



Storage

ONTAP 9.9.1 REST API reference

NetApp
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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 efficiency.

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_spare". Using the "recommend" query returns the list of aggregates that are recommended for creation in the cluster. The "show_spare" 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" and "space.block_storage.inactive_user_data" 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"
        },
        "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"
  },
  "hybrid_cache": {
    "enabled": false
  },
  "mirror": {
    "enabled": true
  }
},
]
"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.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'.

Name	Type	In	Required	Description
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'.
node.name	string	query	False	Filter by node.name
node.uuid	string	query	False	Filter by node.uuid
home_node.name	string	query	False	Filter by home_node.name
home_node.uuid	string	query	False	Filter by home_node.uuid
name	string	query	False	Filter by name
statistics.iops_raw.total	integer	query	False	Filter by statistics.iops_raw.total • 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.iops_raw.write	integer	query	False	Filter by statistics.iops_raw.write • Introduced in: 9.7

Name	Type	In	Required	Description
statistics.timestamp	string	query	False	Filter by statistics.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.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
statistics.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write • Introduced in: 9.7
statistics.status	string	query	False	Filter by statistics.status • 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_read.other	integer	query	False	Filter by statistics.latency_read.other • Introduced in: 9.7
statistics.latency_read.read	integer	query	False	Filter by statistics.latency_read.read • Introduced in: 9.7
statistics.latency_read.write	integer	query	False	Filter by statistics.latency_read.write • Introduced in: 9.7
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
space.block_storage.size	integer	query	False	Filter by space.block_storage.size
space.block_storage.full_threshold_percent	integer	query	False	Filter by space.block_storage.full_threshold_percent
space.block_storage.available	integer	query	False	Filter by space.block_storage.available
space.block_storage.inactive_user_data	integer	query	False	Filter by space.block_storage.inactive_user_data

Name	Type	In	Required	Description
space.block_storage.used	integer	query	False	Filter by space.block_storage.used
space.block_storage.physical_used	integer	query	False	Filter by space.block_storage.physical_used • Introduced in: 9.9
space.cloud_storage.used	integer	query	False	Filter by space.cloud_storage.used
space.footprint	integer	query	False	Filter by space.footprint
space.encyency_without_snapshots.savings	integer	query	False	Filter by space.encyency_without_snapshots.savings
space.encyency_without_snapshots.ratio	number	query	False	Filter by space.encyency_without_snapshots.ratio
space.encyency_without_snapshots.logical_used	integer	query	False	Filter by space.encyency_without_snapshots.logical_used
space.encyency.savings	integer	query	False	Filter by space.encyency.savings
space.encyency.ratio	number	query	False	Filter by space.encyency.ratio
space.encyency.logical_used	integer	query	False	Filter by space.encyency.logical_used

Name	Type	In	Required	Description
space.encyency_wit hout_snapshots_flex clones.savings	integer	query	False	Filter by space.encyency_wit hout_snapshots_flex clones.savings • Introduced in: 9.9
space.encyency_wit hout_snapshots_flex clones.ratio	number	query	False	Filter by space.encyency_wit hout_snapshots_flex clones.ratio • Introduced in: 9.9
space.encyency_wit hout_snapshots_flex clones.logical_used	integer	query	False	Filter by space.encyency_wit hout_snapshots_flex clones.logical_used • Introduced in: 9.9
inactive_data_reporti ng.enabled	boolean	query	False	Filter by inactive_data_reporti ng.enabled • Introduced in: 9.8
inactive_data_reporti ng.start_time	string	query	False	Filter by inactive_data_reporti ng.start_time • Introduced in: 9.8
uuid	string	query	False	Filter by uuid
state	string	query	False	Filter by state
block_storage.hybrid _cache.used	integer	query	False	Filter by block_storage.hybrid _cache.used
block_storage.hybrid _cache.enabled	boolean	query	False	Filter by block_storage.hybrid _cache.enabled

Name	Type	In	Required	Description
block_storage.hybrid_cache.raid_type	string	query	False	Filter by block_storage.hybrid_cache.raid_type
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.mirror.enabled	boolean	query	False	Filter by block_storage.mirror.enabled
block_storage.mirror.state	string	query	False	Filter by block_storage.mirror.state
block_storage.primary.disk_class	string	query	False	Filter by block_storage.primary.disk_class
block_storage.primary.checksum_style	string	query	False	Filter by block_storage.primary.checksum_style
block_storage.primary.disk_count	integer	query	False	Filter by block_storage.primary.disk_count
block_storage.primary.disk_type	string	query	False	Filter by block_storage.primary.disk_type • Introduced in: 9.7
block_storage.primary.raid_type	string	query	False	Filter by block_storage.primary.raid_type
block_storage.primary.raid_size	integer	query	False	Filter by block_storage.primary.raid_size

Name	Type	In	Required	Description
block_storage.plexes.name	string	query	False	Filter by block_storage.plexes.name
dr_home_node.uuid	string	query	False	Filter by dr_home_node.uuid
dr_home_node.name	string	query	False	Filter by dr_home_node.name
snaplock_type	string	query	False	Filter by snaplock_type
create_time	string	query	False	Filter by create_time
metric.timestamp	string	query	False	Filter by metric.timestamp • Introduced in: 9.7
metric.throughput.total	integer	query	False	Filter by metric.throughput.total • 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

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

Name	Type	In	Required	Description
metric.iops.write	integer	query	False	Filter by metric.iops.write • Introduced in: 9.7
metric.duration	string	query	False	Filter by metric.duration • Introduced in: 9.7
metric.status	string	query	False	Filter by metric.status • 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.
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	<p>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.</p> <ul style="list-style-type: none"> • 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]	
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": "raid_dp",
      "size": "1612709888",
      "used": "26501122"
    },
    "mirror": {
      "enabled": "",
      "state": "unmirrored"
    },
    "plexes": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "plex0"
    },
    "primary": {
```

```

    "checksum_style": "block",
    "disk_class": "performance",
    "disk_count": "8",
    "disk_type": "fc",
    "raid_size": "16",
    "raid_type": "raid_dp"
  }
},
"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"
},
"snaplock_type": "non_snaplock",
"space": {
  "block_storage": {
    "available": "10156560384",
    "full_threshold_percent": 0,
    "inactive_user_data": "304448",
    "physical_used": "2461696",
    "size": "10156769280",
    "used": "2088960"
  },
  "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"
},
"state": "online",
"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": "block",
  "disk_class": "solid_state",
  "layout_requirements": {
    "aggregate_min_disks": "6",
    "raid_group": {
      "default": "16",
      "max": "28",
      "min": "5"
    },
    "raid_type": "raid_dp"
  },
}

```

```

"node": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "node1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"size": "10156769280",
"syncmirror_pool": "pool0",
"usable": "9"
},
"warnings": {
  "action": {
    "arguments": {
    }
  },
  "warning": {
    "arguments": {
    }
  }
}
}

```

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).

Error Code	Description
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.
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.
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	

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.

Name	Type	Description
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.

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	

Name	Type	Description
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.
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	Specifies 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.

Name	Type	Description
write	integer	Performance 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	Performance 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	Performance 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.
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	

block_storage

Name	Type	Description
available	integer	Space available in bytes.
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 <i>fields</i> query parameter containing either <code>block_storage.inactive_user_data</code> or <code>**</code> .
physical_used	integer	Total physical used size of an aggregate in bytes.
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.

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 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)

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_flex_clones	efficiency_without_snapshots_flex_clones	Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.
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 <i>fields</i> query parameter containing either footprint or ** .

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.

Name	Type	Description
write	integer	Performance 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	Performance 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	Performance 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.
snaplock_type	string	SnapLock type
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

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

Name	Type	Description
disk_class	string	Disk class of spares
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. <ul style="list-style-type: none"> • example: 9 • readOnly: 1 • Introduced in: 9.6

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.

Name	Type	Description
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.
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • Default value:

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.
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.

Name	Type	Description
snaplock_type	string	SnapLock type
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": "raid_dp",
      "size": "1612709888",
      "used": "26501122"
    },
    "mirror": {
      "enabled": "",
      "state": "unmirrored"
    },
    "plexes": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "plex0"
    },
    "primary": {
      "checksum_style": "block",
      "disk_class": "performance",
      "disk_count": "8",
      "disk_type": "fc",
      "raid_size": "16",
      "raid_type": "raid_dp"
    }
  },
  "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"
},
"snaplock_type": "non_snaplock",
"space": {
  "block_storage": {
    "available": "10156560384",
    "full_threshold_percent": 0,
    "inactive_user_data": "304448",
    "physical_used": "2461696",
    "size": "10156769280",
    "used": "2088960"
  },
  "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"
},
"state": "online",
"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.
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.

Error Code	Description
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	

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.

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	

Name	Type	Description
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.
stores	array[cloud_storage_tier]	Configuration information for each cloud storage portion of the aggregate.

Name	Type	Description
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	Specifies whether or not inactive data reporting is enabled on the aggregate.

Name	Type	Description
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	Performance 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	Performance 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	Performance 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	

block_storage

Name	Type	Description
available	integer	Space available in bytes.

Name	Type	Description
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 <i>fields</i> query parameter containing either <code>block_storage.inactive_user_data</code> or <code>**</code> .
physical_used	integer	Total physical used size of an aggregate in bytes.
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.

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 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)

space

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	efficiency	Storage efficiency

Name	Type	Description
efficiency_without_snapshots	efficiency_without_snapshots	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flex_clones	efficiency_without_snapshots_flex_clones	Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.
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 <i>fields</i> query parameter containing either footprint or ** .

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	Performance 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	Performance 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	Performance 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.
snaplock_type	string	SnapLock type
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

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
unavailable_reason.message	string	query	False	Filter by unavailable_reason.message <ul style="list-style-type: none">• Introduced in: 9.7
availability	string	query	False	Filter by availability
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 <ul style="list-style-type: none">• Introduced in: 9.9
unreclaimed_space_threshold	integer	query	False	Filter by unreclaimed_space_threshold
primary	boolean	query	False	Filter by primary
mirror_degraded	boolean	query	False	Filter by mirror_degraded
used	integer	query	False	Filter by used
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. <ul style="list-style-type: none">• Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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": "available",
    "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	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • 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": "available",
  "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	<p>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.</p> <ul style="list-style-type: none"> • 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": "available",
  "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	<p>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.</p> <ul style="list-style-type: none"> • 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": "available",
  "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
pool	string	query	False	Filter by pool
resync.active	boolean	query	False	Filter by resync.active
resync.percent	integer	query	False	Filter by resync.percent
resync.level	string	query	False	Filter by resync.level
state	string	query	False	Filter by state
name	string	query	False	Filter by name
aggregate.name	string	query	False	Filter by aggregate.name
online	boolean	query	False	Filter by online
raid_groups.recomputing_parity.percent	integer	query	False	Filter by raid_groups.recomputing_parity.percent • Introduced in: 9.7

Name	Type	In	Required	Description
raid_groups.recomputing_parity.active	boolean	query	False	Filter by raid_groups.recomputing_parity.active • Introduced in: 9.7
raid_groups.reconstruct.active	boolean	query	False	Filter by raid_groups.reconstruct.active • Introduced in: 9.7
raid_groups.reconstruct.percent	integer	query	False	Filter by raid_groups.reconstruct.percent • Introduced in: 9.7
raid_groups.raid_type	string	query	False	Filter by raid_groups.raid_type • Introduced in: 9.9
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.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.degraded	boolean	query	False	Filter by raid_groups.degraded • Introduced in: 9.7
raid_groups.cache_tier	boolean	query	False	Filter by raid_groups.cache_tier • Introduced in: 9.7
raid_groups.name	string	query	False	Filter by raid_groups.name • 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.
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	<p>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.</p> <ul style="list-style-type: none"> • 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": "pool0",
    "raid_groups": {
      "disks": {
        "disk": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "1.0.1"
        },
        "position": "data",
        "state": "normal",
        "type": "ssd",
        "usable_size": "947912704"
      }
    }
  }
}
```

```

    },
    "name": "rg0",
    "raid_type": "raid_dp",
    "recomputing_parity": {
      "percent": "10"
    },
    "reconstruct": {
      "percent": "10"
    }
  },
  "resync": {
    "level": "full",
    "percent": "10"
  },
  "state": "normal"
}

```

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": "pool0",
  "raid_groups": {
    "disks": {
      "disk": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "1.0.1"
      },
      "position": "data",
      "state": "normal",
      "type": "ssd",
      "usable_size": "947912704"
    },
    "name": "rg0",
    "raid_type": "raid_dp",
    "recomputing_parity": {
      "percent": "10"
    },
    "reconstruct": {
      "percent": "10"
    }
  },
  "resync": {
    "level": "full",
    "percent": "10"
  },
  "state": "normal"
}
```

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.

Manage storage aggregates

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
  },
  "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
  }
},
"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-be35-4d93-9590-5a402bffb4b?fields=data_encryption.software_encryption_enabled" -H "accept: application/json"

# The response:
{
  "uuid": "f3aafdc6-be35-4d93-9590-5a402bffb4b",
  "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
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none">• 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.footprint`
- `statistics.*`

Related ONTAP commands

- `storage aggregate show`

Parameters

Name	Type	In	Required	Description
<code>uuid</code>	<code>string</code>	<code>path</code>	True	Aggregate UUID
<code>auto_provision_policy</code>	<code>string</code>	<code>query</code>	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
<code>fields</code>	<code>array[string]</code>	<code>query</code>	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
<code>_links</code>	_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.
snaplock_type	string	SnapLock type
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 response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "block_storage": {
    "hybrid_cache": {
      "disk_count": "6",
      "raid_type": "raid_dp",
      "size": "1612709888",
      "used": "26501122"
    },
    "mirror": {
      "enabled": "",
      "state": "unmirrored"
    },
    "plexes": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "plex0"
    },
    "primary": {
      "checksum_style": "block",
      "disk_class": "performance",
      "disk_count": "8",
      "disk_type": "fc",
      "raid_size": "16",
      "raid_type": "raid_dp"
    }
  },
  "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"
},
"snaplock_type": "non_snaplock",
"space": {
  "block_storage": {
    "available": "10156560384",
    "full_threshold_percent": 0,
    "inactive_user_data": "304448",
    "physical_used": "2461696",
    "size": "10156769280",
    "used": "2088960"
  },
  "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"
},
"state": "online",
"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 recommendation 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.

Error Code	Description
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	

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.

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	

Name	Type	Description
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.
stores	array[cloud_storage_tier]	Configuration information for each cloud storage portion of the aggregate.

Name	Type	Description
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	Specifies whether or not inactive data reporting is enabled on the aggregate.

Name	Type	Description
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	Performance 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	Performance 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	Performance 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	

block_storage

Name	Type	Description
available	integer	Space available in bytes.

Name	Type	Description
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 <i>fields</i> query parameter containing either <code>block_storage.inactive_user_data</code> or <code>**</code> .
physical_used	integer	Total physical used size of an aggregate in bytes.
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.

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 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)

space

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	efficiency	Storage efficiency

Name	Type	Description
efficiency_without_snapshots	efficiency_without_snapshots	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flex_clones	efficiency_without_snapshots_flex_clones	Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.
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 <i>fields</i> query parameter containing either footprint or ** .

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	Performance 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	Performance 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	Performance 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	<p>If set to expand, the PATCH operation runs the recommended expansion of the aggregate.</p> <ul style="list-style-type: none"> • Introduced in: 9.8
simulate	boolean	query	False	<p>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.</p> <ul style="list-style-type: none"> • Introduced in: 9.8
disk_size	integer	query	False	<p>If set, PATCH only selects disks of the specified size.</p>

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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.
snaplock_type	string	SnapLock type
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": "raid_dp",
      "size": "1612709888",
      "used": "26501122"
    },
    "mirror": {
      "enabled": "",
      "state": "unmirrored"
    },
    "plexes": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "plex0"
    },
    "primary": {
      "checksum_style": "block",
      "disk_class": "performance",
      "disk_count": "8",
      "disk_type": "fc",
      "raid_size": "16",
      "raid_type": "raid_dp"
    }
  },
  "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"
},
"snaplock_type": "non_snaplock",
"space": {
  "block_storage": {
    "available": "10156560384",
    "full_threshold_percent": 0,
    "inactive_user_data": "304448",
    "physical_used": "2461696",
    "size": "10156769280",
    "used": "2088960"
  },
  "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"
},
"state": "online",
"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": "raid_dp",
        "size": "1612709888",
        "used": "26501122"
      },
      "mirror": {
        "enabled": "",
        "state": "unmirrored"
      },
      "plexes": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "plex0"
      },
      "primary": {
        "checksum_style": "block",
        "disk_class": "performance",
        "disk_count": "8",
        "disk_type": "fc",
        "raid_size": "16",
        "raid_type": "raid_dp"
      }
    },
    "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"
  },
  "snaplock_type": "non_snaplock",
  "space": {
    "block_storage": {
      "available": "10156560384",
      "full_threshold_percent": 0,
      "inactive_user_data": "304448",
      "physical_used": "2461696",
      "size": "10156769280",
      "used": "2088960"
    },
    "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"
  },
  "state": "online",
  "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": {
    }
  },
  "warning": {
    "arguments": {
    }
  }
}
}

```

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.
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.

