T11:00:16-04:00",
  "analytics": {
    "by_accessed_time": {
      "bytes_used": {
        "labels": [
          "2019-07",
          "2019-06",
          "2019-05",
          2019,
          2018,
          "--2017",
          "unknown"
        ],
        "newest_label": "2019-07",
        "oldest_label": "2019-07",
        "percentages": [
          0.1,
          11.24,
          0.18,
          15.75,
          0.75,
          83.5,
          0
        ],
        "values": [
          15925248,
          1735569408,
          27672576,
          2430595072,
          116105216,
          12889948160,
          0
        ]
      }
    },
    "by_modified_time": {
```

```
      "bytes_used": {
        "labels": [
          "2019-07",
          "2019-06",
          "2019-05",
          2019,
          2018,
          "--2017",
          "unknown"
        ],
        "newest_label": "2019-07",
        "oldest_label": "2019-07",
        "percentages": [
          0.1,
          11.24,
          0.18,
          15.75,
          0.75,
          83.5,
          0
        ],
        "values": [
          15925248,
          1735569408,
          27672576,
          2430595072,
          116105216,
          12889948160,
          0
        ]
      }
    },
    "bytes_used": 15436648448,
    "file_count": 21134,
    "subdir_count": 35
  },
  "bytes_used": 4096,
  "changed_time": "2019-06-12T11:00:16-04:00",
  "constituent": {
    "name": "fg__0001",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "creation_time": "2019-06-12T11:00:16-04:00",
  "group_id": 30,
  "hard_links_count": 1,
  "inode_generation": 214753547,
```

```
  "inode_number": 1695,
  "is_empty": "",
  "is_junction": "",
  "is_snapshot": "",
  "is_vm_aligned": "",
  "modified_time": "2019-06-12T11:00:16-04:00",
  "name": "test_file",
  "owner_id": 54738,
  "path": "d1/d2/d3",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "qos1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "size": 200,
  "target": "some_directory/some_other_directory/some_file",
  "type": "file",
  "unique_bytes": 4096,
  "unix_permissions": 755,
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
====

== Response
```

Status: 200, Ok

```
== Error
```

Status: Default

```
ONTAP Error Response Codes
```

```
|===
| Error Code | Description

| 918235
| A volume with UUID {volume.uuid} was not found.

| 6488081
| The \{field} field is not supported for PATCH operations.

| 6488082
| Failed to rename \{path}.

| 6488083
| Failed to rename \{path} to \{path} because a directory named \{path}
already exists.
|===



[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
```

```
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|metadata
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===
```

```
[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used

Number of bytes used on-disk, broken down by date of last access.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|labels
|array[string]
a|Labels for this histogram


|newest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
```

```
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|oldest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.
```

```
|percentages
|array[number]
a|Percentages for this histogram


|values
|array[integer]
a|Values for this histogram


|===


[#by_accessed_time]
[.api-collapsible-fifth-title]
by_accessed_time

File system analytics information, broken down by date of last access.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bytes_used
|link:#bytes_used[bytes_used]
a|Number of bytes used on-disk, broken down by date of last access.


|===


[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used

Number of bytes used on-disk, broken down by date of last modification.


[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|labels
|array[string]
a|Labels for this histogram


|newest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|oldest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
```

```
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|percentages
|array[number]
a|Percentages for this histogram


|values
|array[integer]
a|Values for this histogram


|===


[#by_modified_time]
[.api-collapsible-fifth-title]
by_modified_time
```

```
File system analytics information, broken down by date of last
modification.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bytes_used
|link:#bytes_used[bytes_used]
a|Number of bytes used on-disk, broken down by date of last modification.


|===


[#analytics]
[.api-collapsible-fifth-title]
analytics

Additional file system analytics information summarizing all descendents
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweenelemen
tswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|by_accessed_time
|link:#by_accessed_time[by_accessed_time]
a|File system analytics information, broken down by date of last access.


|by_modified_time
|link:#by_modified_time[by_modified_time]
a|File system analytics information, broken down by date of last
modification.


|bytes_used
|integer
a|Number of bytes used on-disk


|file_count
|integer
a|Number of descendants


|subdir_count
|integer
a|Number of sub directories


|===


[#constituent]
[.api-collapsible-fifth-title]
constituent

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|name
|string
a|FlexGroup volume constituent name.


|uuid
|string
a|FlexGroup volume constituent UUID.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#qos_policy]
[.api-collapsible-fifth-title]
qos_policy

The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.

Note that a QoS policy can be set on a file, or a file's volume, but not
on both.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the QoS policy. To remove the file from a QoS policy, set
this property to an empty string "" or set it to "none" in a PATCH
request.


|uuid
|string
a|The unique identifier of the QoS policy. Valid in PATCH.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
```

```
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#file_info]
[.api-collapsible-fifth-title]
file_info

Information about a single file.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|accessed_time
|string
a|Last access time of the file in date-time format.


|analytics
|link:#analytics[analytics]
a|Additional file system analytics information summarizing all descendents
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweenelemen
tswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
```

```
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.


|bytes_used
|integer
a|The actual number of bytes used on disk by this file. If byte_offset and
length parameters are specified, this will return the bytes used by the
file within the given range.


|changed_time
|string
a|Last time data or attributes changed on the file in date-time format.


|constituent
|link:#constituent[constituent]
a|

|creation_time
|string
a|Creation time of the file in date-time format.


|fill_enabled
|boolean
a|Returns "true" if the space reservation is enabled. The field
overwrite_enabled must also be set to the same value as this field.


|group_id
|integer
a|The integer ID of the group of the file owner.


|hard_links_count
|integer
```

```
a|The number of hard links to the file.


|inode_generation
|integer
a|Inode generation number.


|inode_number
|integer
a|The file inode number.


|is_empty
|boolean
a|Specifies whether or not a directory is empty. A directory is considered
empty if it only contains entries for "." and "..". This element is
present if the file is a directory. In some special error cases, such as
when the volume goes offline or when the directory is moved while
retrieving this info, this field might not get set.


|is_junction
|boolean
a|Returns "true" if the directory is a junction.


|is_snapshot
|boolean
a|Returns "true" if the directory is a Snapshot copy.


|is_vm_aligned
|boolean
a|Returns true if the file is vm-aligned. A vm-aligned file is a file that
is initially padded with zero-filled data so that its actual data starts
at an offset other than zero. The amount by which the start offset is
adjusted depends on the vm-align setting of the hosting volume.


|modified_time
|string
a|Last data modification time of the file in date-time format.


|name
|string
```

```
a|Name of the file.


|overwrite_enabled
|boolean
a|Returns "true" if the space reservation for overwrites is enabled. The
field fill_enabled must also be set to the same value as this field.


|owner_id
|integer
a|The integer ID of the file owner.


|path
|string
a|Path of the file.


|qos_policy
|link:#qos_policy[qos_policy]
a|The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.

Note that a QoS policy can be set on a file, or a file's volume, but not
on both.


|size
|integer
a|The size of the file, in bytes.


|target
|string
a|The relative or absolute path contained in a symlink, in the form
+++<some>+++/+++<path>+++.+++</path>++++++</some>+++


|type
|string
```

```
a|Type of the file.


|unique_bytes
|integer
a|Number of bytes uniquely held by this file. If byte_offset and length
parameters are specified, this will return bytes uniquely held by the file
within the given range.


|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write), and 1 (execute). The
first digit selects the set user ID(4), set group ID (2), and sticky (1)
attributes. The second digit selects permissions for the owner of the
file; the third selects permissions for other users in the same group; the
fourth selects permissions for other users not in the group.


|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument
```

```
|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[ID170f6c1f22c3416607c8341670f4eae0]]
= Create a new file with the supplied data

[.api-doc-operation .api-doc-operation-post]#POST# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/files/{path}`#
```

```
*Introduced In:* 9.8

Creates a new file with the supplied data, creates a new directory or
creates a new symlink.


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|path
|string
|path
|True
a|Relative path of a new file, directory or symlink. The path field
requires using "%2E" to represent "." and "%2F" to represent "/" for the
path provided.


|byte_offset
|integer
|query
|False
a|How many bytes into the file to begin writing. Use -1 to append
(default).


|overwrite
|boolean
|query
|False
a|If false, and the file exists, the write will fail. Default is false.
```

```
|stream_name
|string
|query
|False
a|Name of stream associated with the file to write data to.


|data
|string
|formData
|False
a|Data to write to the file.


|return_records
|boolean
|query
|False
a|The default is false.  If set to true, the records are returned.

* Default value:

|===

== Request Body



[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|accessed_time
|string
a|Last access time of the file in date-time format.


|analytics
|link:#analytics[analytics]
a|Additional file system analytics information summarizing all descendents
```

```
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweeneleme
ntswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.


|bytes_used
|integer
a|The actual number of bytes used on disk by this file. If byte_offset and
length parameters are specified, this will return the bytes used by the
file within the given range.


|changed_time
|string
a|Last time data or attributes changed on the file in date-time format.


|constituent
|link:#constituent[constituent]
a|

|creation_time
|string
a|Creation time of the file in date-time format.


|fill_enabled
```

```
|boolean
a|Returns "true" if the space reservation is enabled. The field
overwrite_enabled must also be set to the same value as this field.


|group_id
|integer
a|The integer ID of the group of the file owner.


|hard_links_count
|integer
a|The number of hard links to the file.


|inode_generation
|integer
a|Inode generation number.


|inode_number
|integer
a|The file inode number.


|is_empty
|boolean
a|Specifies whether or not a directory is empty. A directory is considered
empty if it only contains entries for "." and "..". This element is
present if the file is a directory. In some special error cases, such as
when the volume goes offline or when the directory is moved while
retrieving this info, this field might not get set.


|is_junction
|boolean
a|Returns "true" if the directory is a junction.


|is_snapshot
|boolean
a|Returns "true" if the directory is a Snapshot copy.


|is_vm_aligned
|boolean
a|Returns true if the file is vm-aligned. A vm-aligned file is a file that
```

```
is initially padded with zero-filled data so that its actual data starts
at an offset other than zero. The amount by which the start offset is
adjusted depends on the vm-align setting of the hosting volume.


|modified_time
|string
a|Last data modification time of the file in date-time format.


|name
|string
a|Name of the file.


|overwrite_enabled
|boolean
a|Returns "true" if the space reservation for overwrites is enabled. The
field fill_enabled must also be set to the same value as this field.


|owner_id
|integer
a|The integer ID of the file owner.


|path
|string
a|Path of the file.


|qos_policy
|link:#qos_policy[qos_policy]
a|The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.

Note that a QoS policy can be set on a file, or a file's volume, but not
on both.


|size
```

```
|integer
a|The size of the file, in bytes.


|target
|string
a|The relative or absolute path contained in a symlink, in the form
+++<some>+++/+++<path>+++.+++</path>++++++</some>+++


|type
|string
a|Type of the file.


|unique_bytes
|integer
a|Number of bytes uniquely held by this file. If byte_offset and length
parameters are specified, this will return bytes uniquely held by the file
within the given range.


|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write), and 1 (execute). The
first digit selects the set user ID(4), set group ID (2), and sticky (1)
attributes. The second digit selects permissions for the owner of the
file; the third selects permissions for other users in the same group; the
fourth selects permissions for other users not in the group.


|volume
|link:#volume[volume]
a|

|===


.Example request
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "metadata": {
      "href": "/api/resourcelink"
```

```
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "accessed_time": "2019-06-12T11:00:16-04:00",
  "analytics": {
    "by_accessed_time": {
      "bytes_used": {
        "labels": [
          "2019-07",
          "2019-06",
          "2019-05",
          2019,
          2018,
          "--2017",
          "unknown"
        ],
        "newest_label": "2019-07",
        "oldest_label": "2019-07",
        "percentages": [
          0.1,
          11.24,
          0.18,
          15.75,
          0.75,
          83.5,
          0
        ],
        "values": [
          15925248,
          1735569408,
          27672576,
          2430595072,
          116105216,
          12889948160,
          0
        ]
      }
    },
    "by_modified_time": {
      "bytes_used": {
        "labels": [
          "2019-07",
          "2019-06",
          "2019-05",
```

```
          2019,
          2018,
          "--2017",
          "unknown"
        ],
        "newest_label": "2019-07",
        "oldest_label": "2019-07",
        "percentages": [
          0.1,
          11.24,
          0.18,
          15.75,
          0.75,
          83.5,
          0
        ],
        "values": [
          15925248,
          1735569408,
          27672576,
          2430595072,
          116105216,
          12889948160,
          0
        ]
      }
    },
    "bytes_used": 15436648448,
    "file_count": 21134,
    "subdir_count": 35
  },
  "bytes_used": 4096,
  "changed_time": "2019-06-12T11:00:16-04:00",
  "constituent": {
    "name": "fg__0001",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "creation_time": "2019-06-12T11:00:16-04:00",
  "group_id": 30,
  "hard_links_count": 1,
  "inode_generation": 214753547,
  "inode_number": 1695,
  "is_empty": "",
  "is_junction": "",
  "is_snapshot": "",
  "is_vm_aligned": "",
```

```
  "modified_time": "2019-06-12T11:00:16-04:00",
  "name": "test_file",
  "owner_id": 54738,
  "path": "d1/d2/d3",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "qos1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "size": 200,
  "target": "some_directory/some_other_directory/some_file",
  "type": "file",
  "unique_bytes": 4096,
  "unix_permissions": 755,
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
====

== Response
```

Status: 201, Created

```
== Error
```

Status: Default

```
ONTAP Error Response Codes

|===
| Error Code | Description

| 917505
| The SVM does not exist.
```

```
| 917525
| The volume in the symlink path does not exist in the SVM.

| 917698
| The volume in the symlink path is not mounted in the namespace.

| 6488064
| This command is not supported.

| 6488065
| The volume in the symlink path is invalid.

| 6488066
| Mounting the unjunctioned volume in the symlink path failed.

| 6488069
| Internal file error.

| 6488084
| Failed to create \{path} because the "unix_permissions" field was not
specified.

| 6488085
| Failed to create \{path} because the "type" field was not specified.

| 8257536
| This operation is not supported for the system volume specified in the
symlink path.

| 8257541
| Failed to compute the SVM identification from this content.

| 8257542
| This operation is not supported for the administrative SVM.

| 9437549
| This operation is not allowed on SVMs with Infinite Volume.

| 13172837
| This operation is not permitted because the SVM is locked for a migrate
operation.
|===



[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
```

```
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|metadata
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used

Number of bytes used on-disk, broken down by date of last access.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|labels
|array[string]
a|Labels for this histogram
```

```
|newest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|oldest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"
```

```
</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|percentages
|array[number]
a|Percentages for this histogram


|values
|array[integer]
a|Values for this histogram


|===


[#by_accessed_time]
[.api-collapsible-fifth-title]
by_accessed_time

File system analytics information, broken down by date of last access.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|bytes_used
|link:#bytes_used[bytes_used]
a|Number of bytes used on-disk, broken down by date of last access.


|===


[#bytes_used]
[.api-collapsible-fifth-title]
bytes_used

Number of bytes used on-disk, broken down by date of last modification.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|labels
|array[string]
a|Labels for this histogram


|newest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
```

```
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|oldest_label
|string
a|Each label indicates the period of time the corresponding data is
associated with. A label can take one of the following forms:<ul>
 a partial date in an extended ISO8601 representation
 an interval between partial dates in an extended ISO8601 representation,
where "--" is used to separate the beginning and end of the interval
 the string literal "unknown"

</ul>For partial dates and partial date intervals where components of a
date are unspecified, the label allows for any valid normalized values the
unspecified components might take. For example, the label "2017" allows
for any time within the year 2017. Essentially, this is the fully
specified interval 2017-01-01T00:00:00--2017-12-31T23:59:59. Similarly,
the interval "2018-05--2018-07" allows for any time within the months of
May, June, and July in 2018, corresponding to the fully specified interval
2018-05-01T00:00:00--2018-07-31T23:59:59.

The following extensions to ISO8601 are used:<ul>
 Quarters may be specified. The form _yyyy_-Q__q__ is used to represent
the __q__th quarter of the year _yyyy_. Q1 consists of the months January,
February, and March; Q2 consists of April, May, and June; Q3 consists of
July, August, and September; Q4 consists of October, November, and
December. For example, the label "2019-Q2" represents the second quarter
of the year 2019, which corresponds to the interval 2019-04-01T00:00:00--
```

```
2019-06-30T23:59:59.
 Either the beginning or end of an interval may be omitted. When the
beginning is omitted, the interval includes points in time arbitrarily far
in the past. When the end is omitted, the interval includes points in time
through the end of the current week.

</ul>The "unknown" label tracks data that could not be associated with any
other time period. This usually occurs when the data was at some point
associated with a time in the future.


|percentages
|array[number]
a|Percentages for this histogram


|values
|array[integer]
a|Values for this histogram


|===


[#by_modified_time]
[.api-collapsible-fifth-title]
by_modified_time

File system analytics information, broken down by date of last
modification.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|bytes_used
|link:#bytes_used[bytes_used]
a|Number of bytes used on-disk, broken down by date of last modification.


|===


[#analytics]
```

```
[.api-collapsible-fifth-title]
analytics

Additional file system analytics information summarizing all descendents
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweenelemen
tswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|by_accessed_time
|link:#by_accessed_time[by_accessed_time]
a|File system analytics information, broken down by date of last access.


|by_modified_time
|link:#by_modified_time[by_modified_time]
a|File system analytics information, broken down by date of last
modification.


|bytes_used
```

```
|integer
a|Number of bytes used on-disk


|file_count
|integer
a|Number of descendants


|subdir_count
|integer
a|Number of sub directories


|===


[#constituent]
[.api-collapsible-fifth-title]
constituent

[cols=3*,options=header]
|===
|Name
|Type
|Description

|name
|string
a|FlexGroup volume constituent name.


|uuid
|string
a|FlexGroup volume constituent UUID.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|self
|link:#href[href]
a|

|===


[#qos_policy]
[.api-collapsible-fifth-title]
qos_policy

The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.

Note that a QoS policy can be set on a file, or a file's volume, but not
on both.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the QoS policy. To remove the file from a QoS policy, set
this property to an empty string "" or set it to "none" in a PATCH
request.


|uuid
|string
a|The unique identifier of the QoS policy. Valid in PATCH.
```

```
|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#file_info]
[.api-collapsible-fifth-title]
file_info

Information about a single file.


[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|_links
|link:#_links[_links]
a|

|accessed_time
|string
a|Last access time of the file in date-time format.


|analytics
|link:#analytics[analytics]
a|Additional file system analytics information summarizing all descendents
of a directory.

This property is only populated if file system analytics is enabled on the
containing volume.

In the context of the `records` property of a xref:{relative_path}file-
info-response(#model-file-info-
response),analyticsobjectswillonlyincludepropertiesthatmayvarybetweeneleme
ntswithinthecollection.forexample,theanalyticsobjectswillnotcontainhistogr
amlabels,sincethesamehistogramlabelsareusedforallelementswithinthecollecti
on.theinvariantinformationisinsteadavailableviatheanalyticspropertyofthefi
le-info-response(#model-file-info-
response).thisavoidsanexcessiveamountofduplicatedinformationwhenaget-
storage-volumes-files-.html<<model-
file_info_response,file_info_response>>, analytics objects will only
include properties that may vary between elements within the collection.
For example, the analytics objects will not contain histogram labels,
since the same histogram labels are used for all elements within the
collection. The invariant information is instead available via the
analytics property of the <<model-file_info_response,file_info_response>>.
This avoids an excessive amount of duplicated information when a [GET
/storage/volumes/{volume.uuid}/files/\{path}]  call returns a large
collection.


|bytes_used
|integer
a|The actual number of bytes used on disk by this file. If byte_offset and
length parameters are specified, this will return the bytes used by the
file within the given range.
```

```
|changed_time
|string
a|Last time data or attributes changed on the file in date-time format.


|constituent
|link:#constituent[constituent]
a|

|creation_time
|string
a|Creation time of the file in date-time format.


|fill_enabled
|boolean
a|Returns "true" if the space reservation is enabled. The field
overwrite_enabled must also be set to the same value as this field.


|group_id
|integer
a|The integer ID of the group of the file owner.


|hard_links_count
|integer
a|The number of hard links to the file.


|inode_generation
|integer
a|Inode generation number.


|inode_number
|integer
a|The file inode number.


|is_empty
|boolean
a|Specifies whether or not a directory is empty. A directory is considered
empty if it only contains entries for "." and "..". This element is
present if the file is a directory. In some special error cases, such as
when the volume goes offline or when the directory is moved while
retrieving this info, this field might not get set.
```

```
|is_junction
|boolean
a|Returns "true" if the directory is a junction.


|is_snapshot
|boolean
a|Returns "true" if the directory is a Snapshot copy.


|is_vm_aligned
|boolean
a|Returns true if the file is vm-aligned. A vm-aligned file is a file that
is initially padded with zero-filled data so that its actual data starts
at an offset other than zero. The amount by which the start offset is
adjusted depends on the vm-align setting of the hosting volume.


|modified_time
|string
a|Last data modification time of the file in date-time format.


|name
|string
a|Name of the file.


|overwrite_enabled
|boolean
a|Returns "true" if the space reservation for overwrites is enabled. The
field fill_enabled must also be set to the same value as this field.


|owner_id
|integer
a|The integer ID of the file owner.


|path
|string
a|Path of the file.


|qos_policy
```

```
|link:#qos_policy[qos_policy]
a|The QoS policy for the file. Both traditional and adaptive QoS policies
are supported. If both `qos_policy.uuid` and `qos_policy.name` properties
are specified in the same request, they must refer to the same QoS policy.
To remove the file from a QoS policy, set the property `qos_policy.name`
in a PATCH request to an empty string "" or "none".

NOTE: Files which are in use as a LUN cannot be assigned to a QoS policy,
instead use PATCH on /storage/luns to assign a QoS policy for such files.

Note that a QoS policy can be set on a file, or a file's volume, but not
on both.


|size
|integer
a|The size of the file, in bytes.


|target
|string
a|The relative or absolute path contained in a symlink, in the form
+++<some>+++/+++<path>+++.+++</path>++++++</some>+++


|type
|string
a|Type of the file.


|unique_bytes
|integer
a|Number of bytes uniquely held by this file. If byte_offset and length
parameters are specified, this will return bytes uniquely held by the file
within the given range.


|unix_permissions
|integer
a|UNIX permissions to be viewed as an octal number. It consists of 4
digits derived by adding up bits 4 (read), 2 (write), and 1 (execute). The
first digit selects the set user ID(4), set group ID (2), and sticky (1)
attributes. The second digit selects permissions for the owner of the
file; the third selects permissions for other users in the same group; the
fourth selects permissions for other users not in the group.
```

```
|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
```

```
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[ID8784df3b9e15225ebbdb90d79c1f5c32]]
= Retrieve historical performance metrics for a volume

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/metrics`#

*Introduced In:* 9.7

Retrieves historical performance metrics for a volume.