Error Code	Description
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.
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.

Error Code	Description
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.
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	

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.

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	

Name	Type	Description
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.
stores	array[cloud_storage_tier]	Configuration information for each cloud storage portion of the aggregate.

Name	Type	Description
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	Specifies whether or not inactive data reporting is enabled on the aggregate.

Name	Type	Description
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	Performance 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	Performance 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	Performance 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	

block_storage

Name	Type	Description
available	integer	Space available in bytes.

Name	Type	Description
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 <i>fields</i> query parameter containing either <code>block_storage.inactive_user_data</code> or <code>**</code> .
physical_used	integer	Total physical used size of an aggregate in bytes.
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.

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 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)

space

Name	Type	Description
block_storage	block_storage	
cloud_storage	cloud_storage	
efficiency	efficiency	Storage efficiency

Name	Type	Description
efficiency_without_snapshots	efficiency_without_snapshots	Storage efficiency that does not include the savings provided by Snapshot copies.
efficiency_without_snapshots_flex_clones	efficiency_without_snapshots_flex_clones	Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.
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 <i>fields</i> query parameter containing either footprint or ** .

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	Performance 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	Performance 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	Performance 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.
snaplock_type	string	SnapLock type
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

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.

Name	Type	Description
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.

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
timestamp	string	query	False	Filter by timestamp
throughput.total	integer	query	False	Filter by throughput.total
throughput.other	integer	query	False	Filter by throughput.other
throughput.read	integer	query	False	Filter by throughput.read
throughput.write	integer	query	False	Filter by throughput.write
latency.total	integer	query	False	Filter by latency.total

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

Name	Type	In	Required	Description
interval	string	query	False	<p>The time range for the data. Values can be 1h, 1d, 1w, 1m, or 1y. The period for each time range is as follows:</p> <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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	Performance 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	Performance 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	Performance 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
vendor	string	query	False	Filter by vendor
errors.reason.code	string	query	False	Filter by errors.reason.code
errors.reason.message	string	query	False	Filter by errors.reason.message
errors.type	string	query	False	Filter by errors.type

Name	Type	In	Required	Description
errors.severity	string	query	False	Filter by errors.severity
errors.component.id	integer	query	False	Filter by errors.component.id
errors.component.name	string	query	False	Filter by errors.component.name
errors.component.unique_id	string	query	False	Filter by errors.component.unique_id
model	string	query	False	Filter by model
security_enabled	boolean	query	False	Filter by security_enabled
firmware_version	string	query	False	Filter by firmware_version
name	string	query	False	Filter by name
dram_single_bit_error_count	integer	query	False	Filter by dram_single_bit_error_count
fc_ports.negotiated_data_rate	number	query	False	Filter by fc_ports.negotiated_data_rate
fc_ports.wwn	string	query	False	Filter by fc_ports.wwn
fc_ports.state	string	query	False	Filter by fc_ports.state
fc_ports.id	integer	query	False	Filter by fc_ports.id
fc_ports.sfp.vendor	string	query	False	Filter by fc_ports.sfp.vendor
fc_ports.sfp.part_number	string	query	False	Filter by fc_ports.sfp.part_number

Name	Type	In	Required	Description
fc_ports.sfp.data_rate_capability	number	query	False	Filter by fc_ports.sfp.data_rate_capability
fc_ports.sfp.serial_number	string	query	False	Filter by fc_ports.sfp.serial_number
fc_ports.configured_data_rate	number	query	False	Filter by fc_ports.configured_data_rate
fc_ports.enabled	boolean	query	False	Filter by fc_ports.enabled
fc_ports.connection_mode	string	query	False	Filter by fc_ports.connection_mode
fc_ports.peer_wwn	string	query	False	Filter by fc_ports.peer_wwn
fc_ports.data_rate_capability	number	query	False	Filter by fc_ports.data_rate_capability
chassis_throughput_state	string	query	False	Filter by chassis_throughput_state
paths.node.name	string	query	False	Filter by paths.node.name
paths.node.uuid	string	query	False	Filter by paths.node.uuid
paths.name	string	query	False	Filter by paths.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

Name	Type	In	Required	Description
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.target_port.name	string	query	False	Filter by paths.target_port.name
last_reboot.time	string	query	False	Filter by last_reboot.time
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
sas_ports.enabled	boolean	query	False	Filter by sas_ports.enabled
sas_ports.phy_2.state	string	query	False	Filter by sas_ports.phy_2.state
sas_ports.phy_3.state	string	query	False	Filter by sas_ports.phy_3.state
sas_ports.data_rate_capability	number	query	False	Filter by sas_ports.data_rate_capability
sas_ports.phy_1.state	string	query	False	Filter by sas_ports.phy_1.state
sas_ports.cable.serial_number	string	query	False	Filter by sas_ports.cable.serial_number

Name	Type	In	Required	Description
sas_ports.cable.part_number	string	query	False	Filter by sas_ports.cable.part_number
sas_ports.cable.technology	string	query	False	Filter by sas_ports.cable.technology
sas_ports.cable.vendor	string	query	False	Filter by sas_ports.cable.vendor
sas_ports.phy_4.state	string	query	False	Filter by sas_ports.phy_4.state
sas_ports.wwn	string	query	False	Filter by sas_ports.wwn
sas_ports.negotiated_data_rate	number	query	False	Filter by sas_ports.negotiated_data_rate
sas_ports.state	string	query	False	Filter by sas_ports.state
sas_ports.id	integer	query	False	Filter by sas_ports.id
symbolic_name	string	query	False	Filter by symbolic_name
monitoring_enabled	boolean	query	False	Filter by monitoring_enabled
state	string	query	False	Filter by state
serial_number	string	query	False	Filter by serial_number
wwn	string	query	False	Filter by wwn
ip_address	string	query	False	Filter by ip_address
temperature_sensor.state	string	query	False	Filter by temperature_sensor.state

Name	Type	In	Required	Description
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.minimum	integer	query	False	Filter by temperature_sensor.minimum
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
managed_by	string	query	False	Filter by managed_by
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	<p>The default is true for GET calls. When set to false, only the number of records is returned.</p> <ul style="list-style-type: none"> • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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": {
      "severity": "unknown",
      "type": "unknown"
    },
    "fc_ports": {
      "configured_data_rate": "0",
      "connection_mode": "loop",
      "data_rate_capability": "2",
      "negotiated_data_rate": "0",
      "peer_wwn": "200650eb1a238892",
      "sfp": {
        "data_rate_capability": "2"
      },
      "state": "error",
      "wwn": "2100001086a54100"
    },
    "firmware_version": "4.10 007A",
    "ip_address": "string",
    "last_reboot": {
      "reason": {
        "code": "39321683",
        "message": "FirmwareRestart Command"
      },
      "time": "2020-12-09T00:47:58-05:00"
    },
    "managed_by": "snmp",
    "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",
  "wn": "2100001086a54100"
}
},
"power_supply_units": {
  "state": "ok"
},
"sas_ports": {
  "data_rate_capability": "0",
  "negotiated_data_rate": "0",
  "state": "error",
  "wn": "2100001086a54100"
},
"serial_number": "FB7600N100004",
"state": "unknown",
"symbolic_name": "rtp-fcsas03-41kk11",
"temperature_sensor": {
  "name": "Chassis temperature sensor",
  "state": "ok"
},
"vendor": "atto",
"wn": "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

reason

Name	Type	Description
code	string	
message	string	

errors

Name	Type	Description
component	component	
reason	reason	
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

reason

Name	Type	Description
code	string	This field provides the error code explaining why did the bridge reboot.

Name	Type	Description
message	string	This field provides the error message explaining why did the bridge reboot.

last_reboot

Name	Type	Description
reason	reason	
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
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]	
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

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.

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": {
    "severity": "unknown",
    "type": "unknown"
  },
  "fc_ports": {
    "configured_data_rate": "0",
    "connection_mode": "loop",
    "data_rate_capability": "2",
    "negotiated_data_rate": "0",
    "peer_wwn": "200650eb1a238892",
    "sfp": {
      "data_rate_capability": "2"
    },
    "state": "error",
    "wwn": "2100001086a54100"
  },
  "firmware_version": "4.10 007A",
  "ip_address": "string",
  "last_reboot": {
    "reason": {
      "code": "39321683",
      "message": "FirmwareRestart Command"
    },
    "time": "2020-12-09T00:47:58-05:00"
  },
  "managed_by": "snmp",
  "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": {
    "state": "ok"
  },
  "sas_ports": {
    "data_rate_capability": "0",
    "negotiated_data_rate": "0",
    "state": "error",
    "wwn": "2100001086a54100"
  },
  "serial_number": "FB7600N100004",
  "state": "unknown",
  "symbolic_name": "rtp-fcsas03-41kk11",
  "temperature_sensor": {
    "name": "Chassis temperature sensor",
    "state": "ok"
  },
  "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

reason

Name	Type	Description
code	string	
message	string	

errors

Name	Type	Description
component	component	
reason	reason	
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

reason

Name	Type	Description
code	string	This field provides the error code explaining why did the bridge reboot.
message	string	This field provides the error message explaining why did the bridge reboot.

last_reboot

Name	Type	Description
reason	reason	
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	

Name	Type	Description
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	

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.

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
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. <ul style="list-style-type: none">• 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. <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc
desc] direction. Default direction is 'asc' for ascending.	fields	array[string]	query	False

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.
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": "hdd"
    }
  },
  "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_flex_clones	space_efficiency	Storage efficiency that does not include the savings provided by Snapshot copies and FlexClones.
size	integer	Total space
type	string	The type of media being used
used	integer	Used space

block_storage

Name	Type	Description
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

Name	Type	Description
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 operation assigns the disk to the specified node.

2. When the disk is already assigned

When the disk is already assigned (already 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
usable_size	integer	query	False	Filter by usable_size
class	string	query	False	Filter by class
serial_number	string	query	False	Filter by serial_number
state	string	query	False	Filter by state
aggregates.name	string	query	False	Filter by aggregates.name
aggregates.uuid	string	query	False	Filter by aggregates.uuid
container_type	string	query	False	Filter by container_type
self_encrypting	boolean	query	False	Filter by self_encrypting <ul style="list-style-type: none">• Introduced in: 9.7
vendor	string	query	False	Filter by vendor
name	string	query	False	Filter by name
shelf.uuid	string	query	False	Filter by shelf.uuid
drawer.id	integer	query	False	Filter by drawer.id
drawer.slot	integer	query	False	Filter by drawer.slot
dr_node.uuid	string	query	False	Filter by dr_node.uuid
dr_node.name	string	query	False	Filter by dr_node.name

Name	Type	In	Required	Description
effective_type	string	query	False	Filter by effective_type • Introduced in: 9.9
sector_count	integer	query	False	Filter by sector_count • Introduced in: 9.9
paths.port_name	string	query	False	Filter by paths.port_name • Introduced in: 9.9
paths.wwpn	string	query	False	Filter by paths.wwpn • Introduced in: 9.9
paths.wwnn	string	query	False	Filter by paths.wwnn • Introduced in: 9.9
paths.initiator	string	query	False	Filter by paths.initiator • Introduced in: 9.9
paths.port_type	string	query	False	Filter by paths.port_type • Introduced in: 9.9
uid	string	query	False	Filter by uid
key_id.data	string	query	False	Filter by key_id.data • Introduced in: 9.7

Name	Type	In	Required	Description
key_id.fips	string	query	False	Filter by key_id.fips • Introduced in: 9.7
node.name	string	query	False	Filter by node.name
node.uuid	string	query	False	Filter by node.uuid
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.iops_total	integer	query	False	Filter by stats.iops_total • Introduced in: 9.9
stats.throughput	integer	query	False	Filter by stats.throughput • Introduced in: 9.9
stats.average_latency	integer	query	False	Filter by stats.average_latency • Introduced in: 9.9
fips_certified	boolean	query	False	Filter by fips_certified • Introduced in: 9.7

Name	Type	In	Required	Description
local	boolean	query	False	Filter by local • Introduced in: 9.9
protection_mode	string	query	False	Filter by protection_mode • Introduced in: 9.7
model	string	query	False	Filter by model
home_node.name	string	query	False	Filter by home_node.name
home_node.uuid	string	query	False	Filter by home_node.uuid
firmware_version	string	query	False	Filter by firmware_version
bytes_per_sector	integer	query	False	Filter by bytes_per_sector • Introduced in: 9.9
pool	string	query	False	Filter by pool
bay	integer	query	False	Filter by bay
error.reason.code	string	query	False	Filter by error.reason.code • Introduced in: 9.9
error.reason.message	string	query	False	Filter by error.reason.message • Introduced in: 9.9

Name	Type	In	Required	Description
error.type	string	query	False	Filter by error.type • Introduced in: 9.9
outage.persistently_failed	boolean	query	False	Filter by outage.persistently_failed • Introduced in: 9.9
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
rated_life_used_percent	integer	query	False	Filter by rated_life_used_percent
type	string	query	False	Filter by type
rpm	integer	query	False	Filter by rpm
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	<p>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.</p> <ul style="list-style-type: none"> • 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",
    "error": {
      "reason": {
        "code": "string",
        "message": "not responding"
      },
      "type": "notallflashdisk"
    },
    "firmware_version": "NA51",
    "home_node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  }
}
```

```
},
"model": "X421_HCOBE450A10",
"name": "1.0.1",
"node": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "node1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"outage": {
  "reason": {
    "code": "721081",
    "message": "not responding"
  }
},
"paths": {
  "initiator": "3a",
  "port_name": "A",
  "port_type": "sas",
  "wwnn": "5000c2971c1b2b8c",
  "wwpn": "5000c2971c1b2b8d"
},
"pool": "pool0",
"protection_mode": "open",
"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": "uid"
  }
}
```

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	

reason

Name	Type	Description
code	string	Provides an error code.

Name	Type	Description
message	string	Provides an error message detailing the error state of this disk.

disk_error_info

Name	Type	Description
reason	reason	
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	

reason

Name	Type	Description
code	string	This field provides the error code explaining why a disk failed.

Name	Type	Description
message	string	This field provides the error message explaining why a disk failed.

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	reason	

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.

Name	Type	Description
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	
firmware_version	string	
home_node	home_node	
key_id	key_id	

Name	Type	Description
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: <ul style="list-style-type: none"> • <i>open</i> - Data is unprotected • <i>data</i> - Data protection only, without FIPS compliance • <i>part</i> - Data is unprotected; other FIPS compliance settings present • <i>full</i> - Full data and FIPS compliance protection • <i>miss</i> - 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	

Name	Type	Description
state	string	State
stats	stats	
type	string	Disk interface type
uid	string	The unique identifier for a disk
usable_size	integer	
vendor	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 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 <ul style="list-style-type: none">• Introduced in: 9.8

Name	Type	In	Required	Description
encryption_operation	string	query	False	<p>Name of the operation to apply to encrypting disks.</p> <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • <i>open</i> - Data is unprotected • <i>data</i> - Data protection only, without FIPS compliance • <i>part</i> - Data is unprotected; other FIPS compliance settings present • <i>full</i> - Full data and FIPS compliance protection • <i>miss</i> - 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",
  "error": {
    "reason": {
      "code": "string",
      "message": "not responding"
    },
    "type": "notallflashdisk"
  },
  "firmware_version": "NA51",
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "model": "X421_HCOBE450A10",
  "name": "1.0.1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    }
  },
}
```



```

    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "outage": {
    "reason": {
      "code": "721081",
      "message": "not responding"
    }
  },
  "paths": {
    "initiator": "3a",
    "port_name": "A",
    "port_type": "sas",
    "wwnn": "5000c2971c1b2b8c",
    "wwpn": "5000c2971c1b2b8d"
  },
  "pool": "pool10",
  "protection_mode": "open",
  "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.
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	

reason

Name	Type	Description
code	string	Provides an error code.
message	string	Provides an error message detailing the error state of this disk.

disk_error_info

Name	Type	Description
reason	reason	
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	

reason

Name	Type	Description
code	string	This field provides the error code explaining why a disk failed.
message	string	This field provides the error message explaining why a disk failed.

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	reason	

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.

Name	Type	Description
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	
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

Name	Type	Description
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: <ul style="list-style-type: none"> • <i>open</i> - Data is unprotected • <i>data</i> - Data protection only, without FIPS compliance • <i>part</i> - Data is unprotected; other FIPS compliance settings present • <i>full</i> - Full data and FIPS compliance protection • <i>miss</i> - 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	

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

Name	Type	Description
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: <ul style="list-style-type: none"> • <i>open</i> - Data is unprotected • <i>data</i> - Data protection only, without FIPS compliance • <i>part</i> - Data is unprotected; other FIPS compliance settings present • <i>full</i> - Full data and FIPS compliance protection • <i>miss</i> - 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",
  "error": {
    "reason": {
      "code": "string",
      "message": "not responding"
    },
    "type": "notallflashdisk"
  },
  "firmware_version": "NA51",
  "home_node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "model": "X421_HCOBE450A10",
  "name": "1.0.1",
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    }
  },
}
```

```

    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "outage": {
    "reason": {
      "code": "721081",
      "message": "not responding"
    }
  },
  "paths": {
    "initiator": "3a",
    "port_name": "A",
    "port_type": "sas",
    "wwnn": "5000c2971c1b2b8c",
    "wwpn": "5000c2971c1b2b8d"
  },
  "pool": "pool10",
  "protection_mode": "open",
  "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
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	

reason

Name	Type	Description
code	string	Provides an error code.
message	string	Provides an error message detailing the error state of this disk.

disk_error_info

Name	Type	Description
reason	reason	
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	

reason

Name	Type	Description
code	string	This field provides the error code explaining why a disk failed.
message	string	This field provides the error message explaining why a disk failed.

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	reason	

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.

Name	Type	Description
throughput	integer	Total disk throughput per second across all active paths, in bytes.

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 clone of the file

POST /storage/file/clone

Introduced In: 9.6

Creates a clone of the file.

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • 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.
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",
  "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. <ul style="list-style-type: none">• 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.
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.

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	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • 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": {
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volumel",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    },
    "source": {
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volumel",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  },
}
```

```

"reference_cutover_time": "10",
"reference_file": {
  "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. <ul style="list-style-type: none">• 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.

Start a file move operation

POST /storage/file/move

Introduced In: 9.8

Starts a file move operation. Only supported on flexible volumes.

Required properties

- `files_to_move` - List of files with the destination they are to be moved to.

Default property values

- `cutover_time` - *10*
- `hold_quiescence` - *false*
- `max_throughput` - *0*
- `reference_cutover_time` - *10*

Related ONTAP commands

- `volume file move start`

Examples

Copying two files

The POST request is used to move file(s).

```
# The API:
/api/storage/file/move

# The call:
curl -X POST "https://<mgmt-ip>/api/storage/file/move" -H "accept:
application/hal+json" -d
'{"files_to_move":[{"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	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • 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_move	array[files_to_move]	A list of source files along with the destination file they are moved to. If the terminal path component of the destination is a directory, then the source file's basename is replicated in that directory.
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_move": {
    "destination": {
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volumel",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    },
    "source": {
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volumel",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  },
}
```

```
"reference_cutover_time": "10",
"reference_file": {
  "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-move".
7012362	The SVMs are not yet in a peered state yet.
7012363	Cannot move 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 move 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 the 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

SVM, applies only to SVM-scoped objects.

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. <ul style="list-style-type: none">• example: 028baa66-41bd-11e9-81d5-00a0986138f7

destination

Name	Type	Description
path	string	Path of the file or directory.
svm	svm	SVM, applies only to SVM-scoped objects.

Name	Type	Description
volume	volume	

source

Name	Type	Description
path	string	Path of the file or directory.
svm	svm	SVM, applies only to SVM-scoped objects.
volume	volume	

files_to_move

Name	Type	Description
destination	destination	
source	source	

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	<p>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.</p> <ul style="list-style-type: none"> • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

reference_file

Name	Type	Description
path	string	The source reference file. If a reference file is specified, data for other files being moved 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_move

File move

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_move	array[files_to_move]	A list of source files along with the destination file they are moved to. If the terminal path component of the destination is a directory, then the source file's basename is replicated in that directory.
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 aggregate 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
<code>aggregates.name</code>	string	query	False	Filter by <code>aggregates.name</code>
<code>aggregates.uuid</code>	string	query	False	Filter by <code>aggregates.uuid</code>
<code>svm.uuid</code>	string	query	False	Filter by <code>svm.uuid</code>
<code>svm.name</code>	string	query	False	Filter by <code>svm.name</code>

Name	Type	In	Required	Description
global_file_locking_enabled	boolean	query	False	Filter by global_file_locking_enabled • Introduced in: 9.9
use_tiered_aggregate	boolean	query	False	Filter by use_tiered_aggregate • Introduced in: 9.8
uuid	string	query	False	Filter by uuid
size	integer	query	False	Filter by size
origins.size	integer	query	False	Filter by origins.size
origins.create_time	string	query	False	Filter by origins.create_time
origins.volume.name	string	query	False	Filter by origins.volume.name
origins.volume.uuid	string	query	False	Filter by origins.volume.uuid
origins.svm.uuid	string	query	False	Filter by origins.svm.uuid
origins.svm.name	string	query	False	Filter by origins.svm.name
origins.state	string	query	False	Filter by origins.state
origins.cluster.name	string	query	False	Filter by origins.cluster.name
origins.cluster.uuid	string	query	False	Filter by origins.cluster.uuid
origins.ip_address	string	query	False	Filter by origins.ip_address

Name	Type	In	Required	Description
constituents_per_aggregate	integer	query	False	Filter by constituents_per_aggregate
name	string	query	False	Filter by name
guarantee.type	string	query	False	Filter by guarantee.type • Introduced in: 9.7
path	string	query	False	Filter by path
dr_cache	boolean	query	False	Filter by dr_cache • Introduced in: 9.9
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

Name	Type	In	Required	Description
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": "volume"
    },
    "name": "voll",
    "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": "error",
      "svm": {
        "_links": {
```

```

    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "svm1",
  "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"volume": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "volumel",
  "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
}
},
"path": "/user/my_fc",
"prepopulate": {
  "dir_paths": {
  },
  "exclude_dir_paths": {
  }
},
"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	<p>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.</p> <ul style="list-style-type: none"> • 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 management 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 directory-path 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.
guarantee	guarantee	

Name	Type	Description
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 the 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
<code>return_timeout</code>	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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.
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

Name	Type	Description
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": "volume"
  },
  "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": "error",
    "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": {
  },
  "exclude_dir_paths": {
  }
},
"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	<p>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.</p> <ul style="list-style-type: none"> • 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 management 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 directory-path 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.
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.

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

Name	Type	Description
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	<p>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.</p> <ul style="list-style-type: none"> • 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 aggregate 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
<code>uuid</code>	string	path	True	Unique identifier of FlexCache.
<code>fields</code>	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
<code>_links</code>	_links	
<code>aggregates</code>	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.
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.

Name	Type	Description
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": "volume"
  },
  "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": "error",
    "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": {
  },
  "exclude_dir_paths": {
  }
},
"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	<p>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.</p> <ul style="list-style-type: none"> • 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 management 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 directory-path recursively. If not set, the default value "true" is used.

svm

FlexCache SVM

Name	Type	Description
<code>_links</code>	_links	
<code>name</code>	string	The name of the SVM.
<code>uuid</code>	string	The unique identifier of the SVM.

error_arguments

Name	Type	Description
<code>code</code>	string	Argument code
<code>message</code>	string	Message argument

error

Name	Type	Description
<code>arguments</code>	array[error_arguments]	Message arguments
<code>code</code>	string	Error code
<code>message</code>	string	Error message
<code>target</code>	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	<p>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.</p> <ul style="list-style-type: none"> • 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.
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": "volume"
  },
  "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": "error",
    "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": {
  },
  "exclude_dir_paths": {
  }
},
"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	<p>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.</p> <ul style="list-style-type: none"> 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 management 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 directory-path 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.
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.

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

Name	Type	Description
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_01",
      "_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-aed0-0050568eddb"
      },
      "svm": {
        "name": "vs_1_4",
        "uuid": "36f68322-0e93-11e9-aed0-0050568eddb"
      },
      "cluster": {
        "name": "node4",
        "uuid": "c32f16b8-0e90-11e9-aed0-0050568eddb"
      }
    },
    {
      "ip_address": "10.140.103.183",
      "create_time": "2019-01-02T21:08:34+05:30",
      "volume": {
        "name": "fc_421",
        "uuid": "71ee8f36-0ea4-11e9-aed0-0050568eddb"
      },
      "svm": {
        "name": "vs_1_4",
        "uuid": "36f68322-0e93-11e9-aed0-0050568eddb"
      },
      "cluster": {
        "name": "node4",
        "uuid": "c32f16b8-0e90-11e9-aed0-0050568eddb"
      }
    }
  ]
}

```

```

    }
  },
  {
    "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-aed0-0050568eddb"
    },
    "cluster": {
      "name": "node4",
      "uuid": "c32f16b8-0e90-11e9-aed0-0050568eddb"
    }
  },
  {
    "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 volume 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
<code>block_level_invalidation</code>	boolean	query	False	Filter by <code>block_level_invalidation</code> • Introduced in: 9.9
<code>svm.uuid</code>	string	query	False	Filter by <code>svm.uuid</code>
<code>svm.name</code>	string	query	False	Filter by <code>svm.name</code>
<code>name</code>	string	query	False	Filter by <code>name</code>
<code>global_file_locking_enabled</code>	boolean	query	False	Filter by <code>global_file_locking_enabled</code> • Introduced in: 9.9
<code>flexcaches.size</code>	integer	query	False	Filter by <code>flexcaches.size</code>
<code>flexcaches.create_time</code>	string	query	False	Filter by <code>flexcaches.create_time</code>
<code>flexcaches.volume.name</code>	string	query	False	Filter by <code>flexcaches.volume.name</code>
<code>flexcaches.volume.uuid</code>	string	query	False	Filter by <code>flexcaches.volume.uuid</code>

Name	Type	In	Required	Description
flexcaches.svm.uuid	string	query	False	Filter by flexcaches.svm.uuid
flexcaches.svm.name	string	query	False	Filter by flexcaches.svm.name
flexcaches.state	string	query	False	Filter by flexcaches.state
flexcaches.cluster.name	string	query	False	Filter by flexcaches.cluster.name
flexcaches.cluster.uuid	string	query	False	Filter by flexcaches.cluster.uuid
flexcaches.ip_address	string	query	False	Filter by flexcaches.ip_address
uuid	string	query	False	Filter by uuid
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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[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": "error",
      "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": "voll, 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	<p>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.</p> <ul style="list-style-type: none"> • 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 management 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": "error",
    "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. <ul style="list-style-type: none">• 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 management 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
<code>_links</code>	_links	
<code>block_level_invalidation</code>	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": "error",
    "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
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. <ul style="list-style-type: none">• 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 management 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 monitored 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
path	string	query	False	Filter by path
statistics.iops_raw.total	integer	query	False	Filter by statistics.iops_raw.total
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.iops_raw.write	integer	query	False	Filter by statistics.iops_raw.write
statistics.timestamp	string	query	False	Filter by statistics.timestamp

Name	Type	In	Required	Description
statistics.throughput_raw.total	integer	query	False	Filter by statistics.throughput_raw.total
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.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write
statistics.status	string	query	False	Filter by statistics.status
statistics.latency_raw.total	integer	query	False	Filter by statistics.latency_raw.total
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
statistics.latency_raw.write	integer	query	False	Filter by statistics.latency_raw.write
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
volume.name	string	query	False	Filter by volume.name
volume.uuid	string	query	False	Filter by volume.uuid
metric.timestamp	string	query	False	Filter by metric.timestamp

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

Name	Type	In	Required	Description
uuid	string	query	False	Filter by uuid
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	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	<p>The default is true for GET calls. When set to false, only the number of records is returned.</p> <ul style="list-style-type: none"> • 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	

Name	Type	Description
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
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	Performance 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	Performance 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	Performance 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	Performance 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	Performance 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	Performance 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	<p>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.</p> <ul style="list-style-type: none"> • 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
<code>return_records</code>	boolean	query	False	The default is false. If set to true, the records are returned. <ul style="list-style-type: none"> • 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	Performance 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	Performance 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	Performance 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	Performance 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	Performance 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	Performance 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	<p>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.</p> <ul style="list-style-type: none"> • 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
timestamp	string	query	False	Filter by timestamp
iops.total	integer	query	False	Filter by iops.total
iops.other	integer	query	False	Filter by iops.other
iops.read	integer	query	False	Filter by iops.read
iops.write	integer	query	False	Filter by iops.write
throughput.total	integer	query	False	Filter by throughput.total
throughput.other	integer	query	False	Filter by throughput.other
throughput.read	integer	query	False	Filter by throughput.read
throughput.write	integer	query	False	Filter by throughput.write
latency.total	integer	query	False	Filter by latency.total
latency.other	integer	query	False	Filter by latency.other
latency.read	integer	query	False	Filter by latency.read
latency.write	integer	query	False	Filter by latency.write
duration	string	query	False	Filter by duration
status	string	query	False	Filter by status
monitored_file.uuid	string	path	True	Unique identifier of the monitored file.