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|iops.total
|integer
|query
|False
```

```
a|Filter by iops.total


|iops.write
|integer
|query
|False
a|Filter by iops.write


|iops.other
|integer
|query
|False
a|Filter by iops.other


|iops.read
|integer
|query
|False
a|Filter by iops.read


|throughput.total
|integer
|query
|False
a|Filter by throughput.total


|throughput.write
|integer
|query
|False
a|Filter by throughput.write


|throughput.other
|integer
|query
|False
a|Filter by throughput.other


|throughput.read
|integer
```

```
|query
|False
a|Filter by throughput.read


|duration
|string
|query
|False
a|Filter by duration


|cloud.iops.total
|integer
|query
|False
a|Filter by cloud.iops.total


|cloud.iops.write
|integer
|query
|False
a|Filter by cloud.iops.write


|cloud.iops.other
|integer
|query
|False
a|Filter by cloud.iops.other


|cloud.iops.read
|integer
|query
|False
a|Filter by cloud.iops.read


|cloud.status
|string
|query
|False
a|Filter by cloud.status
```

```
|cloud.duration
|string
|query
|False
a|Filter by cloud.duration


|cloud.latency.total
|integer
|query
|False
a|Filter by cloud.latency.total


|cloud.latency.write
|integer
|query
|False
a|Filter by cloud.latency.write


|cloud.latency.other
|integer
|query
|False
a|Filter by cloud.latency.other


|cloud.latency.read
|integer
|query
|False
a|Filter by cloud.latency.read


|cloud.timestamp
|string
|query
|False
a|Filter by cloud.timestamp


|status
|string
|query
|False
a|Filter by status
```

```
|flexcache.timestamp
|string
|query
|False
a|Filter by flexcache.timestamp

* Introduced in: 9.8


|flexcache.duration
|string
|query
|False
a|Filter by flexcache.duration

* Introduced in: 9.8


|flexcache.cache_miss_percent
|integer
|query
|False
a|Filter by flexcache.cache_miss_percent

* Introduced in: 9.8


|flexcache.status
|string
|query
|False
a|Filter by flexcache.status

* Introduced in: 9.8


|flexcache.bandwidth_savings
|integer
|query
|False
a|Filter by flexcache.bandwidth_savings

* Introduced in: 9.9
```

```
|latency.total
|integer
|query
|False
a|Filter by latency.total


|latency.write
|integer
|query
|False
a|Filter by latency.write


|latency.other
|integer
|query
|False
a|Filter by latency.other


|latency.read
|integer
|query
|False
a|Filter by latency.read


|timestamp
|string
|query
|False
a|Filter by timestamp


|volume.uuid
|string
|path
|True
a|Unique identifier of the volume.


|interval
|string
|query
|False
a|The time range for the data. Examples can be 1h, 1d, 1m, 1w, 1y.
```

```
The period for each time range is as follows:

* 1h: Metrics over the most recent hour sampled over 15 seconds.
* 1d: Metrics over the most recent day sampled over 5 minutes.
* 1w: Metrics over the most recent week sampled over 30 minutes.
* 1m: Metrics over the most recent month sampled over 2 hours.
* 1y: Metrics over the most recent year sampled over a day.
* Default value: 1
* enum: ["1h", "1d", "1w", "1m", "1y"]


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
* Min value: 0


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.
```

```
|return_records
|boolean
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|num_records
|integer
a|Number of records


|records
|array[link:#records[records]]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
```

```
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "duration": "PT15S",
      "iops": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "latency": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "status": "ok",
      "throughput": {
        "read": 200,
        "total": 1000,
        "write": 100
      },
      "timestamp": "2017-01-25T11:20:13Z"
    }
  ]
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
```

```
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|
```

```
|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#iops]
[.api-collapsible-fifth-title]
iops

The rate of I/O operations observed at the storage object.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#latency]
[.api-collapsible-fifth-title]
latency

The round trip latency in microseconds observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
```

```
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

The rate of throughput bytes per second observed at the storage object.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|other
|integer
a|Performance metric for other I/O operations. Other I/O operations can be
metadata operations, such as directory lookups and so on.


|read
|integer
a|Performance metric for read I/O operations.


|total
|integer
```

```
a|Performance metric aggregated over all types of I/O operations.


|write
|integer
a|Peformance metric for write I/O operations.


|===


[#records]
[.api-collapsible-fifth-title]
records

Performance numbers, such as IOPS latency and throughput.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|duration
|string
a|The duration over which this sample is calculated. The time durations
are represented in the ISO-8601 standard format. Samples can be calculated
over the following durations:


|iops
|link:#iops[iops]
a|The rate of I/O operations observed at the storage object.


|latency
|link:#latency[latency]
a|The round trip latency in microseconds observed at the storage object.


|status
|string
```

```
a|Errors associated with the sample. For example, if the aggregation of
data over multiple nodes fails, then any partial errors might return "ok"
on success or "error" on an internal uncategorized failure. Whenever a
sample collection is missed but done at a later time, it is back filled to
the previous 15 second timestamp and tagged with "backfilled_data".
"Inconsistent_ delta_time" is encountered when the time between two
collections is not the same for all nodes. Therefore, the aggregated value
might be over or under inflated. "Negative_delta" is returned when an
expected monotonically increasing value has decreased in value.
"Inconsistent_old_data" is returned when one or more nodes do not have the
latest data.


|throughput
|link:#throughput[throughput]
a|The rate of throughput bytes per second observed at the storage object.


|timestamp
|string
a|The timestamp of the performance data.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===
```

```
[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



:leveloffset: -1


= Manage volume Snapshot copies

:leveloffset: +1
```

```
[[IDe52218bedc1be5c384abbfc4ff88e219]]
= Storage volumes volume.uuid snapshots endpoint overview



== Overview

A Snapshot copy is the view of the filesystem as it exists at the time
when the Snapshot copy is created.

In ONTAP, different types of Snapshot copies are supported, such as
scheduled Snapshot copies, user requested Snapshot copies, SnapMirror
Snapshot copies, and so on.

ONTAP Snapshot copy APIs allow you to create, modify, delete and retrieve
Snapshot copies.

== Snapshot copy APIs

The following APIs are used to perform operations related to Snapshot
copies.

&ndash; POST      /api/storage/volumes/{volume.uuid}/snapshots

&ndash; GET       /api/storage/volumes/{volume.uuid}/snapshots

&ndash; GET       /api/storage/volumes/{volume.uuid}/snapshots/\{uuid}

&ndash; PATCH     /api/storage/volumes/{volume.uuid}/snapshots/\{uuid}

&ndash; DELETE    /api/storage/volumes/{volume.uuid}/snapshots/\{uuid}

== Examples

=== Creating a Snapshot copy

The POST operation is used to create a Snapshot copy with the specified
attributes.

----

# The API:
/api/storage/volumes/{volume.uuid}/snapshots

# The call:
curl -X POST "https://<mgmt-
```

```
ip>/api/storage/volumes/{volume.uuid}/snapshots" -H "accept:
application/hal+json" -d '{"name": "snapshot_copy", "comment": "Store this
copy." }'

# The response:
HTTP/1.1 202 Accepted
Date: Wed, 13 Mar 2019 22:43:34 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Location: /api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/?name=snapshot_copy
Content-Length: 189
Content-Type: application/json
{
"num_records": 1,
"records": [
  {
    "volume": {
      "name": "v2"
    },
    "svm": {
      "uuid": "8139f958-3c6e-11e9-a45f-005056bbc848",
      "name": "vs0"
    },
    "name": "snapshot_copy",
    "comment": "Store this copy."
  }
],
"job": {
  "uuid": "6f68c85b-45e1-11e9-8fc7-005056bbc848",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/6f68c85b-45e1-11e9-8fc7-005056bbc848"
    }
  }
}
}

# The Job:
HTTP/1.1 200 OK
Date: Wed, 13 Mar 2019 22:43:57 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 224
```

```
Content-Type: application/json
{
"uuid": "6f68c85b-45e1-11e9-8fc7-005056bbc848",
"description": "POST /api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/?name=snapshot_copy",
"state": "success",
"message": "success",
"code": 0
}
----

=== Retrieving Snapshot copy attributes

The GET operation is used to retrieve Snapshot copy attributes.

----

# The API:
/api/storage/volumes/{volume.uuid}/snapshots

# The call:
curl -X GET "https://<mgmt-
ip>/api/storage/volumes/{volume.uuid}/snapshots" -H "accept:
application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Wed, 13 Mar 2019 21:14:06 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Type: application/json
Transfer-Encoding: chunked
{
"records": [
  {
    "uuid": "402b6c73-73a0-4e89-a58a-75ee0ab3e8c0",
    "name": "hourly.2019-03-13_1305",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/402b6c73-73a0-4e89-a58a-75ee0ab3e8c0"
      }
    }
  },
  {
```

```
    "uuid": "f0dd497f-efe8-44b7-a4f4-bdd3890bc0c8",
    "name": "hourly.2019-03-13_1405",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/f0dd497f-efe8-44b7-a4f4-bdd3890bc0c8"
      }
    }
  },
  {
    "uuid": "02701900-51bd-46b8-9c77-47d9a9e2ce1d",
    "name": "hourly.2019-03-13_1522",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/02701900-51bd-46b8-9c77-47d9a9e2ce1d"
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots"
  }
}
}
----

=== Retrieving Snapshot copy advanced attributes

A collection GET request is used to calculate the amount of Snapshot copy
reclaimable space.
When the advanced privilege field 'reclaimable space' is requested, the
API returns the amount of reclaimable space for the queried list of
Snapshot copies.

----

# The API:
/api/storage/volumes/{volume.uuid}/snapshots?fields=reclaimable_space

# The call:
curl -X GET "https://<mgmt-
ip>/api/storage/volumes/{volume.uuid}/snapshots?fields=reclaimable_space&n
```

```
ame=hourly.2019-03-13_1305&#124;hourly.2019-03-13_1405&#124;hourly.2019-
03-13_1522" -H "accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Wed, 13 Mar 2019 21:14:06 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Type: application/json
Transfer-Encoding: chunked
{
"records": [
  {
    "uuid": "402b6c73-73a0-4e89-a58a-75ee0ab3e8c0",
    "name": "hourly.2019-03-13_1305",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/402b6c73-73a0-4e89-a58a-75ee0ab3e8c0"
      }
    }
  },
  {
    "uuid": "f0dd497f-efe8-44b7-a4f4-bdd3890bc0c8",
    "name": "hourly.2019-03-13_1405",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/f0dd497f-efe8-44b7-a4f4-bdd3890bc0c8"
      }
    }
  },
  {
    "uuid": "02701900-51bd-46b8-9c77-47d9a9e2ce1d",
    "name": "hourly.2019-03-13_1522",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/02701900-51bd-46b8-9c77-47d9a9e2ce1d"
      }
    }
  }
],
"num_records": 3,
"reclaimable_space": 1567832,
```

```
"_links": {
  "self": {
    "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots"
  }
}
}
----

=== Retrieving the attributes of a specific Snapshot copy

The GET operation is used to retrieve the attributes of a specific
Snapshot copy.

----

# The API:
/api/storage/volumes/{volume.uuid}/snapshots/{uuid}

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/0353dc05-405f-11e9-
acb6-005056bbc848/snapshots/402b6c73-73a0-4e89-a58a-75ee0ab3e8c0" -H
"accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Wed, 13 Mar 2019 22:39:26 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 308
Content-Type: application/json
{
"volume": {
  "uuid": "0353dc05-405f-11e9-acb6-005056bbc848",
  "name": "v2",
  "_links": {
    "self": {
      "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-005056bbc848"
    }
  }
},
"uuid": "402b6c73-73a0-4e89-a58a-75ee0ab3e8c0",
"svm": {
  "uuid": "8139f958-3c6e-11e9-a45f-005056bbc848",
  "name": "vs0",
```

```
  "_links": {
    "self": {
      "href": "/api/svm/svms/8139f958-3c6e-11e9-a45f-005056bbc848"
    }
  }
},
"name": "hourly.2019-03-13_1305",
"create_time": "2019-03-13T13:05:00-04:00",
"size": 122880,
"_links": {
  "self": {
    "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/402b6c73-73a0-4e89-a58a-75ee0ab3e8c0"
  }
}
}
----

=== Retrieving the advanced attributes of a specific Snapshot copy

The GET operation is used to retrieve the attributes of a specific
Snapshot copy. Snapshot copy reclaimable space can be requested during a
GET request.
When the advanced privilege field reclaimable space is requested, the API
returns the amount of reclaimable space for the Snapshot copy.