Name	Type	In	Required	Description
interval	string	query	False	<p>The time range for the data. Examples can be 1w, 1m, 1y. The period for each time range is as follows:</p> <ul style="list-style-type: none"> • 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	<p>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.</p> <ul style="list-style-type: none"> • 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	Performance 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	Performance 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	Performance 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	

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
firmware_version	string	query	False	Filter by firmware_version <ul style="list-style-type: none">• Introduced in: 9.9
name	string	query	False	Filter by name
speed	number	query	False	Filter by speed
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
cable.length	string	query	False	Filter by cable.length
redundant	boolean	query	False	Filter by redundant <ul style="list-style-type: none">• Introduced in: 9.9
type	string	query	False	Filter by type <ul style="list-style-type: none">• Introduced in: 9.9

Name	Type	In	Required	Description
wwpn	string	query	False	Filter by wwpn • Introduced in: 9.9
node.name	string	query	False	Filter by node.name
node.uuid	string	query	False	Filter by node.uuid
mac_address	string	query	False	Filter by mac_address
board_name	string	query	False	Filter by board_name
error.corrective_action	string	query	False	Filter by error.corrective_action
error.message	string	query	False	Filter by error.message
serial_number	string	query	False	Filter by serial_number
state	string	query	False	Filter by state
wwn	string	query	False	Filter by wwn
part_number	string	query	False	Filter by part_number
in_use	boolean	query	False	Filter by in_use • Introduced in: 9.9
mode	string	query	False	Filter by mode • Introduced in: 9.8
enabled	boolean	query	False	Filter by enabled • Introduced in: 9.9

Name	Type	In	Required	Description
description	string	query	False	Filter by 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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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	

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

Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "cable": {
      "identifier": "500a0980000b6c3f-50000d1703544b80",
      "length": "2m",
      "part_number": "112-00431+A0",
      "serial_number": "616930439"
    },
    "description": "SAS Host Adapter 2a (PMC-Sierra PM8072 rev. C)",
    "firmware_version": "03.08.09.00",
    "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"
  }
}
```

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

```
{
  "cable": {
    "identifier": "500a0980000b6c3f-50000d1703544b80",
    "length": "2m",
    "part_number": "112-00431+A0",
    "serial_number": "616930439"
  },
  "description": "SAS Host Adapter 2a (PMC-Sierra PM8072 rev. C)",
  "firmware_version": "03.08.09.00",
  "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"
}
```

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,
\"peak_iops\": 6000 }, \"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
object_count	integer	query	False	Filter by object_count
adaptive.expected_iops	integer	query	False	Filter by adaptive.expected_iops
adaptive.absolute_min_iops	integer	query	False	Filter by adaptive.absolute_min_iops
adaptive.peak_iops	integer	query	False	Filter by adaptive.peak_iops
fixed.min_throughput_mbps	integer	query	False	Filter by fixed.min_throughput_mbps <ul style="list-style-type: none">• Introduced in: 9.8
fixed.min_throughput_iops	integer	query	False	Filter by fixed.min_throughput_iops
fixed.capacity_shared	boolean	query	False	Filter by fixed.capacity_shared

Name	Type	In	Required	Description
fixed.max_throughput_iops	integer	query	False	Filter by fixed.max_throughput_iops
fixed.max_throughput_mbps	integer	query	False	Filter by fixed.max_throughput_mbps
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
uuid	string	query	False	Filter by uuid
name	string	query	False	Filter by 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	_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"
      }
    },
    "name": "extreme",
    "object_count": 0,
    "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.
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.
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.

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.

Name	Type	Description
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	string	Name of the QoS policy.
object_count	integer	Number of objects attached to this 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
<code>return_records</code>	boolean	query	False	The default is false. If set to true, the records are returned. <ul style="list-style-type: none">• Default value:

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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.
svm	svm	
uuid	string	

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "extreme",
  "object_count": 0,
  "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.
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.
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.
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.

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.
uuid	string	The unique identifier of the SVM.

qos_policy

Name	Type	Description
_links	_links	

Name	Type	Description
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.
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
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 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	<ul style="list-style-type: none"> • Introduced in: 9.8

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none">• 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.
svm	svm	
uuid	string	

Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "extreme",
  "object_count": 0,
  "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.
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.
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.

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.
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	<ul style="list-style-type: none"> • Introduced in: 9.8

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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.
svm	svm	
uuid	string	

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "extreme",
  "object_count": 0,
  "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.
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.
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.
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.

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.
uuid	string	The unique identifier of the SVM.

qos_policy

Name	Type	Description
_links	_links	

Name	Type	Description
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.
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
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 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". Specifying "min_throughput_iops" 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": "svml"
  },
  "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": "svml"
      },
      "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,
    "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": "svml",
    "_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,
  "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,
    "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
<code>svm.uuid</code>	string	query	False	Filter by <code>svm.uuid</code>
<code>svm.name</code>	string	query	False	Filter by <code>svm.name</code>
<code>unix_permissions</code>	integer	query	False	Filter by <code>unix_permissions</code>
<code>user.id</code>	string	query	False	Filter by <code>user.id</code> <ul style="list-style-type: none">• Introduced in: 9.9
<code>user.name</code>	string	query	False	Filter by <code>user.name</code> <ul style="list-style-type: none">• Introduced in: 9.9
<code>statistics.iops_raw.total</code>	integer	query	False	Filter by <code>statistics.iops_raw.total</code> <ul style="list-style-type: none">• Introduced in: 9.8
<code>statistics.iops_raw.other</code>	integer	query	False	Filter by <code>statistics.iops_raw.other</code> <ul style="list-style-type: none">• Introduced in: 9.8
<code>statistics.iops_raw.read</code>	integer	query	False	Filter by <code>statistics.iops_raw.read</code> <ul style="list-style-type: none">• Introduced in: 9.8

Name	Type	In	Required	Description
statistics.iops_raw.write	integer	query	False	Filter by statistics.iops_raw.write • Introduced in: 9.8
statistics.timestamp	string	query	False	Filter by statistics.timestamp • Introduced in: 9.8
statistics.throughput_raw.total	integer	query	False	Filter by statistics.throughput_raw.total • Introduced in: 9.8
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.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write • Introduced in: 9.8
statistics.status	string	query	False	Filter by statistics.status • Introduced in: 9.8

Name	Type	In	Required	Description
nas.path	string	query	False	Filter by nas.path • 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
id	integer	query	False	Filter by id
volume.name	string	query	False	Filter by volume.name
volume.uuid	string	query	False	Filter by volume.uuid
security_style	string	query	False	Filter by security_style
name	string	query	False	Filter by name
path	string	query	False	Filter by path
qos_policy.max_throughput_mbps	integer	query	False	Filter by qos_policy.max_throughput_mbps • Introduced in: 9.8
qos_policy.max_throughput_iops	integer	query	False	Filter by qos_policy.max_throughput_iops • Introduced in: 9.8
qos_policy.name	string	query	False	Filter by qos_policy.name • Introduced in: 9.8

Name	Type	In	Required	Description
qos_policy.min_throughput_iops	integer	query	False	Filter by qos_policy.min_throughput_iops • Introduced in: 9.8
qos_policy.uuid	string	query	False	Filter by qos_policy.uuid • Introduced in: 9.8
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
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	<p>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.</p> <ul style="list-style-type: none"> • 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"
    },
    "group": {
      "id": "20001",
      "name": "unix_group1"
    },
    "id": "1",
    "nas": {
      "path": "/volume3/qtreen1"
    },
    "path": "/volume3/qtreen1",
    "qos_policy": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "max_throughput_iops": "10000",
      "max_throughput_mbps": "500",
      "min_throughput_iops": "2000",
      "name": "performance",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  }
}
```

```

    },
    "security_style": "unix",
    "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": "0755",
    "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

When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

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.
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	Performance 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	Performance 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	<p>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.</p> <ul style="list-style-type: none"> • 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
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	When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.
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

Name	Type	Description
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
<code>return_timeout</code>	integer	query	False	<p>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.</p> <ul style="list-style-type: none">• Default value: 1• Max value: 120• Min value: 0

Name	Type	In	Required	Description
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • Default value:

Request Body

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy
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	When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

Name	Type	Description
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"
  },
  "group": {
    "id": "20001",
    "name": "unix_group1"
  },
  "id": "1",
  "nas": {
    "path": "/volume3/qtreen1"
  },
  "path": "/volume3/qtreen1",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "max_throughput_iops": "10000",
    "max_throughput_mbps": "500",
    "min_throughput_iops": "2000",
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "security_style": "unix",
  "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": "0755",
"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 <code>volume.name</code> or <code>volume.uuid</code> must be provided.
918236	The specified <code>volume.uuid</code> and <code>volume.name</code> refer to different volumes.
2621462	The specified SVM does not exist.
2621706	The specified <code>svm.uuid</code> and <code>svm.name</code> do not refer to the same SVM.
2621707	No SVM was specified. Either <code>svm.name</code> or <code>svm.uuid</code> 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

When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified,

the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

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.
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.

Name	Type	Description
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Performance 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	Performance 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.

Name	Type	Description
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.
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	<p>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.</p> <ul style="list-style-type: none"> • 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
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	

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. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.
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	<p>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.</p> <ul style="list-style-type: none"> • 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
<code>volume.uuid</code>	string	path	True	Volume UUID
<code>id</code>	string	path	True	Qtree ID
<code>fields</code>	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
<code>_links</code>	_links	
<code>export_policy</code>	export_policy	Export Policy
<code>group</code>	group	The user set as owner of the qtree.
<code>id</code>	integer	The identifier for the qtree, unique within the qtree's volume.
<code>name</code>	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	When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.
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"
  },
  "group": {
    "id": "20001",
    "name": "unix_group1"
  },
  "id": "1",
  "nas": {
    "path": "/volume3/qtreen1"
  },
  "path": "/volume3/qtreen1",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "max_throughput_iops": "10000",
    "max_throughput_mbps": "500",
    "min_throughput_iops": "2000",
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "security_style": "unix",
  "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": "0755",
  "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.
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

When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified,

the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

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.
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.

Name	Type	Description
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Performance 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	Performance 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.

Name	Type	Description
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.
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	<p>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.</p> <ul style="list-style-type: none"> • 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

Name	Type	Description
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	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
export_policy	export_policy	Export Policy
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	When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.
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"
  },
  "group": {
    "id": "20001",
    "name": "unix_group1"
  },
  "id": "1",
  "nas": {
    "path": "/volume3/qtreen1"
  },
  "path": "/volume3/qtreen1",
  "qos_policy": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "max_throughput_iops": "10000",
    "max_throughput_mbps": "500",
    "min_throughput_iops": "2000",
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "security_style": "unix",
  "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": "0755",
  "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

When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified,

the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

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.
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.

Name	Type	Description
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	Performance 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	Performance 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.

Name	Type	Description
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.
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	<p>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.</p> <ul style="list-style-type: none"> • 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
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	

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. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	When "min_throughput_iops", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.
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": "svml",
    "_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": "svml",
    "_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": 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-

```

```

005056a7f717/4611686018427387904"
  }
}
},
{
  "svm": {
    "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
    "name": "svml",
    "_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": "svml",
    "_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": "svml",
      "_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": "svml",
      "_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": 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": "svml",
      "_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": "svml",
    "_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": "svml",
  "_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/4612248968380809216"
    }
  }
}

```

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": "svml",
        "_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
group.name	string	query	False	Filter by group.name
group.id	string	query	False	Filter by group.id
qtree.id	integer	query	False	Filter by qtree.id
qtree.name	string	query	False	Filter by qtree.name
index	integer	query	False	Filter by index
users.id	string	query	False	Filter by users.id
users.name	string	query	False	Filter by users.name
volume.name	string	query	False	Filter by volume.name
volume.uuid	string	query	False	Filter by volume.uuid
specifier	string	query	False	Filter by specifier
space.soft_limit	integer	query	False	Filter by space.soft_limit
space.hard_limit	integer	query	False	Filter by space.hard_limit
space.used.soft_limit_percent	integer	query	False	Filter by space.used.soft_limit_percent

Name	Type	In	Required	Description
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
files.hard_limit	integer	query	False	Filter by files.hard_limit
files.soft_limit	integer	query	False	Filter by files.soft_limit
files.used.soft_limit_percent	integer	query	False	Filter by files.used.soft_limit_percent
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
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
type	string	query	False	Filter by type
show_default_records	boolean	query	False	<p>The default is true for GET calls. When set to false, the default records are not reported.</p> <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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": "tree",
"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 identifier.

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	<p>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.</p> <ul style="list-style-type: none"> • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

quota_report

Name	Type	Description
_links	_links	
files	files	
group	group	<p>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 identifier.</p>

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 identifier 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 identifier.
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 identifier 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": "tree",
  "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 identifier.

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	<p>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.</p> <ul style="list-style-type: none"> • 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": "svml",
```

```

    "_links": {
      "self": {
        "href": "/api/svm/svms/038545f8-9ff8-11e8-bce6-005056a73bed"
      }
    },
    "volume": {
      "uuid": "ab3df793-0f02-43c6-9514-4f142fc8cc92",
      "name": "voll1",
      "_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": "voll1",
      "_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": "svml",
    "_links": {
      "self": {
        "href": "/api/svm/svms/fd5db15a-15b9-11e9-a6ad-005056a760e0"
      }
    }
  },
  "volume": {
    "uuid": "c1b64eea-ca8b-45ec-9397-ab489830d268",
    "name": "voll",
    "_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": "voll1",
    "_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"
    }
  }
}

```

```
# 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": "voll1",
    "_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/clb64eea-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": "voll1"
},
"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": "svml1"
      },
      "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": "voll1"
  },
  "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": "voll1"
  },
  "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
uuid	string	query	False	Filter by uuid
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
type	string	query	False	Filter by type
space.soft_limit	integer	query	False	Filter by space.soft_limit
space.hard_limit	integer	query	False	Filter by space.hard_limit
files.soft_limit	integer	query	False	Filter by files.soft_limit
files.hard_limit	integer	query	False	Filter by files.hard_limit
qtree.id	integer	query	False	Filter by qtree.id
qtree.name	string	query	False	Filter by qtree.name
user_mapping	boolean	query	False	Filter by user_mapping
users.id	string	query	False	Filter by users.id
users.name	string	query	False	Filter by users.name

Name	Type	In	Required	Description
volume.name	string	query	False	Filter by volume.name
volume.uuid	string	query	False	Filter by volume.uuid
group.name	string	query	False	Filter by group.name
group.id	string	query	False	Filter by group.id
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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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"
      }
    },
    "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": "tree",
    "users": {
    },
    "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. <ul style="list-style-type: none">• example: 028baa66-41bd-11e9-81d5-00a0986138f7• Introduced in: 9.6

quota_rule

Name	Type	Description
_links	_links	
files	files	

Name	Type	Description
group	group	<p>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.</p>
qtree	qtree	<p>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.</p>
space	space	
svm	svm	
type	string	<p>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.</p>

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 identifier 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
<code>return_timeout</code>	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0

Name	Type	In	Required	Description
return_records	boolean	query	False	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • Default value:

Request Body

Name	Type	Description
_links	_links	
files	files	
group	group	<p>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.</p>

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]	<p>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 identifier 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.</p>
uuid	string	<p>Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.</p>
volume	volume	

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "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": "tree",
  "users": {
  },
  "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 <code>volume.name</code> or <code>volume.uuid</code> must be provided.
918236	The specified <code>volume.uuid</code> and <code>volume.name</code> refer to different volumes.
2621462	The specified SVM does not exist.
2621706	The specified <code>svm.uuid</code> and <code>svm.name</code> do not refer to the same SVM.
2621707	No SVM was specified. Either <code>svm.name</code> or <code>svm.uuid</code> 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.

Error Code	Description
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	<p>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.</p> <ul style="list-style-type: none"> • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

quota_rule

Name	Type	Description
_links	_links	
files	files	
group	group	<p>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.</p>

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 identifier 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	<p>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.</p> <ul style="list-style-type: none"> • 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]	<p>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 identifier 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.</p>
uuid	string	<p>Unique identifier for the quota policy rule. This field is generated when the quota policy rule is created.</p>
volume	volume	

Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "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": "tree",
  "users": {
  },
  "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 <code>show_default_records</code> 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	<p>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.</p> <ul style="list-style-type: none"> • 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	<p>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.</p> <ul style="list-style-type: none"> • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
_links	_links	
files	files	

Name	Type	Description
group	group	<p>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.</p>
qtree	qtree	<p>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.</p>
space	space	
svm	svm	
type	string	<p>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.</p>

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 identifier 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"
    }
  },
  "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": "tree",
  "users": {
  },
  "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.
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	<p>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.</p> <ul style="list-style-type: none"> • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

quota_rule

Name	Type	Description
_links	_links	
files	files	
group	group	<p>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.</p>

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 identifier 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,
  "state": "ok",
  "connection_type": "sas",
  "disk_count": 24,
  "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"
  },
  {
    "type": "module",
```