----

# The API:
/api/storage/volumes/{volume.uuid}/snapshots/{uuid}?fields=reclaimable_spa
ce

# The call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/0353dc05-405f-11e9-
acb6-005056bbc848/snapshots/402b6c73-73a0-4e89-a58a-
75ee0ab3e8c0?fields=**" -H "accept: application/hal+json"

# The response:
HTTP/1.1 200 OK
Date: Wed, 13 Mar 2019 22:39:26 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 308
Content-Type: application/json
{
```

```
"volume": {
  "uuid": "0353dc05-405f-11e9-acb6-005056bbc848",
  "name": "v2",
  "_links": {
    "self": {
      "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-005056bbc848"
    }
  }
},
"uuid": "402b6c73-73a0-4e89-a58a-75ee0ab3e8c0",
"svm": {
  "uuid": "8139f958-3c6e-11e9-a45f-005056bbc848",
  "name": "vs0",
  "_links": {
    "self": {
      "href": "/api/svm/svms/8139f958-3c6e-11e9-a45f-005056bbc848"
    }
  }
},
"name": "hourly.2019-03-13_1305",
"reclaimable_space": 167832,
"_links": {
  "self": {
    "href": "/api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/402b6c73-73a0-4e89-a58a-75ee0ab3e8c0"
  }
}
}
----

=== Updating a Snapshot copy

The PATCH operation is used to update the specific attributes of a
Snapshot copy.

----

# The API:
/api/storage/volumes/{volume.uuid}/snapshots/{uuid}

# The call:
curl -X PATCH  "https://<mgmt-ip>/api/storage/volumes/0353dc05-405f-11e9-
acb6-005056bbc848/snapshots/16f7008c-18fd-4a7d-8485-a0e290d9db7f" -d
'{"name": "snapshot_copy_new" }' -H "accept: application/hal+json"

# The response:
```

```
HTTP/1.1 202 Accepted
Date: Wed, 13 Mar 2019 22:50:44 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
Content-Type: application/json
{
"job": {
  "uuid": "6f7c3a82-45e2-11e9-8fc7-005056bbc848",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/6f7c3a82-45e2-11e9-8fc7-005056bbc848"
    }
  }
}
}

# The Job:
HTTP/1.1 200 OK
Date: Wed, 13 Mar 2019 22:54:16 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 242
Content-Type: application/json
{
"uuid": "6f7c3a82-45e2-11e9-8fc7-005056bbc848",
"description": "PATCH /api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/16f7008c-18fd-4a7d-8485-a0e290d9db7f",
"state": "success",
"message": "success",
"code": 0
}
----

=== Deleting a Snapshot copy

The DELETE operation is used to delete a Snapshot copy.

----

# The API:
/api/storage/volumes/{volume.uuid}/snapshots/{uuid}

# The call:
```

```
curl -X DELETE "https://<mgmt-ip>/api/storage/volumes/0353dc05-405f-11e9-
acb6-005056bbc848/snapshots/16f7008c-18fd-4a7d-8485-a0e290d9db7f" -H
"accept: application/hal+json"

# The response:
HTTP/1.1 202 Accepted
Date: Wed, 13 Mar 2019 22:57:51 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 189
Content-Type: application/json
{
"job": {
  "uuid": "6da1dfdd-45e3-11e9-8fc7-005056bbc848",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/6da1dfdd-45e3-11e9-8fc7-005056bbc848"
    }
  }
}
}

# The Job:
HTTP/1.1 200 OK
Date: Wed, 13 Mar 2019 23:02:46 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 243
Content-Type: application/json
{
"uuid": "6da1dfdd-45e3-11e9-8fc7-005056bbc848",
"description": "DELETE /api/storage/volumes/0353dc05-405f-11e9-acb6-
005056bbc848/snapshots/16f7008c-18fd-4a7d-8485-a0e290d9db7f",
"state": "success",
"message": "success",
"code": 0
}
----
```

[[IDd289cbffc7b11c2caea0d9a6fc552b45]]

```
= Retrieve volume Snapshot copies

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/snapshots`#

*Introduced In:* 9.6

Retrieves a collection of volume Snapshot copies.

== Expensive properties

There is an added cost to retrieving the amount of reclaimable space for
Snapshot copies, as the calculation is done on demand based on the list of
Snapshot copies provided.

* `reclaimable_space`

== Related ONTAP commands

* `snapshot show`
* `snapshot compute-reclaimable`

== Learn more

*
xref:{relative_path}storage_volumes_volume.uuid_snapshots_endpoint_overvie
w.html[DOC /storage/volumes/{volume.uuid}/snapshots]


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume
```

```
|uuid
|string
|query
|False
a|Filter by uuid


|volume.name
|string
|query
|False
a|Filter by volume.name


|owners
|string
|query
|False
a|Filter by owners

* Introduced in: 9.7


|snaplock_expiry_time
|string
|query
|False
a|Filter by snaplock_expiry_time


|create_time
|string
|query
|False
a|Filter by create_time


|snapmirror_label
|string
|query
|False
a|Filter by snapmirror_label

* Introduced in: 9.8


|comment
```

```
|string
|query
|False
a|Filter by comment


|expiry_time
|string
|query
|False
a|Filter by expiry_time


|state
|string
|query
|False
a|Filter by state


|reclaimable_space
|integer
|query
|False
a|Filter by reclaimable_space

* Introduced in: 9.10


|size
|integer
|query
|False
a|Filter by size

* Introduced in: 9.9


|name
|string
|query
|False
a|Filter by name


|svm.uuid
|string
```

```
|query
|False
a|Filter by svm.uuid


|svm.name
|string
|query
|False
a|Filter by svm.name


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|return_records
|boolean
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
```

```
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===
```

```
== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|num_records
|integer
a|Number of records


|reclaimable_space
|integer
a|Space reclaimed when the Snapshot copy is deleted, in bytes.


|records
|array[link:#snapshot[snapshot]]
a|

|===


.Example response
[%collapsible%closed]
====
```

```
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
      "create_time": "2019-02-04T19:00:00Z",
      "expiry_time": "2019-02-04T19:00:00Z",
      "name": "this_snapshot",
      "owners": [
        "string"
      ],
      "size": 122880,
      "snaplock_expiry_time": "2019-02-04T19:00:00Z",
      "snapmirror_label": "string",
      "state": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
```

```
      }
    }
  ]
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
```

```
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

The Snapshot copy object represents a point in time Snapshot copy of a
volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the Snapshot copy. This is an optional
attribute for POST or PATCH.
```

```
|create_time
|string
a|Creation time of the Snapshot copy. It is the volume access time when
the Snapshot copy was created.


|expiry_time
|string
a|The expiry time for the Snapshot copy. This is an optional attribute for
POST or PATCH. Snapshot copies with an expiry time set are not allowed to
be deleted until the retention time is reached.


|name
|string
a|Snapshot copy. Valid in POST or PATCH.


|owners
|array[string]
a|

|reclaimable_space
|integer
a|Space reclaimed when the Snapshot copy is deleted, in bytes.


|size
|integer
a|Size of the active file system at the time the Snapshot copy is
captured. The actual size of the Snapshot copy also includes those blocks
trapped by other Snapshot copies. On a Snapshot copy deletion, the "size"
amount of blocks is the maximum number of blocks available. On a Snapshot
copy restore, the "afs-used size" value will match the Snapshot copy
"size" value.


|snaplock_expiry_time
|string
a|SnapLock expiry time for the Snapshot copy, if the Snapshot copy is
taken on a SnapLock volume. A Snapshot copy is not allowed to be deleted
or renamed until the SnapLock ComplianceClock time goes beyond this
retention time.


|snapmirror_label
|string
```

```
a|Label for SnapMirror operations


|state
|string
a|State of the Snapshot copy. There are cases where some Snapshot copies
are not complete. In the "partial" state, the Snapshot copy is consistent
but exists only on the subset of the constituents that existed prior to
the FlexGroup's expansion. Partial Snapshot copies cannot be used for a
Snapshot copy restore operation. A Snapshot copy is in an "invalid" state
when it is present in some FlexGroup constituents but not in others. At
all other times, a Snapshot copy is valid.


|svm
|link:#svm[svm]
a|

|uuid
|string
a|The UUID of the Snapshot copy in the volume that uniquely identifies the
Snapshot copy in that volume.


|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
```

```
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[IDbc814d50567c8c7b36716b7fc0eb3375]]
= Create a volume Snapshot copy
```

```
[.api-doc-operation .api-doc-operation-post]#POST# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/snapshots`#

*Introduced In:* 9.6

Creates a volume Snapshot copy.

== Required properties

* `name` - Name of the Snapshot copy to be created.

== Recommended optional properties

* `comment` - Comment associated with the Snapshot copy.
* `expiry_time` - Snapshot copies with an expiry time set are not allowed
to be deleted until the retention time is reached.
* `snapmirror_label` - Label for SnapMirror operations.

== Related ONTAP commands

* `snapshot create`

== Learn more

*
xref:{relative_path}storage_volumes_volume.uuid_snapshots_endpoint_overvie
w.html[DOC /storage/volumes/{volume.uuid}/snapshots]


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID
```

```
|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When doing a POST, PATCH, or DELETE operation on a single record, the
default is 0 seconds.  This means that if an asynchronous operation is
started, the server immediately returns HTTP code 202 (Accepted) along
with a link to the job.  If a non-zero value is specified for POST, PATCH,
or DELETE operations, ONTAP waits that length of time to see if the job
completes so it can return something other than 202.

* Default value: 1
* Max value: 120
* Min value: 0


|return_records
|boolean
|query
|False
a|The default is false.  If set to true, the records are returned.

* Default value:

|===

== Request Body



[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the Snapshot copy. This is an optional
attribute for POST or PATCH.
```

```
|create_time
|string
a|Creation time of the Snapshot copy. It is the volume access time when
the Snapshot copy was created.


|expiry_time
|string
a|The expiry time for the Snapshot copy. This is an optional attribute for
POST or PATCH. Snapshot copies with an expiry time set are not allowed to
be deleted until the retention time is reached.


|name
|string
a|Snapshot copy. Valid in POST or PATCH.


|owners
|array[string]
a|

|reclaimable_space
|integer
a|Space reclaimed when the Snapshot copy is deleted, in bytes.


|size
|integer
a|Size of the active file system at the time the Snapshot copy is
captured. The actual size of the Snapshot copy also includes those blocks
trapped by other Snapshot copies. On a Snapshot copy deletion, the "size"
amount of blocks is the maximum number of blocks available. On a Snapshot
copy restore, the "afs-used size" value will match the Snapshot copy
"size" value.


|snaplock_expiry_time
|string
a|SnapLock expiry time for the Snapshot copy, if the Snapshot copy is
taken on a SnapLock volume. A Snapshot copy is not allowed to be deleted
or renamed until the SnapLock ComplianceClock time goes beyond this
retention time.


|snapmirror_label
```

```
|string
a|Label for SnapMirror operations


|state
|string
a|State of the Snapshot copy. There are cases where some Snapshot copies
are not complete. In the "partial" state, the Snapshot copy is consistent
but exists only on the subset of the constituents that existed prior to
the FlexGroup's expansion. Partial Snapshot copies cannot be used for a
Snapshot copy restore operation. A Snapshot copy is in an "invalid" state
when it is present in some FlexGroup constituents but not in others. At
all other times, a Snapshot copy is valid.


|svm
|link:#svm[svm]
a|

|uuid
|string
a|The UUID of the Snapshot copy in the volume that uniquely identifies the
Snapshot copy in that volume.