```
"id": 1,
"state": "ok",
"part_number": "111-00190+B0",
"serial_number": "7903785183",
"firmware_version": "0191"
},
{
  "type": "psu",
  "id": 1,
  "state": "ok",
  "part_number": "0082562-12",
  "serial_number": "PMW82562007513E",
  "firmware_version": "0311"
},
{
  "type": "psu",
  "id": 2,
  "state": "ok",
  "part_number": "0082562-12",
  "serial_number": "PMW825620075138",
  "firmware_version": "0311"
},
{
  "type": "psu",
  "id": 3,
  "state": "ok",
  "part_number": "0082562-12",
  "serial_number": "PMW8256200750BA",
  "firmware_version": "0311"
},
{
  "type": "psu",
  "id": 4,
  "state": "ok",
  "part_number": "0082562-12",
  "serial_number": "PMW8256200750A2",
  "firmware_version": "0311"
}
],
"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"
},
],
"_links": {
  "self": {
    "href": "/api/storage/shelves/3109174803597886800"
  }
}
}

```

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`

Learn more

- [DOC /storage/shelves](#)

Parameters

Name	Type	In	Required	Description
uid	string	query	False	Filter by uid
paths.name	string	query	False	Filter by paths.name
paths.node.name	string	query	False	Filter by paths.node.name
paths.node.uuid	string	query	False	Filter by paths.node.uuid
disk_count	integer	query	False	Filter by disk_count
connection_type	string	query	False	Filter by connection_type
vendor.product	string	query	False	Filter by vendor.product <ul style="list-style-type: none"> • Introduced in: 9.8
vendor.part_number	string	query	False	Filter by vendor.part_number <ul style="list-style-type: none"> • Introduced in: 9.8
vendor.manufacturer	string	query	False	Filter by vendor.manufacturer <ul style="list-style-type: none"> • Introduced in: 9.8
vendor.serial_number	string	query	False	Filter by vendor.serial_number <ul style="list-style-type: none"> • Introduced in: 9.8

Name	Type	In	Required	Description
errors.reason.code	string	query	False	Filter by errors.reason.code • Introduced in: 9.9
errors.reason.message	string	query	False	Filter by errors.reason.message • Introduced in: 9.9
model	string	query	False	Filter by model
ports.internal	boolean	query	False	Filter by ports.internal
ports.mac_address	string	query	False	Filter by ports.mac_address
ports.designator	string	query	False	Filter by ports.designator
ports.state	string	query	False	Filter by ports.state
ports.remote.port	string	query	False	Filter by ports.remote.port
ports.remote.phy	string	query	False	Filter by ports.remote.phy
ports.remote.device	string	query	False	Filter by ports.remote.device • Introduced in: 9.8
ports.remote.wwn	string	query	False	Filter by ports.remote.wwn
ports.remote.mac_address	string	query	False	Filter by ports.remote.mac_address
ports.remote.chassis	string	query	False	Filter by ports.remote.chassis

Name	Type	In	Required	Description
ports.id	integer	query	False	Filter by ports.id
ports.wwn	string	query	False	Filter by ports.wwn
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.part_number	string	query	False	Filter by ports.cable.part_number
ports.cable.length	string	query	False	Filter by ports.cable.length
ports.module_id	string	query	False	Filter by ports.module_id
bays.has_disk	boolean	query	False	Filter by bays.has_disk
bays.state	string	query	False	Filter by bays.state
bays.id	integer	query	False	Filter by bays.id
bays.type	string	query	False	Filter by bays.type
fans.location	string	query	False	Filter by fans.location • 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

Name	Type	In	Required	Description
fans.id	integer	query	False	Filter by fans.id • Introduced in: 9.9
name	string	query	False	Filter by name
internal	boolean	query	False	Filter by internal
frus.serial_number	string	query	False	Filter by frus.serial_number
frus.state	string	query	False	Filter by frus.state
frus.part_number	string	query	False	Filter by frus.part_number
frus.type	string	query	False	Filter by frus.type
frus.id	integer	query	False	Filter by frus.id
frus.firmware_version	string	query	False	Filter by frus.firmware_version
module_type	string	query	False	Filter by module_type
local	boolean	query	False	Filter by local • Introduced in: 9.8
drawers.closed	boolean	query	False	Filter by drawers.closed
drawers.error	string	query	False	Filter by drawers.error
drawers.part_number	string	query	False	Filter by drawers.part_number
drawers.id	integer	query	False	Filter by drawers.id

Name	Type	In	Required	Description
drawers.disk_count	integer	query	False	Filter by drawers.disk_count
drawers.serial_number	string	query	False	Filter by drawers.serial_number
drawers.state	string	query	False	Filter by drawers.state
id	string	query	False	Filter by id
state	string	query	False	Filter by state
serial_number	string	query	False	Filter by serial_number
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	<p>The default is true for GET calls. When set to false, only the number of records is returned.</p> <ul style="list-style-type: none"> • Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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": {
    "bays": {
      "id": "0",
      "state": "ok",
      "type": "single_disk"
    },
    "connection_type": "sas",
    "disk_count": "12",
    "drawers": {
      "disk_count": "12",
      "part_number": "111-03071",
      "serial_number": "021604008263",
      "state": "ok"
    },
    "errors": {
    },
    "fans": {
      "id": "1",
      "location": "rear of the shelf on the lower left power supply",
      "rpm": "3020",
      "state": "ok"
    },
    "frus": {
      "firmware_version": "0191",
      "part_number": "111-00690+A2",
      "serial_number": "8000166294",
      "state": "error",
      "type": "module"
    },
    "id": "1",
    "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",
  "module_id": "a",
  "remote": {
    "phy": "12",
    "wwn": "50000D1703544B80"
  },
  "state": "connected",
  "wwn": "500A0980000B6C3F"
},
"serial_number": "SHFMS1514000895",
"state": "ok",
"uid": "7777841915827391056",
"vendor": {
  "manufacturer": "XYZ",
  "part_number": "A92831142733",
  "product": "LS2246",
  "serial_number": "891234572210221"
}
}
}

```

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	

bays

Name	Type	Description
has_disk	boolean	
id	integer	
state	string	
type	string	

drawers

Name	Type	Description
closed	boolean	
disk_count	integer	
error	string	
id	integer	
part_number	string	
serial_number	string	
state	string	

reason

Name	Type	Description
code	string	Error code
message	string	Error message

errors

Name	Type	Description
reason	reason	

fans

Name	Type	Description
id	integer	
location	string	
rpm	integer	
state	string	

frus

Name	Type	Description
firmware_version	string	
id	integer	
part_number	string	
serial_number	string	
state	string	
type	string	

[_links](#)

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	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	
designator	string	
id	integer	
internal	boolean	
mac_address	string	
module_id	string	
remote	remote	
state	string	
wwn	string	

vendor

Name	Type	Description
manufacturer	string	Manufacturer name
part_number	string	Part number
product	string	Product name

Name	Type	Description
serial_number	string	Serial number

shelf

Name	Type	Description
bays	array[bays]	
connection_type	string	
disk_count	integer	
drawers	array[drawers]	
errors	array[errors]	
fans	array[fans]	
frus	array[frus]	
id	string	
internal	boolean	
local	boolean	
model	string	
module_type	string	
name	string	
paths	array[paths]	
ports	array[ports]	
serial_number	string	
state	string	
uid	string	
vendor	vendor	

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.

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`

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
bays	array[bays]	
connection_type	string	
disk_count	integer	

Name	Type	Description
drawers	array[drawers]	
errors	array[errors]	
fans	array[fans]	
frus	array[frus]	
id	string	
internal	boolean	
local	boolean	
model	string	
module_type	string	
name	string	
paths	array[paths]	
ports	array[ports]	
serial_number	string	
state	string	
uid	string	
vendor	vendor	

Example response

```
{
  "bays": {
    "id": "0",
    "state": "ok",
    "type": "single_disk"
  },
  "connection_type": "sas",
  "disk_count": "12",
  "drawers": {
    "disk_count": "12",
    "part_number": "111-03071",
    "serial_number": "021604008263",
    "state": "ok"
  },
  "errors": {
  },
  "fans": {
    "id": "1",
    "location": "rear of the shelf on the lower left power supply",
    "rpm": "3020",
    "state": "ok"
  },
  "frus": {
    "firmware_version": "0191",
    "part_number": "111-00690+A2",
    "serial_number": "8000166294",
    "state": "error",
    "type": "module"
  },
  "id": "1",
  "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",
  "module_id": "a",
  "remote": {
    "phy": "12",
    "wnn": "50000D1703544B80"
  },
  "state": "connected",
  "wnn": "500A0980000B6C3F"
},
"serial_number": "SHFMS1514000895",
"state": "ok",
"uid": "7777841915827391056",
"vendor": {
  "manufacturer": "XYZ",
  "part_number": "A92831142733",
  "product": "LS2246",
  "serial_number": "891234572210221"
}
}

```

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

bays

Name	Type	Description
has_disk	boolean	
id	integer	
state	string	
type	string	

drawers

Name	Type	Description
closed	boolean	
disk_count	integer	
error	string	
id	integer	
part_number	string	
serial_number	string	
state	string	

reason

Name	Type	Description
code	string	Error code
message	string	Error message

errors

Name	Type	Description
reason	reason	

fans

Name	Type	Description
id	integer	
location	string	
rpm	integer	
state	string	

frus

Name	Type	Description
firmware_version	string	
id	integer	
part_number	string	
serial_number	string	
state	string	
type	string	

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

paths

Storage port

Name	Type	Description
_links	_links	
name	string	
node	node	

cable

Name	Type	Description
identifier	string	
length	string	
part_number	string	

Name	Type	Description
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	
designator	string	
id	integer	
internal	boolean	
mac_address	string	
module_id	string	
remote	remote	
state	string	
wwn	string	

vendor

Name	Type	Description
manufacturer	string	Manufacturer name
part_number	string	Part number
product	string	Product name
serial_number	string	Serial number

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 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
scope	string	query	False	Filter by scope
uuid	string	query	False	Filter by uuid
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
comment	string	query	False	Filter by comment
enabled	boolean	query	False	Filter by enabled
copies.snapmirror_label	string	query	False	Filter by copies.snapmirror_label
copies.prefix	string	query	False	Filter by copies.prefix
copies.schedule.name	string	query	False	Filter by copies.schedule.name
copies.count	integer	query	False	Filter by copies.count
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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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"
      }
    },
    "enabled": 1,
    "name": "default",
    "scope": "svm",
    "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	<p>The default is false. If set to true, the records are returned.</p> <ul style="list-style-type: none"> • 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"
    }
  },
  "enabled": 1,
  "name": "default",
  "scope": "svm",
  "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"
    }
  },
  "enabled": 1,
  "name": "default",
  "scope": "svm",
  "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"
    }
  },
  "enabled": 1,
  "name": "default",
  "scope": "svm",
  "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
snapshot_policy.name	string	query	False	Filter by snapshot_policy.name
count	integer	query	False	Filter by count
schedule.uuid	string	query	False	Filter by schedule.uuid
schedule.name	string	query	False	Filter by schedule.name
prefix	string	query	False	Filter by prefix
snapmirror_label	string	query	False	Filter by snapmirror_label
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. <ul style="list-style-type: none">• Default value: 1

Name	Type	In	Required	Description
return_timeout	integer	query	False	<p>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.</p> <ul style="list-style-type: none"> • 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"
    },
    "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
<code>snapshot_policy.uuid</code>	string	path	True	Snapshot copy policy UUID
<code>return_records</code>	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
<code>_links</code>	_links	
<code>count</code>	integer	The number of Snapshot copies to maintain for this schedule.
<code>prefix</code>	string	The prefix to use while creating Snapshot copies at regular intervals.
<code>schedule</code>	schedule	
<code>snapmirror_label</code>	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"
  },
  "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
schedule.uuid	string	path	True	Snapshot copy policy schedule ID

Name	Type	In	Required	Description
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"
  },
  "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"
},
"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": "fc_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": "fc_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": "2100000ele09d5d2",
    "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": "fc_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. <ul style="list-style-type: none">• 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. <ul style="list-style-type: none">• 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": {
        "type": "unknown"
      }
    },
    "errors": {
      "severity": "unknown",
      "type": "switch_unreachable"
    },
    "fans": {
      "state": "ok"
    },
    "monitored_blades": {
    },
    "paths": {
      "adapter": {
        "type": "unknown"
      },
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    },
    "ports": {
      "mode": "unknown",
      "sfp": {
        "transmitter_type": "unknown",
        "type": "unknown"
      }
    },
  },
}
```

```

    "state": "error"
  },
  "power_supply_units": {
    "state": "ok"
  },
  "role": "unknown",
  "state": "ok",
  "temperature_sensors": {
    "state": "error"
  },
  "vendor": "unknown",
  "vsans": {
    "state": "ok"
  },
  "zones": {
  }
}

```

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

reason

Name	Type	Description
code	string	
message	string	

errors

Name	Type	Description
component	component	
reason	reason	
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
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.

Name	Type	Description
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	Type	Description
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]	
fabric_name	string	Storage switch fabric name
fans	array[fans]	
firmware_version	string	Storage switch firmware version
ip_address	string	IP Address

Name	Type	Description
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]	

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 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]	

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]	

Example response

```
{
  "connections": {
    "peer_port": {
      "type": "unknown"
    }
  },
  "errors": {
    "severity": "unknown",
    "type": "switch_unreachable"
  },
  "fans": {
    "state": "ok"
  },
  "monitored_blades": {
  },
  "paths": {
    "adapter": {
      "type": "unknown"
    },
    "node": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "ports": {
    "mode": "unknown",
    "sfp": {
      "transmitter_type": "unknown",
      "type": "unknown"
    },
    "state": "error"
  },
  "power_supply_units": {
    "state": "ok"
  },
  "role": "unknown",
  "state": "ok",
  "temperature_sensors": {
    "state": "error"
  }
}
```

```
    },
    "vendor": "unknown",
    "vsans": {
      "state": "ok"
    },
    "zones": {
    }
  }
}
```

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

reason

Name	Type	Description
code	string	

Name	Type	Description
message	string	

errors

Name	Type	Description
component	component	
reason	reason	
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	

Name	Type	Description
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

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 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
storage_port.name	string	query	False	Filter by storage_port.name
description	string	query	False	Filter by description
formats	string	query	False	Filter by formats
serial_number	string	query	False	Filter by serial_number
interface	string	query	False	Filter by interface
reservation_type	string	query	False	Filter by reservation_type
block_number	integer	query	False	Filter by block_number
type	string	query	False	Filter by type
wwpn	string	query	False	Filter by wwpn
node.name	string	query	False	Filter by node.name
node.uuid	string	query	False	Filter by node.uuid
device_state	string	query	False	Filter by device_state
device_id	string	query	False	Filter by device_id
alias.mapping	string	query	False	Filter by alias.mapping
alias.name	string	query	False	Filter by alias.name
wwnn	string	query	False	Filter by wwnn
file_number	integer	query	False	Filter by file_number

Name	Type	In	Required	Description
device_names.no_rewind_device	string	query	False	Filter by device_names.no_rewind_device
device_names.rewind_device	string	query	False	Filter by device_names.rewind_device
device_names.unloaded_reload_device	string	query	False	Filter by device_names.unloaded_reload_device
residual_count	integer	query	False	Filter by residual_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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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[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
```

```
[[ID363ff3a57bf24f5520a2e90440e060dc]]
= 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

|enabled
|boolean
|query
|False
a|Filter by enabled

|svm.uuid
|string
|query
|False
a|Filter by svm.uuid

|svm.name
|string
|query
|False
a|Filter by svm.name

|comment
|string
|query
|False
a|Filter by comment

|type
|string
|query
|False
a|Filter by type

|uuid
|string
|query
|False
a|Filter by uuid

|qos_policy
|string
|query
```

```
|False
a|Filter by qos_policy

|schedule.name
|string
|query
|False
a|Filter by schedule.name

|duration
|integer
|query
|False
a|Filter by duration

|name
|string
|query
|False
a|Filter by name

|start_threshold_percent
|integer
|query
|False
a|Filter by start_threshold_percent

|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": "background",
    "schedule": {
      "name": "daily"
    },
    "start_threshold_percent": "30",
    "svm": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      }
    }
  },
}
```

```

    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "threshold",
  "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

SVM, applies only to SVM-scoped objects.

[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 types "scheduled" and "auto" 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
mutually exclusive of the schedule.

|svm
|link:#svm[svm]
a|SVM, applies only to SVM-scoped objects.

|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
```

```
====
```

```
[[ID1489c3054eea70ab02fc4b30b360df94]]
```

```
= 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 "threshold" and "auto".
```

```
* `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` - auto
```

```
* `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 types "scheduled" and "auto" 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 mutually exclusive of the schedule.

|svm

|link:#svm[svm]

a|SVM, applies only to SVM-scoped objects.

|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": "background",
  "schedule": {
    "name": "daily"
  },
  "start_threshold_percent": "30",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "threshold",
  "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
```

SVM, applies only to SVM-scoped objects.

```
[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 types "scheduled" and "auto" 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
mutually exclusive of the schedule.
```

```
|svm
|link:#svm[svm]
a|SVM, applies only to SVM-scoped objects.
```

```
|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
=====

[[IDef89795e1be3fc9b5f63926781e2017d]]
= 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
=====

[[ID39538b253358049bd05a37e3b45a38af]]
= 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 types "scheduled" and "auto" 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 mutually exclusive of the schedule.

|svm
|link:#svm[svm]
a|SVM, applies only to SVM-scoped objects.

|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": "background",
  "schedule": {
    "name": "daily"
  },
  "start_threshold_percent": "30",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "threshold",
  "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

SVM, applies only to SVM-scoped objects.

[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
====

[[IDcc229322889767237defeea663444f59]]
= 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 types "scheduled" and "auto" 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
mutually exclusive of the schedule.

|svm
|link:#svm[svm]
a|SVM, applies only to SVM-scoped objects.

|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": "background",
  "schedule": {
    "name": "daily"
  },
  "start_threshold_percent": "30",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "type": "threshold",
  "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

```

SVM, applies only to SVM-scoped objects.

```
[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 types "scheduled" and "auto" 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 mutually exclusive of the schedule.

|svm

|link:#svm[svm]

a|SVM, applies only to SVM-scoped objects.

|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
```

```
[[ID9b5be2bd01ad584f3cd49a7467ac8d50]]
```

```
= 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_overview.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:

– PATCH /api/storage/volumes/{uuid} -d '{"analytics.state":"on"}'

– PATCH /api/storage/volumes/{uuid} -d '{"analytics.state":"off"}'

– 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`. Specifying `min_throughput_iops` 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:

– POST /api/storage/volumes

– GET /api/storage/volumes

– GET /api/storage/volumes/{uuid}

– PATCH /api/storage/volumes/{uuid}

– 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"}'}
```

```
# 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":"voll_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=voll_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:

– RW, DP and LS volumes

– FlexGroup volume

– FlexCache volume

– FlexClone volume

=== The following volumes are not reported:

– DEL and TMP type volume

– Node Root volume

– System Vserver volume

– FlexGroup constituent

– 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": "voll",
    "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,
    "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"
},
"_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"
    }
  }
}
}
}
}
----

```

```
[[ID7f4e745e3bd612944491118ca47111f4]]
```

```
= 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#Requesting_specific_fields\[Requesting specific fields\]](#) to learn more.