|volume
|link:#volume[volume]
a|

|===


.Example request
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "create_time": "2019-02-04T19:00:00Z",
  "expiry_time": "2019-02-04T19:00:00Z",
  "name": "this_snapshot",
  "owners": [
```

```
    "string"
  ],
  "size": 122880,
  "snaplock_expiry_time": "2019-02-04T19:00:00Z",
  "snapmirror_label": "string",
  "state": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
====

== Response
```

Status: 202, Accepted

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|job
|link:#job_link[job_link]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===
```

```
.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
```

```
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

The Snapshot copy object represents a point in time Snapshot copy of a
volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
```

```
a|A comment associated with the Snapshot copy. This is an optional
attribute for POST or PATCH.


|create_time
|string
a|Creation time of the Snapshot copy. It is the volume access time when
the Snapshot copy was created.


|expiry_time
|string
a|The expiry time for the Snapshot copy. This is an optional attribute for
POST or PATCH. Snapshot copies with an expiry time set are not allowed to
be deleted until the retention time is reached.


|name
|string
a|Snapshot copy. Valid in POST or PATCH.


|owners
|array[string]
a|

|reclaimable_space
|integer
a|Space reclaimed when the Snapshot copy is deleted, in bytes.


|size
|integer
a|Size of the active file system at the time the Snapshot copy is
captured. The actual size of the Snapshot copy also includes those blocks
trapped by other Snapshot copies. On a Snapshot copy deletion, the "size"
amount of blocks is the maximum number of blocks available. On a Snapshot
copy restore, the "afs-used size" value will match the Snapshot copy
"size" value.


|snaplock_expiry_time
|string
a|SnapLock expiry time for the Snapshot copy, if the Snapshot copy is
taken on a SnapLock volume. A Snapshot copy is not allowed to be deleted
or renamed until the SnapLock ComplianceClock time goes beyond this
retention time.
```

```
|snapmirror_label
|string
a|Label for SnapMirror operations


|state
|string
a|State of the Snapshot copy. There are cases where some Snapshot copies
are not complete. In the "partial" state, the Snapshot copy is consistent
but exists only on the subset of the constituents that existed prior to
the FlexGroup's expansion. Partial Snapshot copies cannot be used for a
Snapshot copy restore operation. A Snapshot copy is in an "invalid" state
when it is present in some FlexGroup constituents but not in others. At
all other times, a Snapshot copy is valid.


|svm
|link:#svm[svm]
a|

|uuid
|string
a|The UUID of the Snapshot copy in the volume that uniquely identifies the
Snapshot copy in that volume.


|volume
|link:#volume[volume]
a|

|===


[#job_link]
[.api-collapsible-fifth-title]
job_link

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
```

```
a|

|uuid
|string
a|The UUID of the asynchronous job that is triggered by a POST, PATCH, or
DELETE operation.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments
```

```
|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[IDa7998ee4449a83dce6acf540e7d1f337]]
= Delete a volume Snapshot copy

[.api-doc-operation .api-doc-operation-delete]#DELETE# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/snapshots/{uuid}`#

*Introduced In:* 9.6

Deletes a Volume Snapshot copy.

== Related ONTAP commands

* `snapshot delete`

== Learn more

*
xref:{relative_path}storage_volumes_volume.uuid_snapshots_endpoint_overvie
w.html[DOC /storage/volumes/{volume.uuid}/snapshots]


== Parameters
```

```
[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|uuid
|string
|path
|True
a|Snapshot copy UUID


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When doing a POST, PATCH, or DELETE operation on a single record, the
default is 0 seconds.  This means that if an asynchronous operation is
started, the server immediately returns HTTP code 202 (Accepted) along
with a link to the job.  If a non-zero value is specified for POST, PATCH,
or DELETE operations, ONTAP waits that length of time to see if the job
completes so it can return something other than 202.

* Default value: 1
* Max value: 120
* Min value: 0

|===

== Response
```

Status: 202, Accepted

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|job
|link:#job_link[job_link]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===
```

```
.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
```

```
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#job_link]
[.api-collapsible-fifth-title]
job_link

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|uuid
|string
a|The UUID of the asynchronous job that is triggered by a POST, PATCH, or
DELETE operation.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===
```

```
//end collapsible .Definitions block
====



[[ID3341b72155bd37b6f8bc2b2c676b7268]]
= Retrieve volume Snapshot copy details

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/snapshots/{uuid}`#

*Introduced In:* 9.6

Retrieves details of a specific volume Snapshot copy.

== Related ONTAP commands

* `snapshot show`

== Learn more

*
xref:{relative_path}storage_volumes_volume.uuid_snapshots_endpoint_overvie
w.html[DOC /storage/volumes/{volume.uuid}/snapshots]


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|uuid
|string
|path
```

```
|True
a|Snapshot copy UUID


|fields
|array[string]
|query
|False
a|Specify the fields to return.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the Snapshot copy. This is an optional
attribute for POST or PATCH.


|create_time
|string
a|Creation time of the Snapshot copy. It is the volume access time when
the Snapshot copy was created.


|expiry_time
|string
a|The expiry time for the Snapshot copy. This is an optional attribute for
POST or PATCH. Snapshot copies with an expiry time set are not allowed to
be deleted until the retention time is reached.


|name
```

```
|string
a|Snapshot copy. Valid in POST or PATCH.


|owners
|array[string]
a|

|reclaimable_space
|integer
a|Space reclaimed when the Snapshot copy is deleted, in bytes.


|size
|integer
a|Size of the active file system at the time the Snapshot copy is
captured. The actual size of the Snapshot copy also includes those blocks
trapped by other Snapshot copies. On a Snapshot copy deletion, the "size"
amount of blocks is the maximum number of blocks available. On a Snapshot
copy restore, the "afs-used size" value will match the Snapshot copy
"size" value.


|snaplock_expiry_time
|string
a|SnapLock expiry time for the Snapshot copy, if the Snapshot copy is
taken on a SnapLock volume. A Snapshot copy is not allowed to be deleted
or renamed until the SnapLock ComplianceClock time goes beyond this
retention time.


|snapmirror_label
|string
a|Label for SnapMirror operations


|state
|string
a|State of the Snapshot copy. There are cases where some Snapshot copies
are not complete. In the "partial" state, the Snapshot copy is consistent
but exists only on the subset of the constituents that existed prior to
the FlexGroup's expansion. Partial Snapshot copies cannot be used for a
Snapshot copy restore operation. A Snapshot copy is in an "invalid" state
when it is present in some FlexGroup constituents but not in others. At
all other times, a Snapshot copy is valid.
```

```
|svm
|link:#svm[svm]
a|

|uuid
|string
a|The UUID of the Snapshot copy in the volume that uniquely identifies the
Snapshot copy in that volume.


|volume
|link:#volume[volume]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "create_time": "2019-02-04T19:00:00Z",
  "expiry_time": "2019-02-04T19:00:00Z",
  "name": "this_snapshot",
  "owners": [
    "string"
  ],
  "size": 122880,
  "snaplock_expiry_time": "2019-02-04T19:00:00Z",
  "snapmirror_label": "string",
  "state": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
```

```
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
```

```
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#svm]
```

```
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
```

```
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments
```

```
|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



[[ID8088d16b40e8891cb7004333b7efd9c4]]
= Update a volume Snapshot copy

[.api-doc-operation .api-doc-operation-patch]#PATCH# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/snapshots/{uuid}`#

*Introduced In:* 9.6

Updates a Volume Snapshot copy.

== Related ONTAP commands

* `snapshot modify`
* `snapshot rename`

== Learn more

*
xref:{relative_path}storage_volumes_volume.uuid_snapshots_endpoint_overvie
w.html[DOC /storage/volumes/{volume.uuid}/snapshots]
```

```
== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|uuid
|string
|path
|True
a|Snapshot copy UUID


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When doing a POST, PATCH, or DELETE operation on a single record, the
default is 0 seconds.  This means that if an asynchronous operation is
started, the server immediately returns HTTP code 202 (Accepted) along
with a link to the job.  If a non-zero value is specified for POST, PATCH,
or DELETE operations, ONTAP waits that length of time to see if the job
completes so it can return something other than 202.

* Default value: 1
* Max value: 120
* Min value: 0

|===

== Request Body
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
a|A comment associated with the Snapshot copy. This is an optional
attribute for POST or PATCH.


|create_time
|string
a|Creation time of the Snapshot copy. It is the volume access time when
the Snapshot copy was created.


|expiry_time
|string
a|The expiry time for the Snapshot copy. This is an optional attribute for
POST or PATCH. Snapshot copies with an expiry time set are not allowed to
be deleted until the retention time is reached.


|name
|string
a|Snapshot copy. Valid in POST or PATCH.


|owners
|array[string]
a|

|reclaimable_space
|integer
a|Space reclaimed when the Snapshot copy is deleted, in bytes.


|size
|integer
a|Size of the active file system at the time the Snapshot copy is
captured. The actual size of the Snapshot copy also includes those blocks
```

```
trapped by other Snapshot copies. On a Snapshot copy deletion, the "size"
amount of blocks is the maximum number of blocks available. On a Snapshot
copy restore, the "afs-used size" value will match the Snapshot copy
"size" value.


|snaplock_expiry_time
|string
a|SnapLock expiry time for the Snapshot copy, if the Snapshot copy is
taken on a SnapLock volume. A Snapshot copy is not allowed to be deleted
or renamed until the SnapLock ComplianceClock time goes beyond this
retention time.


|snapmirror_label
|string
a|Label for SnapMirror operations


|state
|string
a|State of the Snapshot copy. There are cases where some Snapshot copies
are not complete. In the "partial" state, the Snapshot copy is consistent
but exists only on the subset of the constituents that existed prior to
the FlexGroup's expansion. Partial Snapshot copies cannot be used for a
Snapshot copy restore operation. A Snapshot copy is in an "invalid" state
when it is present in some FlexGroup constituents but not in others. At
all other times, a Snapshot copy is valid.


|svm
|link:#svm[svm]
a|

|uuid
|string
a|The UUID of the Snapshot copy in the volume that uniquely identifies the
Snapshot copy in that volume.


|volume
|link:#volume[volume]
a|

|===
```

.Example request
[%collapsible%closed]
====
[source,json,subs=+macros]

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "create_time": "2019-02-04T19:00:00Z",
  "expiry_time": "2019-02-04T19:00:00Z",
  "name": "this_snapshot",
  "owners": [
    "string"
  ],
  "size": 122880,
  "snaplock_expiry_time": "2019-02-04T19:00:00Z",
  "snapmirror_label": "string",
  "state": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
```

====

== Response

Status: 202, Accepted

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|job
|link:#job_link[job_link]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===
```

```
.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
```

```
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#snapshot]
[.api-collapsible-fifth-title]
snapshot

The Snapshot copy object represents a point in time Snapshot copy of a
volume.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|comment
|string
```

```
a|A comment associated with the Snapshot copy. This is an optional
attribute for POST or PATCH.


|create_time
|string
a|Creation time of the Snapshot copy. It is the volume access time when
the Snapshot copy was created.


|expiry_time
|string
a|The expiry time for the Snapshot copy. This is an optional attribute for
POST or PATCH. Snapshot copies with an expiry time set are not allowed to
be deleted until the retention time is reached.


|name
|string
a|Snapshot copy. Valid in POST or PATCH.


|owners
|array[string]
a|

|reclaimable_space
|integer
a|Space reclaimed when the Snapshot copy is deleted, in bytes.


|size
|integer
a|Size of the active file system at the time the Snapshot copy is
captured. The actual size of the Snapshot copy also includes those blocks
trapped by other Snapshot copies. On a Snapshot copy deletion, the "size"
amount of blocks is the maximum number of blocks available. On a Snapshot
copy restore, the "afs-used size" value will match the Snapshot copy
"size" value.