```
* `is_svm_root`  
* `analytics.+++`  
* `application.+++`  
* `encryption.+++`  
* `queue_for_encryption`  
* `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.+++`  
* `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.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`
* `guarantee.+++`
* `autosize.+++`
* `movement.+++`
* `statistics.+++`
* `constituents.name`
* `constituents.space.size`
* `constituents.space.available`
* `constituents.space.used`
* `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`

```

== Parameters

```
[cols=5*,options=header]
```

```
|===
```

```
|Name
```

```
|Type
```

```
|In
```

```
|Required
```

```
|Description
```

```
|movement.state
```

```
|string
```

```
|query
```

```
|False
```

```
a|Filter by movement.state
```

```
|movement.percent_complete
```

```
|integer
```

```
|query
```

```
|False
```

```
a|Filter by movement.percent_complete

|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.destination_aggregate.name
|string
|query
|False
a|Filter by movement.destination_aggregate.name

|movement.destination_aggregate.uuid
|string
|query
|False
a|Filter by movement.destination_aggregate.uuid

|snapmirror.destinations.is_ontap
|boolean
|query
|False
a|Filter by snapmirror.destinations.is_ontap

* Introduced in: 9.9

|snapmirror.destinations.is_cloud
|boolean
|query
|False
a|Filter by snapmirror.destinations.is_cloud
```

* Introduced in: 9.9

|snapmirror.is_protected
|boolean
|query
|False
a|Filter by snapmirror.is_protected

* Introduced in: 9.7

|queue_for_encryption
|boolean
|query
|False
a|Filter by queue_for_encryption

* Introduced in: 9.8

|name
|string
|query
|False
a|Filter by name

|autosize.minimum
|integer
|query
|False
a|Filter by autosize.minimum

|autosize.mode
|string
|query
|False
a|Filter by autosize.mode

|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.maximum
|integer
|query
|False
a|Filter by autosize.maximum

|qos.policy.max_throughput_mbps
|integer
|query
|False
a|Filter by qos.policy.max_throughput_mbps

|qos.policy.min_throughput_mbps
|integer
|query
|False
a|Filter by qos.policy.min_throughput_mbps

* Introduced in: 9.8

|qos.policy.uuid
|string
|query
|False
a|Filter by qos.policy.uuid

|qos.policy.max_throughput_iops
|integer
|query
|False
a|Filter by qos.policy.max_throughput_iops
```

```
|qos.policy.name
|string
|query
|False
a|Filter by qos.policy.name
```

```
|qos.policy.min_throughput_iops
|integer
|query
|False
a|Filter by qos.policy.min_throughput_iops
```

```
|tiering.policy
|string
|query
|False
a|Filter by tiering.policy
```

```
|tiering.object_tags
|string
|query
|False
a|Filter by tiering.object_tags
```

* Introduced in: 9.8

```
|tiering.min_cooling_days
|integer
|query
|False
a|Filter by tiering.min_cooling_days
```

* Introduced in: 9.8

```
|status
|string
|query
|False
a|Filter by status
```

* Introduced in: 9.9

```
|state
|string
|query
|False
a|Filter by state
```

```
|snaplock.retention.maximum
|string
|query
|False
a|Filter by snaplock.retention.maximum
```

```
|snaplock.retention.minimum
|string
|query
|False
a|Filter by snaplock.retention.minimum
```

```
|snaplock.retention.default
|string
|query
|False
a|Filter by snaplock.retention.default
```

```
|snaplock.litigation_count
|integer
|query
|False
a|Filter by snaplock.litigation_count
```

```
|snaplock.type
|string
|query
|False
a|Filter by snaplock.type
```

```
|snaplock.expiry_time
|string
|query
|False
```

```
a|Filter by snaplock.expiry_time
```

```
|snaplock.compliance_clock_time
```

```
|string
```

```
|query
```

```
|False
```

```
a|Filter by snaplock.compliance_clock_time
```

```
|snaplock.autocommit_period
```

```
|string
```

```
|query
```

```
|False
```

```
a|Filter by snaplock.autocommit_period
```

```
|snaplock.unspecified_retention_file_count
```

```
|integer
```

```
|query
```

```
|False
```

```
a|Filter by snaplock.unspecified_retention_file_count
```

```
* Introduced in: 9.8
```

```
|snaplock.privileged_delete
```

```
|string
```

```
|query
```

```
|False
```

```
a|Filter by snaplock.privileged_delete
```

```
|snaplock.append_mode_enabled
```

```
|boolean
```

```
|query
```

```
|False
```

```
a|Filter by snaplock.append_mode_enabled
```

```
|snaplock.is_audit_log
```

```
|boolean
```

```
|query
```

```
|False
```

```
a|Filter by snaplock.is_audit_log
```



```
|metric.latency.total
|integer
|query
|False
a|Filter by metric.latency.total
```

```
|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.latency.write
|integer
|query
|False
a|Filter by metric.latency.write
```

```
|metric.iops.total
|integer
|query
|False
a|Filter by metric.iops.total
```

```
|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.iops.write
|integer
|query
|False
a|Filter by metric.iops.write
```

```
|metric.flexcache.bandwidth_savings
|integer
|query
|False
a|Filter by metric.flexcache.bandwidth_savings
```

* Introduced in: 9.9

```
|metric.flexcache.timestamp
|string
|query
|False
a|Filter by metric.flexcache.timestamp
```

* 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.duration
|string
|query
|False
a|Filter by metric.flexcache.duration
```

* Introduced in: 9.8

```
|metric.flexcache.status
|string
```

```
|query
|False
a|Filter by metric.flexcache.status
```

* Introduced in: 9.8

```
|metric.cloud.status
|string
|query
|False
a|Filter by metric.cloud.status
```

* 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.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.latency.write
|integer
|query
|False
```

a|Filter by metric.cloud.latency.write

* Introduced in: 9.7

|metric.cloud.iops.total

|integer

|query

|False

a|Filter by metric.cloud.iops.total

* 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.iops.write

|integer

|query

|False

a|Filter by metric.cloud.iops.write

* Introduced in: 9.7

|metric.cloud.duration

|string

|query

|False

a|Filter by metric.cloud.duration

* Introduced in: 9.7

```
|metric.cloud.timestamp  
|string  
|query  
|False  
a|Filter by metric.cloud.timestamp
```

* Introduced in: 9.7

```
|metric.duration  
|string  
|query  
|False  
a|Filter by metric.duration
```

```
|metric.throughput.total  
|integer  
|query  
|False  
a|Filter by metric.throughput.total
```

```
|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.throughput.write  
|integer  
|query  
|False  
a|Filter by metric.throughput.write
```

```
|metric.status
|string
|query
|False
a|Filter by metric.status
```

```
|metric.timestamp
|string
|query
|False
a|Filter by metric.timestamp
```

```
|is_object_store
|boolean
|query
|False
a|Filter by is_object_store
```

* Introduced in: 9.8

```
|files.used
|integer
|query
|False
a|Filter by files.used
```

```
|files.maximum
|integer
|query
|False
a|Filter by files.maximum
```

```
|constituents.movement.state
|string
|query
|False
a|Filter by constituents.movement.state
```

* Introduced in: 9.9

```
|constituents.movement.percent_complete
```

```
|integer  
|query  
|False  
a|Filter by constituents.movement.percent_complete
```

* Introduced in: 9.9

```
|constituents.movement.cutover_window  
|integer  
|query  
|False  
a|Filter by constituents.movement.cutover_window
```

* 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.destination_aggregate.uuid  
|string  
|query  
|False  
a|Filter by constituents.movement.destination_aggregate.uuid
```

* 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.logical_space.available  
|integer  
|query
```

```
|False
a|Filter by constituents.space.logical_space.available

* 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.enforcement
|boolean
|query
|False
a|Filter by constituents.space.logical_space.enforcement

* Introduced in: 9.9

|constituents.space.available
|integer
|query
|False
a|Filter by constituents.space.available

* Introduced in: 9.9

|constituents.space.available_percent
|integer
|query
|False
a|Filter by constituents.space.available_percent

* Introduced in: 9.9

|constituents.space.metadata
|integer
|query
|False
a|Filter by constituents.space.metadata
```


* 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.total_footprint
|integer
|query
|False
a|Filter by constituents.space.total_footprint
```

* Introduced in: 9.9

```
|constituents.space.used
|integer
|query
|False
a|Filter by constituents.space.used
```

* 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.size
|integer
|query
|False
a|Filter by constituents.space.size
```

* Introduced in: 9.9

```
|constituents.space.performance_tier_footprint
|integer
|query
|False
a|Filter by constituents.space.performance_tier_footprint
```

* Introduced in: 9.9

```
|constituents.space.footprint
|integer
|query
|False
a|Filter by constituents.space.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.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.space.capacity_tier_footprint
|integer
|query
|False
a|Filter by constituents.space.capacity_tier_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.used_by_afs
|integer
|query
|False
a|Filter by constituents.space.used_by_afs
```

* 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.name
|string
```

```
|query
|False
a|Filter by constituents.name
```

* Introduced in: 9.9

```
|language
|string
|query
|False
a|Filter by language
```

```
|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.split_estimate
|integer
|query
|False
a|Filter by clone.split_estimate
```

```
|clone.parent_volume.name
|string
|query
|False
a|Filter by clone.parent_volume.name
```

```
|clone.parent_volume.uuid
|string
|query
|False
a|Filter by clone.parent_volume.uuid
```

```
|clone.split_complete_percent
|integer
|query
|False
a|Filter by clone.split_complete_percent
```

```
|clone.parent_snapshot.uuid
|string
|query
|False
a|Filter by clone.parent_snapshot.uuid
```

```
|clone.parent_snapshot.name
|string
|query
|False
a|Filter by clone.parent_snapshot.name
```

```
|clone.split_initiated
|boolean
|query
|False
a|Filter by clone.split_initiated
```

```
|clone.is_flexclone
|boolean
|query
|False
a|Filter by clone.is_flexclone
```

```
|encryption.rekey
|boolean
|query
|False
a|Filter by encryption.rekey
```

```
|encryption.type
|string
|query
```

```
|False
a|Filter by encryption.type

|encryption.state
|string
|query
|False
a|Filter by encryption.state

|encryption.status.code
|string
|query
|False
a|Filter by encryption.status.code

|encryption.status.message
|string
|query
|False
a|Filter by encryption.status.message

|encryption.key_id
|string
|query
|False
a|Filter by encryption.key_id

|encryption.enabled
|boolean
|query
|False
a|Filter by encryption.enabled

|aggregates.name
|string
|query
|False
a|Filter by aggregates.name

|aggregates.uuid
```

```
|string
|query
|False
a|Filter by aggregates.uuid

|access_time_enabled
|boolean
|query
|False
a|Filter by access_time_enabled

* Introduced in: 9.8

|guarantee.honored
|boolean
|query
|False
a|Filter by guarantee.honored

|guarantee.type
|string
|query
|False
a|Filter by guarantee.type

|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

```
|flexcache_endpoint_type  
|string  
|query  
|False  
a|Filter by flexcache_endpoint_type
```

```
|efficiency.path  
|string  
|query  
|False  
a|Filter by efficiency.path
```

* Introduced in: 9.9

```
|efficiency.schedule  
|string  
|query  
|False
```


a|Filter by efficiency.schedule

* Introduced in: 9.8

|efficiency.state

|string

|query

|False

a|Filter by efficiency.state

* Introduced in: 9.9

|efficiency.progress

|string

|query

|False

a|Filter by efficiency.progress

* Introduced in: 9.9

|efficiency.last_op_end

|string

|query

|False

a|Filter by efficiency.last_op_end

* Introduced in: 9.9

|efficiency.compression

|string

|query

|False

a|Filter by efficiency.compression

|efficiency.op_state

|string

|query

|False

a|Filter by efficiency.op_state

* Introduced in: 9.9

```
|efficiency.last_op_begin  
|string  
|query  
|False  
a|Filter by efficiency.last_op_begin
```

* Introduced in: 9.9

```
|efficiency.last_op_state  
|string  
|query  
|False  
a|Filter by efficiency.last_op_state
```

* Introduced in: 9.9

```
|efficiency.compaction  
|string  
|query  
|False  
a|Filter by efficiency.compaction
```

```
|efficiency.policy.name  
|string  
|query  
|False  
a|Filter by efficiency.policy.name
```

* Introduced in: 9.7

```
|efficiency.last_op_err  
|string  
|query  
|False  
a|Filter by efficiency.last_op_err
```

* Introduced in: 9.9

```
|efficiency.cross_volume_dedupe  
|string  
|query
```

```
|False  
a|Filter by efficiency.cross_volume_dedupe
```

```
|efficiency.dedupe  
|string  
|query  
|False  
a|Filter by efficiency.dedupe
```

```
|efficiency.last_op_size  
|integer  
|query  
|False  
a|Filter by efficiency.last_op_size
```

* Introduced in: 9.9

```
|efficiency.type  
|string  
|query  
|False  
a|Filter by efficiency.type
```

* Introduced in: 9.9

```
|application.name  
|string  
|query  
|False  
a|Filter by application.name
```

```
|application.uuid  
|string  
|query  
|False  
a|Filter by application.uuid
```

```
|type  
|string  
|query  
|False
```

a|Filter by type

|cloud_retrieval_policy

|string

|query

|False

a|Filter by cloud_retrieval_policy

* Introduced in: 9.8

|snapshot_policy.name

|string

|query

|False

a|Filter by snapshot_policy.name

|snapshot_policy.uuid

|string

|query

|False

a|Filter by snapshot_policy.uuid

|quota.state

|string

|query

|False

a|Filter by quota.state

|style

|string

|query

|False

a|Filter by style

|consistency_group.name

|string

|query

|False

a|Filter by consistency_group.name

* Introduced in: 9.7

```
|nas.gid
|integer
|query
|False
a|Filter by nas.gid
```

```
|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.name
|string
|query
|False
a|Filter by nas.junction_parent.name
```

* Introduced in: 9.9

```
|nas.junction_parent.uuid
|string
|query
|False
a|Filter by nas.junction_parent.uuid
```

* Introduced in: 9.9

```
|nas.path
|string
|query
|False
a|Filter by nas.path
```

```
|nas.unix_permissions
|integer
|query
|False
a|Filter by nas.unix_permissions
```

```
|nas.uid
|integer
|query
|False
a|Filter by nas.uid
```

```
|is_svm_root
|boolean
|query
|False
a|Filter by is_svm_root
```

* Introduced in: 9.7

```
|create_time
|string
|query
|False
a|Filter by create_time
```

```
|space.metadata
|integer
|query
|False
a|Filter by space.metadata
```

```
|space.local_tier_footprint
|integer
```

```
|query
|False
a|Filter by space.local_tier_footprint

* Introduced in: 9.8

|space.total_footprint
|integer
|query
|False
a|Filter by space.total_footprint

* Introduced in: 9.8

|space.logical_space.used_by_afs
|integer
|query
|False
a|Filter by space.logical_space.used_by_afs

|space.logical_space.available
|integer
|query
|False
a|Filter by space.logical_space.available

|space.logical_space.reporting
|boolean
|query
|False
a|Filter by space.logical_space.reporting

|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.used  
|integer  
|query  
|False  
a|Filter by space.logical_space.used
```

```
* Introduced in: 9.9
```

```
|space.nearly_full_threshold_percent  
|integer  
|query  
|False  
a|Filter by space.nearly_full_threshold_percent
```

```
* Introduced in: 9.9
```

```
|space.available  
|integer  
|query  
|False  
a|Filter by space.available
```

```
|space.available_percent  
|integer  
|query  
|False  
a|Filter by space.available_percent
```

```
* Introduced in: 9.9
```

```
|space.overwrite_reserve  
|integer  
|query  
|False  
a|Filter by space.overwrite_reserve
```

```
* Introduced in: 9.9
```



```
|space.snapshot.used
|integer
|query
|False
a|Filter by space.snapshot.used
```

```
|space.snapshot.space_used_percent
|integer
|query
|False
a|Filter by space.snapshot.space_used_percent
```

* Introduced in: 9.9

```
|space.snapshot.reserve_percent
|integer
|query
|False
a|Filter by space.snapshot.reserve_percent
```

```
|space.snapshot.reserve_size
|integer
|query
|False
a|Filter by space.snapshot.reserve_size
```

* Introduced in: 9.9

```
|space.footprint
|integer
|query
|False
a|Filter by space.footprint
```

```
|space.afs_total
|integer
|query
|False
a|Filter by space.afs_total
```

* Introduced in: 9.9

|space.used_by_afs
|integer
|query
|False
a|Filter by space.used_by_afs

* Introduced in: 9.9

|space.capacity_tier_footprint
|integer
|query
|False
a|Filter by space.capacity_tier_footprint

|space.over_provisioned
|integer
|query
|False
a|Filter by space.over_provisioned

|space.used
|integer
|query
|False
a|Filter by space.used

|space.size_available_for_snapshots
|integer
|query
|False
a|Filter by space.size_available_for_snapshots

* Introduced in: 9.9

|space.size
|integer
|query
|False
a|Filter by space.size

```
|space.full_threshold_percent
|integer
|query
|False
a|Filter by space.full_threshold_percent
```

* Introduced in: 9.9

```
|space.performance_tier_footprint
|integer
|query
|False
a|Filter by space.performance_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.fractional_reserve
|integer
|query
|False
a|Filter by space.fractional_reserve
```

* Introduced in: 9.9

```
|space.overwrite_reserve_used
|integer
|query
|False
a|Filter by space.overwrite_reserve_used
```

* Introduced in: 9.9

```
|space.block_storage_inactive_user_data
|integer
|query
|False
a|Filter by space.block_storage_inactive_user_data
```

```
|space.percent_used
|integer
|query
|False
a|Filter by space.percent_used
```

* Introduced in: 9.9

```
|statistics.latency_raw.total
|integer
|query
|False
a|Filter by statistics.latency_raw.total
```

```
|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.latency_raw.write
|integer
|query
|False
a|Filter by statistics.latency_raw.write
```

```
|statistics.throughput_raw.total
|integer
|query
```

```
|False
a|Filter by statistics.throughput_raw.total

|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.throughput_raw.write
|integer
|query
|False
a|Filter by statistics.throughput_raw.write

|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.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.iops_raw.write
|integer
|query
|False
a|Filter by statistics.iops_raw.write
```

```
|statistics.cloud.latency_raw.total
|integer
|query
|False
a|Filter by statistics.cloud.latency_raw.total
```

* 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.latency_raw.write
|integer
|query
|False
a|Filter by statistics.cloud.latency_raw.write
```

* Introduced in: 9.7

```
|statistics.cloud.status
|string
|query
|False
a|Filter by statistics.cloud.status
```

* 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.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.iops_raw.write
|integer
|query
|False
a|Filter by statistics.cloud.iops_raw.write
```

* Introduced in: 9.7

```
|statistics.cloud.timestamp  
|string  
|query  
|False  
a|Filter by statistics.cloud.timestamp
```

* Introduced in: 9.7

```
|statistics.timestamp  
|string  
|query  
|False  
a|Filter by statistics.timestamp
```

```
|statistics.flexcache_raw.status  
|string  
|query  
|False  
a|Filter by statistics.flexcache_raw.status
```

* 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.client_requested_blocks  
|integer  
|query  
|False  
a|Filter by statistics.flexcache_raw.client_requested_blocks
```

* Introduced in: 9.8

```
|statistics.flexcache_raw.timestamp  
|string  
|query  
|False
```


a|Filter by statistics.flexcache_raw.timestamp

* Introduced in: 9.8

|comment

|string

|query

|False

a|Filter by comment

|error_state.has_bad_blocks

|boolean

|query

|False

a|Filter by error_state.has_bad_blocks

|error_state.is_inconsistent

|boolean

|query

|False

a|Filter by error_state.is_inconsistent

|svm.uuid

|string

|query

|False

a|Filter by svm.uuid

|svm.name

|string

|query

|False

a|Filter by svm.name

|uuid

|string

|query

|False

a|Filter by uuid

```
|size
|integer
|query
|False
a|Filter by size
```

```
|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"
    }
  },
  "aggregates": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "aggr1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "analytics": {
    "scan_progress": "17",
    "state": "unknown",
    "unsupported_reason": {
      "code": "111411207",
      "message": "File system analytics cannot be enabled on volumes
that contain LUNs."
    }
  },
  "application": {
    "name": "string",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "autosize": {
    "mode": "grow"
  },
  "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": "default",
"comment": "string",
"consistency_group": {
  "name": "consistency_group_1"
},
"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": "all"
},
"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": "8k",
  "compaction": "inline",
  "compression": "inline",
  "cross_volume_dedupe": "inline",
  "dedupe": "inline",
  "op_state": "idle",
  "schedule": "string",
  "state": "disabled",
  "type": "regular"
},
"encryption": {
  "key_id": "string",
  "key_manager_attribute": "CRN=v1:bluemix:public:containers-
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
  "state": "encrypted",
  "status": {
    "code": "string",
    "message": "string"
  },
  "type": "none"
},
"files": {
  "used": 0
},
"flexcache_endpoint_type": "none",
"guarantee": {
  "type": "volume"
}

```

```

},
"language": "ar",
"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": "all"
  },
  "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": "mixed",
    "unix_permissions": "0755"
  },
  "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": "corrupt"
},
"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_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,
  "footprint": 0,
```

```

"local_tier_footprint": 0,
"logical_space": {
  "available": 0,
  "used": 0,
  "used_by_afs": 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,
"snapshot": {
  "reserve_size": 0,
  "space_used_percent": 0,
  "used": 0
},
"total_footprint": 0,
"used": 0
},
"state": "error",
"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": {
},
"style": "flexvol",
"svm": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "svml",
  "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"tiering": {
  "object_tags": {
  },
  "policy": "all"
},
"type": "rw",
"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|

|===

[#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|
```

```
|===
```

```
[#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 threshold, 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 ‐ Volume automatically grows when the amount of used space is above the 'grow_threshold' value.
grow_shrink ‐ Volume grows or shrinks in response to the amount of space used.
off ‐ 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|Name of the 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.
```

```
|===
```

```
[#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|Sis state of the volume.

|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 ‐ 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.

|===

[#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|Performance 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|Performance 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|Performance 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 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 digit), first digit is assumed to be zero.

|===

```
[#policy]
[.api-collapsible-fifth-title]
policy
```

When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

```
[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|When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.
```

```
|===
```

```
[#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_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.

|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.

|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.

|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.

|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.
```

```
|===
```

```
[#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|Performance 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|Performance 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|Performance 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 ‐ 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 ‐ This policy allows tiering of both snapshot and active file system user data to the cloud store
- none ‐ Volume blocks will not be tiered to the cloud store.
- snapshot_only ‐ 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.

|aggregates

|array[link:#aggregates[aggregates]]

a|Aggregate hosting the volume. Required on POST.

```
|analytics
|link:#analytics[analytics]
a|

|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. If a volume is being created on a single aggregate, the system
will create a flexible volume if the "constituents_per_aggregate" field is
not specified, and a FlexGroup if it is specified. If a volume is being
created on multiple aggregates, the system will always create a FlexGroup.

|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|

|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.

|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.

|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.

|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_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. A volume can only be brought online if it is offline.
Taking a volume offline removes its junction path. 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.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroups.
```

```
|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
====

[[ID5acb84279b8c8e3f8e103898b34a939b]]
= 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_`

== 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.

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.

|analytics
|link:#analytics[analytics]
a|

|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. If a volume is being created on a single aggregate, the system will create a flexible volume if the "constituents_per_aggregate" field is not specified, and a FlexGroup if it is specified. If a volume is being created on multiple aggregates, the system will always create a FlexGroup.

|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|

|flexcache_endpoint_type

|string

a|FlexCache endpoint type.

none ‐ The volume is neither a FlexCache nor origin of any FlexCache.
cache ‐ The volume is a FlexCache volume.

origin ‐ The volume is origin of a FlexCache volume.

|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.

|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.

|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_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. A volume can only be brought online if it is offline. Taking a volume offline removes its junction path. 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.
flexvol &dash; flexible volumes and FlexClone volumes
flexgroup &dash; FlexGroups.
```

```
|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"
    }
  },
  "aggregates": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "aggr1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "analytics": {
    "scan_progress": "17",
    "state": "unknown",
    "unsupported_reason": {
      "code": "111411207",
      "message": "File system analytics cannot be enabled on volumes that contain LUNs."
    }
  },
}
```



```

"application": {
  "name": "string",
  "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
},
"autosize": {
  "mode": "grow"
},
"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": "default",
"comment": "string",
"consistency_group": {
  "name": "consistency_group_1"
},
"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": "all"
  },
  "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": "8k",
  "compaction": "inline",
  "compression": "inline",
  "cross_volume_dedupe": "inline",
  "dedupe": "inline",
  "op_state": "idle",

```

```
    "schedule": "string",
    "state": "disabled",
    "type": "regular"
  },
  "encryption": {
    "key_id": "string",
    "key_manager_attribute": "CRN=v1:bluemix:public:containers-
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
    "state": "encrypted",
    "status": {
      "code": "string",
      "message": "string"
    },
    "type": "none"
  },
  "files": {
    "used": 0
  },
  "flexcache_endpoint_type": "none",
  "guarantee": {
    "type": "volume"
  },
  "language": "ar",
  "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": "all"
},
"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": "mixed",
"unix_permissions": "0755"
},
"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": "corrupt"
},
"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_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,
  "footprint": 0,
  "local_tier_footprint": 0,
  "logical_space": {
    "available": 0,
    "used": 0,
    "used_by_afs": 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,
  "snapshot": {
    "reserve_size": 0,
    "space_used_percent": 0,
    "used": 0
  },
  "total_footprint": 0,
  "used": 0
},
"state": "error",
"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": {
},
"style": "flexvol",
"svm": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  }
}
```

```
    },  
    "name": "svm1",  
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"  
  },  
  "tiering": {  
    "object_tags": {  
    },  
    "policy": "all"  
  },  
  "type": "rw",  
  "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|

|===

[#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|

|===

[#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 threshold, 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|Name of the 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.

|===

[#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 ‐ Data will be compacted first and written to the volume.

none ‐ None

mixed ‐ 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 ‐ Data will be compressed first and written to the volume.

background ‐ Data will be written to the volume and compressed later.

both ‐ Inline compression compresses the data and write to the

volume, background compression compresses only the blocks on which inline compression is not run.

none ‐ None

mixed ‐ 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 ‐ Data will be cross volume deduped first and written to the volume.

background ‐ Data will be written to the volume and cross volume deduped later.

both ‐ 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 ‐ None

mixed ‐ 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 ‐ Data will be deduped first and written to the volume.

background ‐ Data will be written to the volume and deduped later.

both ‐ Inline dedupe dedupes the data and write to the volume,

background dedupe dedupes only the blocks on which inline dedupe is not run.

none ‐ None

mixed ‐ 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|Sis state of the volume.
```

```
|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 ‐ The volume is completely encrypted.

encrypting ‐ Encryption operation is in progress.

partial ‐ 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 ‐ 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.

```
|===
```

```
[#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|Performance 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|Performance 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|Performance 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 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 ‐ Mixed-style security
ntfs ‐ NTFS/Windows-style security
unified ‐ Unified-style security, unified UNIX, NFS and CIFS
permissions
unix ‐ 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 digit), first digit is assumed to be zero.

```
|===
```

```
[#policy]  
[.api-collapsible-fifth-title]  
policy
```

When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

```
[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|When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

```
|===
```

```
[#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 ‐ 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 ‐ An administrator can delete a SnapLock Enterprise(SLE) volume.

non_snaplock ‐ 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_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.
```

```
|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.

|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.

|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.

|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.

|===


```
[#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|Performance 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|Performance 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|Performance 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 ‐ 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 ‐ This policy allows tiering of both snapshot and active file system user data to the cloud store

none ‐ Volume blocks will not be tiered to the cloud store.

snapshot_only ‐ 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.

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.

|analytics
|link:#analytics[analytics]
a|

|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. If a volume is being created on a single aggregate, the system will create a flexible volume if the "constituents_per_aggregate" field is not specified, and a FlexGroup if it is specified. If a volume is being created on multiple aggregates, the system will always create a FlexGroup.

|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|

|flexcache_endpoint_type

|string

a|FlexCache endpoint type.

none ‐ The volume is neither a FlexCache nor origin of any FlexCache.
cache ‐ The volume is a FlexCache volume.

origin ‐ The volume is origin of a FlexCache volume.

|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.

|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.

|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_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. A volume can only be brought online if it is offline.
Taking a volume offline removes its junction path. 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.
flexvol ‐ flexible volumes and FlexClone volumes
flexgroup ‐ FlexGroups.

|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 ‐ read-write volume.
dp ‐ data-protection volume.
ls ‐ 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
```

```
=====
```

```
[[IDb2f0a958d5cafee692ac7a64fb026679]]
```

```
= 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
=====

```

```
[[ID435c2d39bb33494bdd47286e0d0e49e8]]
```

```
= 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#Requesting_specific_fields\[Requesting specific fields\]](#) to learn more.

```
* `is_svm_root`  
* `analytics.+++`  
* `application.+++`  
* `encryption.+++`  
* `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.+++`  
* `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.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`
* `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`
```



```
== Parameters
```

```
[cols=5*,options=header]
```

```
|===
```

```
|Name
```

```
|Type
```

```
|In
```

```
|Required
```

```
|Description
```

```
|uuid
```

```
|string
```

```
|path
```

```
|True
```

```
a|Unique identifier of the volume.
```

```
|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.
```

```
|aggregates
```

```
|array[link:#aggregates[aggregates]]
```

```
a|Aggregate hosting the volume. Required on POST.
```

```
|analytics
```

```
|link:#analytics[analytics]
```

```
a|
```

```
|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. If a volume is being created on a single aggregate, the system will create a flexible volume if the "constituents_per_aggregate" field is not specified, and a FlexGroup if it is specified. If a volume is being created on multiple aggregates, the system will always create a FlexGroup.
```

```
|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|
```

```
|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.
```

|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.

|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.

|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_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. A volume can only be brought online if it is offline. Taking a volume offline removes its junction path. 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.
flexvol ‐ flexible volumes and FlexClone volumes
flexgroup ‐ FlexGroups.

|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 ‐ read-write volume.

dp ‐ data-protection volume.

ls ‐ 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"
    }
  },
  "aggregates": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "aggr1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
```