|snaplock_expiry_time
|string
a|SnapLock expiry time for the Snapshot copy, if the Snapshot copy is
taken on a SnapLock volume. A Snapshot copy is not allowed to be deleted
or renamed until the SnapLock ComplianceClock time goes beyond this
retention time.
```

```
|snapmirror_label
|string
a|Label for SnapMirror operations


|state
|string
a|State of the Snapshot copy. There are cases where some Snapshot copies
are not complete. In the "partial" state, the Snapshot copy is consistent
but exists only on the subset of the constituents that existed prior to
the FlexGroup's expansion. Partial Snapshot copies cannot be used for a
Snapshot copy restore operation. A Snapshot copy is in an "invalid" state
when it is present in some FlexGroup constituents but not in others. At
all other times, a Snapshot copy is valid.


|svm
|link:#svm[svm]
a|

|uuid
|string
a|The UUID of the Snapshot copy in the volume that uniquely identifies the
Snapshot copy in that volume.


|volume
|link:#volume[volume]
a|

|===


[#job_link]
[.api-collapsible-fifth-title]
job_link

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
```

```
a|

|uuid
|string
a|The UUID of the asynchronous job that is triggered by a POST, PATCH, or
DELETE operation.


|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments
```

```
|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



:leveloffset: -1


= Retrieve clients

:leveloffset: +1


[[IDcabf0e59bb9cf44e695717f0abd34337]]
= Storage volumes volume.uuid top-metrics clients endpoint overview



== Overview

You can use this API to retrieve a list of clients with the most IO
activity for a specified volume. Use the `top_metric` parameter to specify
which type of IO activity to filter for. This API is used to provide
insight into IO activity and supports ordering by IO activity types,
namely `iops` and `throughput` metrics. This API supports only returning
one IO activity type per request.
```

```
== Failure to return list of clients with most IO activity

The API can sometimes fail to return the list of clients with the most IO
activity, due to the following reasons:

&ndash; The volume does not have the activity tracking feature enabled.

&ndash; The volume does not have read/write traffic.

&ndash; The read traffic is served by the NFS/CIFS client filesystem
cache.

&ndash; On rare occasions, the incoming traffic pattern is not suitable to
obtain the list of clients with the most IO activity.

== Retrieve a list of the clients with the most IO activity

For a report on the clients with the most IO activity returned in
descending order, specify the IO activity type you want to filter for by
passing the `iops` or `throughput` IO activity type into the top_metric
parameter. If the IO activity type is not specified, by default the API
returns a list of clients with the greatest number of average read
operations per second. The maximum number of clients returned by the API
for an IO activity type is 25.

&ndash; GET   /api/storage/volumes/{volume.uuid}/top-metrics/clients

== Examples

=== Retrieving a list of the clients with the greatest average number of
write operations per second:

----

# The API:
GET /api/storage/volumes/{volume.uuid}/top-metrics/clients

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/clients?top_metric=iops.write"

# The Response:
{
"records": [
  {
    "volume": {
      "name": "vol1"
```

```
    },
    "iops": {
      "write": 1495,
      "error": {
        "lower_bound": 1495,
        "upper_bound": 1505
      }
    },
    "client_ip": "172.28.71.128",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    }
  },
  {
    "volume": {
      "name": "vol1"
    },
    "iops": {
      "write": 1022,
      "error": {
        "lower_bound": 1022,
        "upper_bound": 1032
      }
    },
    "client_ip": "172.28.71.179",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    }
  },
  {
    "volume": {
      "name": "vol1"
    },
    "iops": {
```

```
      "write": 345,
      "error": {
        "lower_bound": 345,
        "upper_bound": 355
      }
    },
    "client_ip": "172.28.51.62",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/top-metrics/clients?top_metric=iops.write"
  }
}
}
----

== Example showing the behavior of the API when there is no read/write
traffic:

----

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/clients?top_metric=throughput.write"

# The Response:
{
"records": [
],
"num_records": 0,
"notice": {
  "message": "The activity tracking report for volume \"FV\" in SVM
\"vs0\" returned zero records. Check whether the volume have read/write
traffic. Refer to the REST API documentation for more information on why
```

```
there might be no records.",
  "code": "124518418"
},
"_links": {
  "self": {
    "href": "/api/storage/volumes/9af63729-8ac8-11ec-b1bc-
005056a79da4/top-metrics/clients?top_metric=throughput.write"
  }
}
}
----
```

```
[[IDbb810d19c53ef1988d492e79d6925795]]
= Retrieve clients with the most I/O activity

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/top-metrics/clients`#

*Introduced In:* 9.10

Retrieves a list of clients with the most IO activity.


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|top_metric
|string
```

```
|query
|False
a|IO activity type

* Default value: 1
* enum: ["iops.read", "iops.write", "throughput.read", "throughput.write"]


|volume.name
|string
|query
|False
a|Filter by volume.name


|client_ip
|string
|query
|False
a|Filter by client_ip


|notice.message
|string
|query
|False
a|Filter by notice.message


|notice.code
|string
|query
|False
a|Filter by notice.code


|throughput.error.lower_bound
|integer
|query
|False
a|Filter by throughput.error.lower_bound


|throughput.error.upper_bound
|integer
|query
|False
```

```
a|Filter by throughput.error.upper_bound


|throughput.write
|integer
|query
|False
a|Filter by throughput.write


|throughput.read
|integer
|query
|False
a|Filter by throughput.read


|svm.uuid
|string
|query
|False
a|Filter by svm.uuid


|svm.name
|string
|query
|False
a|Filter by svm.name


|iops.error.lower_bound
|integer
|query
|False
a|Filter by iops.error.lower_bound


|iops.error.upper_bound
|integer
|query
|False
a|Filter by iops.error.upper_bound


|iops.write
|integer
```

```
|query
|False
a|Filter by iops.write


|iops.read
|integer
|query
|False
a|Filter by iops.read


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|return_records
|boolean
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
```

```
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|notice
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|num_records
|integer
a|Number of records.


|records
|array[link:#top_metrics_client[top_metrics_client]]
a|

|===


.Example response
[%collapsible%closed]
```

```
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "notice": {
    "code": "111411207",
    "message": "No read/write traffic on volume"
  },
  "records": [
    {
      "client_ip": "192.168.185.170",
      "iops": {
        "error": {
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 5,
        "write": 10
      },
      "notice": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "code": "111411207",
        "message": "No read/write traffic on volume."
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "throughput": {
        "error": {
```

```
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 12,
        "write": 2
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
```

```
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
```

```
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice

Optional field that indicates why no records are returned by the volume
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===


[#top_metric_value_error_bounds]
[.api-collapsible-fifth-title]
top_metric_value_error_bounds

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|lower_bound
|integer
a|Lower bound of the nominal value of a metric.


|upper_bound
|integer
a|Upper bound of the nominal value of a metric.


|===


[#iops]
[.api-collapsible-fifth-title]
iops

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read operations per second.


|write
|integer
a|Average number of write operations per second.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice

Optional field that indicates why no records are returned by the volume
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read bytes received per second.


|write
|integer
a|Average number of write bytes received per second.


|===
```

```
[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#top_metrics_client]
[.api-collapsible-fifth-title]
top_metrics_client

Information about a client's IO activity.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|client_ip
```

```
|string
a|IP address of the client. Both IPv4 and IPv6 IP addresses are supported.


|iops
|link:#iops[iops]
a|

|notice
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|svm
|link:#svm[svm]
a|

|throughput
|link:#throughput[throughput]
a|

|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument
```

```
|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



:leveloffset: -1


= Retrieve directories
```

```
:leveloffset: +1


[[IDb95f644b5361466382441cbe23c53138]]
= Storage volumes volume.uuid top-metrics directories endpoint overview



== Overview

You can use this API to retrieve a list of directories with the most IO
activity for a specified volume. Use the `top_metric` parameter to specify
which type of IO activity to filter for. This API is used to provide
insight into IO activity and supports ordering by IO activity types,
namely `iops` and `throughput` metrics. This API supports only returning
one IO activity type per request.

== Retrieve a list of the directories with the most IO activity

For a report on the directories with the most IO activity returned in
descending order, specify the performance metric type you want to filter
for by passing the `iops` or `throughput` property into the top_metric
parameter. If the metric type is not specified, by default the API returns
a list of the directories with the greatest number of the average read
operations per second. The maximum number of directories returned by the
API for a metric type is 25.

== Failure to return list of directories with most IO activity

The API can sometimes fail to return the list of directories with the most
IO activity, due to the following reasons:

&ndash; The volume does not have the activity tracking feature enabled.

&ndash; The volume does not have read/write traffic.

&ndash; The read traffic is served by the NFS/CIFS client filesystem
cache.

&ndash; On rare occasions, the incoming traffic pattern is not suitable to
obtain the list of directories with the most IO activity.

&ndash; GET   /api/storage/volumes/{volume.uuid}/top-metrics/directories

== Failure to return the pathnames for the list of directories with most
IO activity
```

```
The API can sometimes fail to obtain the filesystem pathnames for the list
of directory entries, due to internal transient errors.
In such cases, instead of the pathname, the API will return
"{+++<volume_instance_uuid>+++:+++<fileid>+++" for every directory entry.
You can get more information about the directory entry by invoking the GET
on the below API using the above obtained fileid. "GET
/api/storage/volumes/{+++<volume_instance_uuid>+++}/files/\{path}?inode_nu
mber=+++<fileid>+++"+++</fileid>++++++</volume_instance_uuid>++++++</filei
d>++++++</volume_instance_uuid>+++

== Examples

=== Retrieving a list of the directories with the greatest average number
of read operations per second:

----

# The API:
GET /api/storage/volumes/{volume.uuid}/top-metrics/directories

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/directories?top_metric=iops.read"

# The Response:
{
"records": [
  {
    "volume": {
      "name": "vol1",
    },
    "iops": {
      "read": 1495,
      "error": {
        "lower_bound": 1495,
        "upper_bound": 1505
      }
    },
    "path": "/dir1/dir2",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
```

```
        }
      }
    },
    "_links": {
      "directory": {
        "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/files/dir1%2Fdir2"
      },
      "metadata": {
        "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/files/dir1%2Fdir2?return_metadata=true"
      }
    }
  },
  {
    "volume": {
      "name": "vol1",
    },
    "iops": {
      "read": 1022,
      "error": {
        "lower_bound": 1022,
        "upper_bound": 1032
      }
    },
    "path": "/dir3/dir4",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    },
    "_links": {
      "directory": {
        "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/files/dir3%2Fdir4"
      },
      "metadata": {
        "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/files/dir3%2Fdir4?return_metadata=true"
      }
    }
  },
```

```
  {
    "volume": {
      "uuid": "73b293df-e9d7-46cc-a9ce-2df8e52ef864",
      "name": "vol1",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864"
        }
      }
    },
    "iops": {
      "read": 345,
      "error": {
        "lower_bound": 345,
        "upper_bound": 355
      }
    },
    "path": "/dir12",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    },
    "_links": {
      "directory": {
        "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/files/dir12"
      },
      "metadata": {
        "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/files/dir12?return_metadata=true"
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/top-metrics/directories?top_metric=iops.read"
  }
```

```
}
}
----

=== Retrieving a list of the directories with the most traffic with
failure in obtaining the pathnames for the directories:

----

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/directories?top_metric=throughput.write"

# The Response:
{
"records": [
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 24,
      "error": {
        "lower_bound": 24,
        "upper_bound": 29
      }
    },
    "path": "{4ec6d1ea-d5da-11eb-a25f-005056ac0f77:1232}",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    }
  },
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 12,
      "error": {
        "lower_bound": 12,
```

```
        "upper_bound": 22
      }
    },
    "path": "{4ec6d1ea-d5da-11eb-a25f-005056ac0f77:6754}",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    }
  },
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 8,
      "error": {
        "lower_bound": 8,
        "upper_bound": 10
      }
    },
    "path": "{4ec6d1ea-d5da-11eb-a25f-005056ac0f77:8654}",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/volumes/4ec6d1ea-d5da-11eb-a25f-
005056ac0f77/top-metrics/directories?top_metric=throughput.write"
  }
}
}
----
```

```
== Example showing the behavior of the API when there is no read/write
traffic:

----

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/directories?top_metric=throughput.write"

# The Response:
{
"records": [
],
"num_records": 0,
"notice": {
  "message": "The activity tracking report for volume \"FV\" in SVM
\"vs0\" returned zero records. Check whether the volume have read/write
traffic. Refer to the REST API documentation for more information on why
there might be no records.",
  "code": "124518418"
},
"_links": {
  "self": {
    "href": "/api/storage/volumes/9af63729-8ac8-11ec-b1bc-
005056a79da4/top-metrics/directories?top_metric=throughput.write"
  }
}
}
----




[[ID1039ce5d7693aa0a162598bad24f72c0]]
= Retrieve directories with the greatest value performance metric or
capacity metric

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/top-metrics/directories`#

*Introduced In:* 9.10

Retrieves a list of directories with the most IO activity.
```

```
== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|top_metric
|string
|query
|False
a|IO activity type

* Default value: 1
* enum: ["iops.read", "iops.write", "throughput.read", "throughput.write"]


|max_records_per_volume
|integer
|query
|False
a|Max records per volume.


|throughput.read
|integer
|query
|False
a|Filter by throughput.read


|throughput.write
|integer
|query
|False
a|Filter by throughput.write
```

```
|throughput.error.lower_bound
|integer
|query
|False
a|Filter by throughput.error.lower_bound


|throughput.error.upper_bound
|integer
|query
|False
a|Filter by throughput.error.upper_bound


|svm.uuid
|string
|query
|False
a|Filter by svm.uuid


|svm.name
|string
|query
|False
a|Filter by svm.name


|iops.error.lower_bound
|integer
|query
|False
a|Filter by iops.error.lower_bound


|iops.error.upper_bound
|integer
|query
|False
a|Filter by iops.error.upper_bound


|iops.write
|integer
|query
```

```
|False
a|Filter by iops.write


|iops.read
|integer
|query
|False
a|Filter by iops.read


|volume.name
|string
|query
|False
a|Filter by volume.name


|path
|string
|query
|False
a|Filter by path


|notice.message
|string
|query
|False
a|Filter by notice.message


|notice.code
|string
|query
|False
a|Filter by notice.code


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
```

```
|integer
|query
|False
a|Limit the number of records returned.


|return_records
|boolean
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===
```

```
== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|_links
|link:#_links[_links]
a|

|notice
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|num_records
|integer
a|Number of records.


|records
|array[link:#top_metrics_directory[top_metrics_directory]]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "notice": {
    "code": "111411207",
    "message": "No read/write traffic on volume."
  },
  "records": [
    {
      "_links": {
        "metadata": {
```

```
        "href": "/api/resourcelink"
      },
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "iops": {
      "error": {
        "lower_bound": 34,
        "upper_bound": 54
      },
      "read": 10,
      "write": 5
    },
    "notice": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "code": "111411207",
      "message": "No read/write traffic on volume."
    },
    "path": "/dir_abc/dir_123/dir_20",
    "svm": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "svm1",
      "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "throughput": {
      "error": {
        "lower_bound": 34,
        "upper_bound": 54
      },
      "read": 3,
      "write": 20
    },
    "volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
```

```
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions
```

```
[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice
```

```
Optional field that indicates why no records are returned by the volume
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|metadata
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#top_metric_value_error_bounds]
[.api-collapsible-fifth-title]
```

```
top_metric_value_error_bounds

[cols=3*,options=header]
|===
|Name
|Type
|Description

|lower_bound
|integer
a|Lower bound of the nominal value of a metric.


|upper_bound
|integer
a|Upper bound of the nominal value of a metric.


|===


[#iops]
[.api-collapsible-fifth-title]
iops

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read operations per second.


|write
|integer
a|Average number of write operations per second.


|===
```

```
[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice

Optional field that indicates why no records are returned by the volume
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===
```

```
[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read bytes received per second.
```

```
|write
|integer
a|Average number of write bytes received per second.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#top_metrics_directory]
[.api-collapsible-fifth-title]
top_metrics_directory

Information about a directory's IO activity.
```

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|iops
|link:#iops[iops]
a|

|notice
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|path
|string
a|Path of the directory.


|svm
|link:#svm[svm]
a|

|throughput
|link:#throughput[throughput]
a|

|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.
```

```
|===


//end collapsible .Definitions block
====



:leveloffset: -1


= Retrieve files

:leveloffset: +1


[[IDc9d838e96e794ec9b1eaa2ba99da9dd7]]
= Storage volumes volume.uuid top-metrics files endpoint overview



== Overview

You can use this API to retrieve a list of files with the most IO activity
for a specified volume. Use the `top_metric` parameter to specify which
type of IO activity to filter for. This API is used to provide insight
into IO activity and supports ordering by IO activity types, namely `iops`
or `throughput` metrics. This API also supports only returning one IO
activity type per request.

== Failure to return list of files with most IO activity

The API can sometimes fail to return the list of files with the most IO
activity, due to the following reasons:

&ndash; The volume does not have the activity tracking feature enabled.

&ndash; The volume does not have read/write traffic.

&ndash; The read traffic is served by the NFS/CIFS client filesystem
cache.

&ndash; On rare occasions, the incoming traffic pattern is not suitable to
obtain the list of files with the most IO activity.

== Failure to return the pathnames for the list of files with most IO
activity
```

```
The API can sometimes fail to obtain the filesystem pathnames for the list
of files, due to internal transient errors.
In such cases, instead of the pathname, the API will return
"{+++<volume_instance_uuid>+++:+++<fileid>+++}" for every file entry. You
can get more information about the file entry by invoking the GET on the
below API using the above obtained fileid. "GET
/api/storage/volumes/{+++<volume_instance_uuid>+++}/files/\{path}?inode_nu
mber=+++<fileid>+++"+++</fileid>++++++</volume_instance_uuid>++++++</filei
d>++++++</volume_instance_uuid>+++

== Retrieve a list of the files with the most IO activity

For a report on the files with the most IO activity returned in descending
order, specify the IO activity type you want to filter for by passing the
`iops` or `throughput` property into the top_metric parameter. If the IO
activity type is not specified, by default the API returns a list of the
files with the greatest number of the average read operations per second.
The maximum number of files returned by the API for an IO activity type is
25.

&ndash; GET   /api/storage/volumes/{volume.uuid}/top-metrics/files

== Examples

=== Retrieving a list of the files with the greatest average number of
write bytes received per second:

----

# The API:
GET /api/storage/volumes/{volume.uuid}/top-metrics/files

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/files?top_metric=throughput.write"

# The Response:
{
"records": [
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 24,
```

```
      "error": {
        "lower_bound": 24,
        "upper_bound": 29
      }
    },
    "path": "/d5/f5",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    },
    "_links": {
      "metadata": {
        "href": "/api/storage/volumes/4ec6d1ea-d5da-11eb-a25f-
005056ac0f77/files/d5%2Ff5?return_metadata=true"
      }
    }
  },
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 12,
      "error": {
        "lower_bound": 12,
        "upper_bound": 22
      }
    },
    "path": "/d6/f6",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    },
    "_links": {
      "metadata": {
        "href": "/api/storage/volumes/4ec6d1ea-d5da-11eb-a25f-
```

```
005056ac0f77/files/d6%2Ff6?return_metadata=true"
      }
    }
  },
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 8,
      "error": {
        "lower_bound": 8,
        "upper_bound": 10
      }
    },
    "path": "/d3/f3",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    },
    "_links": {
      "metadata": {
        "href": "/api/storage/volumes/4ec6d1ea-d5da-11eb-a25f-
005056ac0f77/files/d3%2Ff3?return_metadata=true"
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/volumes/4ec6d1ea-d5da-11eb-a25f-
005056ac0f77/top-metrics/files?top_metric=throughput.write"
  }
}
}
----

=== Retrieving a list of the files with the most traffic with failure in
obtaining the pathnames for the files:
```

```
----

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/files?top_metric=throughput.write"

# The Response:
{
"records": [
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 24,
      "error": {
        "lower_bound": 24,
        "upper_bound": 29
      }
    },
    "path": "{4ec6d1ea-d5da-11eb-a25f-005056ac0f77:1232}",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    }
  },
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 12,
      "error": {
        "lower_bound": 12,
        "upper_bound": 22
      }
    },
    "path": "{4ec6d1ea-d5da-11eb-a25f-005056ac0f77:6754}",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
```

```
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    }
  },
  {
    "volume": {
      "name": "fv"
    },
    "throughput": {
      "write": 8,
      "error": {
        "lower_bound": 8,
        "upper_bound": 10
      }
    },
    "path": "{4ec6d1ea-d5da-11eb-a25f-005056ac0f77:8654}",
    "svm": {
      "uuid": "0ba74c3e-d5ca-11eb-8fbb-005056ac0f77",
      "name": "vs0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/0ba74c3e-d5ca-11eb-8fbb-005056ac0f77"
        }
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/volumes/4ec6d1ea-d5da-11eb-a25f-
005056ac0f77/top-metrics/files?top_metric=throughput.write"
  }
}
}
----

== Example showing the behavior of the API when there is no read/write
traffic:

----

# The Call:
```

```
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/files?top_metric=throughput.write"

# The Response:
{
"records": [
],
"num_records": 0,
"notice": {
  "message": "The activity tracking report for volume \"FV\" in SVM
\"vs0\" returned zero records. Check whether the volume have read/write
traffic. Refer to the REST API documentation for more information on why
there might be no records.",
  "code": "124518418"
},
"_links": {
  "self": {
    "href": "/api/storage/volumes/9af63729-8ac8-11ec-b1bc-
005056a79da4/top-metrics/files?top_metric=throughput.write"
  }
}
}
----




[[ID11dfdf5071caad042b7cc6950e0dbfce]]
= Retrieve files with the most I/O activity

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/top-metrics/files`#

*Introduced In:* 9.10

Retrieves a list of files with the most IO activity.


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
```

```
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|top_metric
|string
|query
|False
a|IO activity type

* Default value: 1
* enum: ["iops.read", "iops.write", "throughput.read", "throughput.write"]


|max_records_per_volume
|integer
|query
|False
a|Max records per volume.


|iops.error.lower_bound
|integer
|query
|False
a|Filter by iops.error.lower_bound


|iops.error.upper_bound
|integer
|query
|False
a|Filter by iops.error.upper_bound


|iops.write
|integer
|query
|False
a|Filter by iops.write
```

```
|iops.read
|integer
|query
|False
a|Filter by iops.read


|svm.uuid
|string
|query
|False
a|Filter by svm.uuid


|svm.name
|string
|query
|False
a|Filter by svm.name


|throughput.write
|integer
|query
|False
a|Filter by throughput.write


|throughput.error.lower_bound
|integer
|query
|False
a|Filter by throughput.error.lower_bound


|throughput.error.upper_bound
|integer
|query
|False
a|Filter by throughput.error.upper_bound


|throughput.read
|integer
|query
|False
```

```
a|Filter by throughput.read


|notice.message
|string
|query
|False
a|Filter by notice.message


|notice.code
|string
|query
|False
a|Filter by notice.code


|path
|string
|query
|False
a|Filter by path


|volume.name
|string
|query
|False
a|Filter by volume.name


|fields
|array[string]
|query
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|return_records
|boolean
```

```
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|notice
```

```
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|num_records
|integer
a|Number of records.


|records
|array[link:#top_metrics_file[top_metrics_file]]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "notice": {
    "code": "111411207",
    "message": "No read/write traffic on volume."
  },
  "records": [
    {
      "_links": {
        "metadata": {
          "href": "/api/resourcelink"
        },
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "iops": {
        "error": {
```

```
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 5,
        "write": 4
      },
      "notice": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "code": "111411207",
        "message": "No read/write traffic on volume."
      },
      "path": "/dir_abc/dir_123/file_1",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "throughput": {
        "error": {
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 2,
        "write": 20
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
====
```

```
== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
```

```
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice

Optional field that indicates why no records are returned by the volume
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|metadata
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#top_metric_value_error_bounds]
[.api-collapsible-fifth-title]
top_metric_value_error_bounds

[cols=3*,options=header]
|===
|Name
|Type
|Description
```

```
|lower_bound
|integer
a|Lower bound of the nominal value of a metric.


|upper_bound
|integer
a|Upper bound of the nominal value of a metric.


|===


[#iops]
[.api-collapsible-fifth-title]
iops

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read operations per second.


|write
|integer
a|Average number of write operations per second.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
```

```
|Type
|Description

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice

Optional field that indicates why no records are returned by the volume
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
```

```
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
a|The unique identifier of the SVM.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read bytes received per second.


|write
|integer
a|Average number of write bytes received per second.


|===
```

```
[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#top_metrics_file]
[.api-collapsible-fifth-title]
top_metrics_file

Information about a file's IO activity.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
```

```
|link:#_links[_links]
a|

|iops
|link:#iops[iops]
a|

|notice
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|path
|string
a|Path of the file.


|svm
|link:#svm[svm]
a|

|throughput
|link:#throughput[throughput]
a|

|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code
```

```
|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====
```

```
:leveloffset: -1


= Retrieve users

:leveloffset: +1


[[IDe7cdce44f2aa54ef2ad418b1a7825314]]
= Storage volumes volume.uuid top-metrics users endpoint overview



== Overview

You can use this API to retrieve a list of users with the most IO activity
for a specified volume. Use the `top_metric` parameter to specify which
type of IO activity to filter for. This API is used to provide insight
into IO activity and supports ordering by IO activity types, namely `iops`
or `throughput` metrics. This API also supports only returning one IO
activity type per request.

== Failure to return list of users with most IO activity

The API can sometimes fail to return the list of users with the most IO
activity, due to the following reasons:

&ndash; The volume does not have the activity tracking feature enabled.

&ndash; The volume does not have read/write traffic.

&ndash; The read traffic is served by the NFS/CIFS client filesystem
cache.

&ndash; On rare occasions, the incoming traffic pattern is not suitable to
obtain the list of users with the most IO activity.

== Retrieve a list of the users with the most IO activity

For a report on the users with the most IO activity returned in descending
order, specify the IO activity type you want to filter for by passing the
`iops` or `throughput` property into the top_metric parameter. If the IO
activity type is not specified, by default the API returns a list of the
users with the greatest number of the average read operations per second.
The maximum number of users returned by the API for an IO activity type is
25.
```

```
&ndash; GET   /api/storage/volumes/{volume.uuid}/top-metrics/users

== Examples

=== Retrieving a list of the users with the greatest average number of
read bytes received per second:

----

# The API:
GET /api/storage/volumes/{volume.uuid}/top-metrics/users

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/users?top_metric=throughput.read"

# The Response:
{
"records": [
  {
    "volume": {
      "name": "vol1"
    },
    "throughput": {
      "read": 1495,
      "error": {
        "lower_bound": 1495,
        "upper_bound": 1502
      }
    },
    "user_id": "S-1-5-21-256008430-3394229847-3930036330-1001",
    "user_name": "John",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    }
  },
  {
    "volume": {
      "name": "vol1"
    },
```

```
    "throughput": {
      "read": 1022,
      "error": {
        "lower_bound": 1022,
        "upper_bound": 1025
      }
    },
    "user_id": "1988",
    "user_name": "Ryan",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    }
  },
  {
    "volume": {
      "name": "vol1"
    },
    "throughput": {
      "read": 345,
      "error": {
        "lower_bound": 345,
        "upper_bound": 348
      }
    },
    "user_id": "S-1-5-21-256008430-3394229847-3930036330-1003",
    "user_name": "Julie",
    "svm": {
      "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
      "name": "vs1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
        }
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
```

```
    "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-
2df8e52ef864/top-metrics/users?top_metric=throughput.read"
  }
}
}
----

== Example showing the behavior of the API when there is no read/write
traffic:

----

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/users?top_metric=throughput.write"

# The Response:
{
"records": [
],
"num_records": 0,
"notice": {
  "message": "The activity tracking report for volume \"FV\" in SVM
\"vs0\" returned zero records. Check whether the volume have read/write
traffic. Refer to the REST API documentation for more information on why
there might be no records.",
  "code": "124518418"
},
"_links": {
  "self": {
    "href": "/api/storage/volumes/9af63729-8ac8-11ec-b1bc-
005056a79da4/top-metrics/users?top_metric=throughput.write"
  }
}
}
----




[[ID24adbfb52c004081b992fecd9670fd67]]
= Retrieve users with the most I/O activity

[.api-doc-operation .api-doc-operation-get]#GET# [.api-doc-code-
block]#`/storage/volumes/{volume.uuid}/top-metrics/users`#
```

```
*Introduced In:* 9.10

Retrieves a list of users with the most IO activity.


== Parameters

[cols=5*,options=header]
|===

|Name
|Type
|In
|Required
|Description

|volume.uuid
|string
|path
|True
a|Volume UUID


|top_metric
|string
|query
|False
a|IO activity type

* Default value: 1
* enum: ["iops.read", "iops.write", "throughput.read", "throughput.write"]


|notice.message
|string
|query
|False
a|Filter by notice.message


|notice.code
|string
|query
|False
a|Filter by notice.code
```

```
|volume.name
|string
|query
|False
a|Filter by volume.name


|iops.error.lower_bound
|integer
|query
|False
a|Filter by iops.error.lower_bound


|iops.error.upper_bound
|integer
|query
|False
a|Filter by iops.error.upper_bound


|iops.write
|integer
|query
|False
a|Filter by iops.write


|iops.read
|integer
|query
|False
a|Filter by iops.read


|user_name
|string
|query
|False
a|Filter by user_name


|svm.uuid
|string
|query
|False
a|Filter by svm.uuid
```

```
|svm.name
|string
|query
|False
a|Filter by svm.name


|user_id
|string
|query
|False
a|Filter by user_id


|throughput.write
|integer
|query
|False
a|Filter by throughput.write


|throughput.error.lower_bound
|integer
|query
|False
a|Filter by throughput.error.lower_bound


|throughput.error.upper_bound
|integer
|query
|False
a|Filter by throughput.error.upper_bound


|throughput.read
|integer
|query
|False
a|Filter by throughput.read


|fields
|array[string]
|query
```

```
|False
a|Specify the fields to return.


|max_records
|integer
|query
|False
a|Limit the number of records returned.


|return_records
|boolean
|query
|False
a|The default is true for GET calls.  When set to false, only the number
of records is returned.

* Default value: 1


|return_timeout
|integer
|query
|False
a|The number of seconds to allow the call to execute before returning.
When iterating over a collection, the default is 15 seconds.  ONTAP
returns earlier if either max records or the end of the collection is
reached.

* Default value: 1
* Max value: 120
* Min value: 0


|order_by
|array[string]
|query
|False
a|Order results by specified fields and optional [asc|desc] direction.
Default direction is 'asc' for ascending.

|===

== Response
```

Status: 200, Ok

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|notice
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|num_records
|integer
a|Number of records.


|records
|array[link:#top_metrics_user[top_metrics_user]]
a|

|===


.Example response
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "notice": {
    "code": "111411207",
    "message": "No read/write traffic on volume."
```

```
  },
  "records": [
    {
      "iops": {
        "error": {
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 4,
        "write": 8
      },
      "notice": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "code": "111411207",
        "message": "No read/write traffic on volume."
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "throughput": {
        "error": {
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 10,
        "write": 7
      },
      "user_id": "S-1-5-21-256008430-3394229847-3930036330-1001",
      "user_name": "James",
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
```

```
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
====

== Error
```

Status: Default, Error

```
[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#error[error]
a|

|===


.Example error
[%collapsible%closed]
====
[source,json,subs=+macros]
{
  "error": {
    "arguments": [
      {
        "code": "string",
        "message": "string"
      }
    ],
    "code": "4",
    "message": "entry doesn't exist",
    "target": "uuid"
  }
}
====

== Definitions

[.api-def-first-level]
```

```
.See Definitions
[%collapsible%closed]
//Start collapsible Definitions block
====
[#href]
[.api-collapsible-fifth-title]
href

[cols=3*,options=header]
|===
|Name
|Type
|Description

|href
|string
a|

|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|next
|link:#href[href]
a|

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice

Optional field that indicates why no records are returned by the volume
```

```
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===


[#top_metric_value_error_bounds]
[.api-collapsible-fifth-title]
top_metric_value_error_bounds

[cols=3*,options=header]
|===
|Name
|Type
|Description

|lower_bound
|integer
a|Lower bound of the nominal value of a metric.


|upper_bound
|integer
a|Upper bound of the nominal value of a metric.


|===


[#iops]
[.api-collapsible-fifth-title]
```

```
iops

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read operations per second.


|write
|integer
a|Average number of write operations per second.


|===


[#_links]
[.api-collapsible-fifth-title]
_links

[cols=3*,options=header]
|===
|Name
|Type
|Description

|self
|link:#href[href]
a|

|===


[#notice]
[.api-collapsible-fifth-title]
notice

Optional field that indicates why no records are returned by the volume
```

```
activity tracking REST API.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|code
|string
a|Warning code indicating why no records are returned.


|message
|string
a|Details why no records are returned.


|===


[#svm]
[.api-collapsible-fifth-title]
svm

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|

|name
|string
a|The name of the SVM.


|uuid
|string
```

```
a|The unique identifier of the SVM.


|===


[#throughput]
[.api-collapsible-fifth-title]
throughput

[cols=3*,options=header]
|===
|Name
|Type
|Description

|error
|link:#top_metric_value_error_bounds[top_metric_value_error_bounds]
a|

|read
|integer
a|Average number of read bytes received per second.


|write
|integer
a|Average number of write bytes received per second.


|===


[#volume]
[.api-collapsible-fifth-title]
volume

[cols=3*,options=header]
|===
|Name
|Type
|Description

|_links
|link:#_links[_links]
a|
```

```
|name
|string
a|The name of the volume.


|uuid
|string
a|Unique identifier for the volume. This corresponds to the instance-uuid
that is exposed in the CLI and ONTAPI. It does not change due to a volume
move.

* example: 028baa66-41bd-11e9-81d5-00a0986138f7
* Introduced in: 9.6


|===


[#top_metrics_user]
[.api-collapsible-fifth-title]
top_metrics_user

Information about a user's IO activity.


[cols=3*,options=header]
|===
|Name
|Type
|Description

|iops
|link:#iops[iops]
a|

|notice
|link:#notice[notice]
a|Optional field that indicates why no records are returned by the volume
activity tracking REST API.


|svm
|link:#svm[svm]
a|

|throughput
|link:#throughput[throughput]
```

```
a|

|user_id
|string
a|User ID of the user.


|user_name
|string
a|Name of the user.


|volume
|link:#volume[volume]
a|

|===


[#error_arguments]
[.api-collapsible-fifth-title]
error_arguments

[cols=3*,options=header]
|===
|Name
|Type
|Description

|code
|string
a|Argument code


|message
|string
a|Message argument


|===


[#error]
[.api-collapsible-fifth-title]
error

[cols=3*,options=header]
```

```
|===
|Name
|Type
|Description

|arguments
|array[link:#error_arguments[error_arguments]]
a|Message arguments


|code
|string
a|Error code


|message
|string
a|Error message


|target
|string
a|The target parameter that caused the error.


|===


//end collapsible .Definitions block
====



:leveloffset: -1


:leveloffset: -1


:leveloffset: -1

<<<
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