```

},
"analytics": {
  "scan_progress": "17",
  "state": "unknown",
  "unsupported_reason": {
    "code": "111411207",
    "message": "File system analytics cannot be enabled on volumes that
contain LUNs."
  }
},
"application": {
  "name": "string",
  "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
},
"autosize": {
  "mode": "grow"
},
"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": "default",
"comment": "string",
"consistency_group": {
  "name": "consistency_group_1"
},
"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": "all"
  },
  "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": "8k",
    "compaction": "inline",
    "compression": "inline",
    "cross_volume_dedupe": "inline",
    "dedupe": "inline",
    "op_state": "idle",
    "schedule": "string",
    "state": "disabled",
    "type": "regular"
  },
  "encryption": {
    "key_id": "string",
    "key_manager_attribute": "CRN=v1:bluemix:public:containers-
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
    "state": "encrypted",
    "status": {
      "code": "string",
      "message": "string"
    },
    "type": "none"
  },
  "files": {
    "used": 0
  },
  "flexcache_endpoint_type": "none",
  "guarantee": {
    "type": "volume"
  },
  "language": "ar",
  "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": "all"
  },
  "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": "mixed",
    "unix_permissions": "0755"
  },
  "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": "corrupt"
  }
}

```

```

},
"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_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,
  "footprint": 0,
  "local_tier_footprint": 0,
  "logical_space": {
    "available": 0,
    "used": 0,
    "used_by_afs": 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,

```

```
"snapshot": {
  "reserve_size": 0,
  "space_used_percent": 0,
  "used": 0
},
"total_footprint": 0,
"used": 0
},
"state": "error",
"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": {
  },
  "style": "flexvol",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "tiering": {
    "object_tags": {
    },
    "policy": "all"
  },
  "type": "rw",
  "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|

|===

[#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|
```

```
|===
```

```
[#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 threshold, 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 ‐ Volume automatically grows when the amount of used space is above the 'grow_threshold' value.

grow_shrink ‐ Volume grows or shrinks in response to the amount of space used.

off ‐ 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|Name of the 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.

|===
```

```

[#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 ‐ Data will be written to the volume and cross volume deduped later.

both ‐ 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 ‐ None

mixed ‐ 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 ‐ Data will be deduped first and written to the volume.

background ‐ Data will be written to the volume and deduped later.

both ‐ Inline dedupe dedupes the data and write to the volume,

background dedupe dedupes only the blocks on which inline dedupe is not run.

none ‐ None

mixed ‐ 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|Sis state of the volume.
```

```
|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 ‐ The volume is completely encrypted.

encrypting ‐ Encryption operation is in progress.

partial ‐ 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 ‐ The volume is a plain-text one.

|status

|link:#status[status]

a|

|type

|string

a|Volume encryption type.

none ‐ The volume is a plain-text one.

volume ‐ The volume is encrypted with NVE (NetApp Volume Encryption).

aggregate ‐ 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 ‐ File system is inconsistent.
false ‐ File system is 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.

|===

```
[#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|Performance 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|Performance 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|Performance 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 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 ‐ 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 digit), first digit is assumed to be zero.

|===

[#policy]

[.api-collapsible-fifth-title]

policy

When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

[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|When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

```
|===
```

```
[#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_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.

|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.

|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.

|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.

|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.

|===

[#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|Performance 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|Performance 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|Performance 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 ‐ 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 ‐ This policy allows tiering of both snapshot and active file system user data to the cloud store

none ‐ Volume blocks will not be tiered to the cloud store.

snapshot_only ‐ 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
====

[[IDbf0656272b631068cb7e63ae757f5c8b]]
```

= 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: ‐

conversion_pause - Pause an encryption conversion operation currently in progress ‐ conversion_resume - Resume a paused encryption conversion operation ‐ rekey_pause - Pause an encryption rekey operation currently in progress ‐ 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`
```

```
== 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.
```

```
|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"]
```

```
|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.

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.

|analytics
|link:#analytics[analytics]
a|

|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. If a volume is being created on a single aggregate, the system will create a flexible volume if the "constituents_per_aggregate" field is not specified, and a FlexGroup if it is specified. If a volume is being created on multiple aggregates, the system will always create a FlexGroup.

|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|

|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.

|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.

|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.

|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_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. A volume can only be brought online if it is offline. Taking a volume offline removes its junction path. 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.
flexvol ‐ flexible volumes and FlexClone volumes
flexgroup ‐ FlexGroups.

```
|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"
    }
  },
  "aggregates": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "aggr1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "analytics": {
    "scan_progress": "17",
    "state": "unknown",
    "unsupported_reason": {
      "code": "111411207",
      "message": "File system analytics cannot be enabled on volumes that
contain LUNs."
    }
  },
  "application": {
    "name": "string",
    "uuid": "1cd8a442-86d1-11e0-ae1d-123478563412"
  },
  "autosize": {
    "mode": "grow"
  },
  "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": "svml",
"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": "default",
"comment": "string",
"consistency_group": {
    "name": "consistency_group_1"
},
"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": "all"
    },
    "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": "8k",
  "compaction": "inline",
  "compression": "inline",
  "cross_volume_dedupe": "inline",
  "dedupe": "inline",
  "op_state": "idle",
  "schedule": "string",
  "state": "disabled",
  "type": "regular"
},
"encryption": {
  "key_id": "string",
  "key_manager_attribute": "CRN=v1:bluemix:public:containers-
kubernetes:us-south:a/asdfghjkl1234:asdfghjkl1234:worker:kubernetes-
asdfghjkl-worker1",
  "state": "encrypted",
  "status": {
    "code": "string",
    "message": "string"
  },
  "type": "none"
},
"files": {
  "used": 0
},
"flexcache_endpoint_type": "none",

```

```
"guarantee": {
  "type": "volume"
},
"language": "ar",
"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": "all"
},
"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": "mixed",
  "unix_permissions": "0755"
},
"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": "corrupt"
},
"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_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,
"footprint": 0,
"local_tier_footprint": 0,
"logical_space": {
  "available": 0,
  "used": 0,
  "used_by_afs": 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,
"snapshot": {
  "reserve_size": 0,
  "space_used_percent": 0,
  "used": 0
},
"total_footprint": 0,
"used": 0
},
"state": "error",
"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": {
},
"style": "flexvol",
"svm": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "svm1",
  "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"tiering": {
  "object_tags": {
  },
  "policy": "all"
},
"type": "rw",
"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|

|===

[#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|

|===

[#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 threshold, 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 ‐ Volume automatically grows when the amount of used space is above the 'grow_threshold' value.

grow_shrink ‐ Volume grows or shrinks in response to the amount of space used.

off ‐ 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|Name of the 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.

|===

[#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 ‐ Data will be deduped first and written to the volume.
background ‐ Data will be written to the volume and deduped later.
both ‐ Inline dedupe dedupes the data and write to the volume,
background dedupe dedupes only the blocks on which inline dedupe is not
run.
none ‐ None
mixed ‐ 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|Sis state of the volume.

|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 ‐ The volume is completely encrypted.

encrypting ‐ Encryption operation is in progress.

partial ‐ 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 ‐ The volume is a plain-text one.

|status
|link:#status[status]
a|

|type
|string
a|Volume encryption type.
none ‐ The volume is a plain-text one.
volume ‐ The volume is encrypted with NVE (NetApp Volume Encryption).
aggregate ‐ 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 ‐ File system is inconsistent.
false ‐ 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.

```
|===
```

```
[#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|Performance 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|Performance 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|Performance 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 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 digit), first digit is assumed to be zero.

```
|===
```

```
[#policy]
[.api-collapsible-fifth-title]
policy
```

When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

```
[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|When "min_throughput_iops", "min_throughput_mbps", "max_throughput_iops" or "max_throughput_mbps" attributes are specified, the storage object is assigned to an auto-generated QoS policy group. If the attributes are

later modified, the auto-generated QoS policy-group attributes are modified. Attributes can be removed by specifying "0" and policy group by specifying "none". Upon deletion of the storage object or if the attributes are removed, then the QoS policy-group is also removed.

```
|===
```

```
[#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_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.

|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.
```

|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.

|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.

|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.

```
|===
```

```
[#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|Performance 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|Performance 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|Performance 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 ‐ 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 ‐ This policy allows tiering of both snapshot and active file system user data to the cloud store
- none ‐ Volume blocks will not be tiered to the cloud store.
- snapshot_only ‐ 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.

|aggregates
|array[link:#aggregates[aggregates]]
a|Aggregate hosting the volume. Required on POST.

|analytics
|link:#analytics[analytics]
a|

|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. If a volume is being created on a single aggregate, the system
will create a flexible volume if the "constituents_per_aggregate" field is
not specified, and a FlexGroup if it is specified. If a volume is being
created on multiple aggregates, the system will always create a FlexGroup.

|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|

|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.

|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.

|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.

|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_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. A volume can only be brought online if it is offline. Taking a volume offline removes its junction path. 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.
flexvol ‐ flexible volumes and FlexClone volumes
flexgroup ‐ FlexGroups.

|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 ‐ read-write volume.
dp ‐ data-protection volume.
ls ‐ 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
```

```
[[ID930678afacd676449a06d99b0f40cc64]]
```

```
= 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`, `owner_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:

```
&ndash; 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`:

```
&ndash; 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:

```
&ndash; 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:

```
&ndash; 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%2Ffile1?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%2Ffile1?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-b790-005056acdc0/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 specifying 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,

```



```

# 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
          ]
        }
      }
    }
  }
]
}

```



```

    ],
    "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:
```

```
{ }
-----
```

```
[[IDbe056fdf72a8feee2f5500df320acad0]]
```

```
= 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_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
=====
```

```
[[ID5174cc318a7a1fdcf435716004f1d715]]
= 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#Requesting_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:

```
|fill_enabled
|boolean
|query
|False
a|Filter by fill_enabled
```

* Introduced in: 9.8

```
|accessed_time
|string
|query
|False
a|Filter by accessed_time
```

```
|volume.name
|string
|query
|False
a|Filter by volume.name
```

```
|inode_number
|integer
|query
|False
a|Filter by inode_number
```

```
|owner_id
|integer
|query
|False
a|Filter by owner_id
```



```
|changed_time
|string
|query
|False
a|Filter by changed_time
```

```
|is_vm_aligned
|boolean
|query
|False
a|Filter by is_vm_aligned
```

```
|target
|string
|query
|False
a|Filter by target
```

* Introduced in: 9.8

```
|inode_generation
|integer
|query
|False
a|Filter by inode_generation
```

```
|size
|integer
|query
|False
a|Filter by size
```

```
|hard_links_count
|integer
|query
|False
a|Filter by hard_links_count
```

```
|bytes_used
```

```
|integer
|query
|False
a|Filter by bytes_used
```

```
|is_junction
|boolean
|query
|False
a|Filter by is_junction
```

```
|analytics.file_count
|integer
|query
|False
a|Filter by analytics.file_count
```

* 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.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_accessed_time.bytes_used.labels  
|string  
|query  
|False  
a|Filter by analytics.by_accessed_time.bytes_used.labels
```

* 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.bytes_used
|integer
|query
|False
a|Filter by analytics.bytes_used
```

* Introduced in: 9.8

```
|analytics.subdir_count
|integer
|query
|False
a|Filter by analytics.subdir_count
```

* Introduced in: 9.8

```
|name
|string
|query
|False
a|Filter by name
```

```
|modified_time
|string
|query
|False
```

a|Filter by modified_time

|is_empty

|boolean

|query

|False

a|Filter by is_empty

|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

|type

|string

|query

|False

a|Filter by type

|creation_time

|string

|query

|False

a|Filter by creation_time

|unique_bytes

|integer

|query

|False

a|Filter by unique_bytes

* Introduced in: 9.8

|overwrite_enabled
|boolean
|query
|False
a|Filter by overwrite_enabled

* Introduced in: 9.8

|unix_permissions
|integer
|query
|False
a|Filter by unix_permissions

|group_id
|integer
|query
|False
a|Filter by group_id

|is_snapshot
|boolean
|query
|False
a|Filter by is_snapshot

* Introduced in: 9.8

|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:
partial-date

```
+++<tt>+++--+++</tt>+++ _partial-date_
_partial-date_ +++<tt>+++--+++</tt>+++
_partial-date_ +++<tt>+++--+++</tt>+++- _partial-date_
+++<tt>+++unknown+++</tt>+++
```

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:

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`.

* 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",
  "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": "0755",
  "volume": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "volume1",
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
  }
}
====

== 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:

- 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"

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:

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.

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:

- 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"

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:

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.

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:

- 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"

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:

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.

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)`, 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 `file-info-response(#model-file-info-response)`. This avoids an excessive amount of duplicated information when a `get-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
```

```
|===
```

```
[#_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)`, 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 `file-info-response(#model-file-info-response)`. This avoids an excessive amount of duplicated information when a `get-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.

|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
====
```

```
[[IDa082d247a5034855aa55265a8c8dac62]]
```

```
= 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.
```

```
|===
```

```
== 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)`, 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 `file-info-response(#model-file-info-response)`. This avoids an excessive amount of duplicated information when a `get-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.

|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",
"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": "0755",
  "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:

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"

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:

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.

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:

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"

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:

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.

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:

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.

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:

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"

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:

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.

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)`, 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 `file-info-response(#model-file-info-response)`. This avoids an excessive amount of duplicated information when a `get-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
```

```
|===
```

```
[#_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), 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 file-info-response(#model-file-info-response). This avoids an excessive amount of duplicated information when a get-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.

|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
=====

[[IDa4b0d5194558b719dbdc10c8e037fdce]]
= 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.

|===

== 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), 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 file-info-response (#model-file-info-response). This avoids an excessive amount of duplicated information when a get-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.

|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",
"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": "0755",
"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:

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.

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:

- 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"

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:

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.

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 qth 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.
```

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:

- 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"

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:

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.

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), analytics objects will only include properties that may vary between eleme
ntswithinthecollection. forexample, the analytics objects will not contain histogr
amlabels, sincethesamehistogramlabelsareusedforall elements within the collecti
on. the invariant information is instead available via the analytics property of the fi
le-info-response(#model-file-info-
response). this avoids an excessive amount of duplicated information whenaget-
```



```
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
```

```
|===
```

```
[#_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)`, 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 `file-info-response(#model-file-info-response)`. This avoids an excessive amount of duplicated information when a `get-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.

|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
=====
```

```
[[IDf1c4b49faf65cab4de7f44951535783c]]
= 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

|latency.total
```

```
|integer  
|query  
|False  
a|Filter by latency.total
```

```
|latency.other  
|integer  
|query  
|False  
a|Filter by latency.other
```

```
|latency.read  
|integer  
|query  
|False  
a|Filter by latency.read
```

```
|latency.write  
|integer  
|query  
|False  
a|Filter by latency.write
```

```
|iops.total  
|integer  
|query  
|False  
a|Filter by iops.total
```

```
|iops.other  
|integer  
|query  
|False  
a|Filter by iops.other
```

```
|iops.read  
|integer  
|query  
|False  
a|Filter by iops.read
```

```
|iops.write
|integer
|query
|False
a|Filter by iops.write
```

```
|flexcache.bandwidth_savings
|integer
|query
|False
a|Filter by flexcache.bandwidth_savings
```

* Introduced in: 9.9

```
|flexcache.timestamp
|string
|query
|False
a|Filter by flexcache.timestamp
```

* Introduced in: 9.8

```
|flexcache.cache_miss_percent
|integer
|query
|False
a|Filter by flexcache.cache_miss_percent
```

* Introduced in: 9.8

```
|flexcache.duration
|string
|query
|False
a|Filter by flexcache.duration
```

* Introduced in: 9.8

```
|flexcache.status
|string
|query
```

```
|False
a|Filter by flexcache.status

* Introduced in: 9.8

|cloud.status
|string
|query
|False
a|Filter by cloud.status

|cloud.latency.total
|integer
|query
|False
a|Filter by cloud.latency.total

|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.latency.write
|integer
|query
|False
a|Filter by cloud.latency.write

|cloud.iops.total
|integer
|query
|False
a|Filter by cloud.iops.total
```

```
|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.iops.write
|integer
|query
|False
a|Filter by cloud.iops.write
```

```
|cloud.duration
|string
|query
|False
a|Filter by cloud.duration
```

```
|cloud.timestamp
|string
|query
|False
a|Filter by cloud.timestamp
```

```
|duration
|string
|query
|False
a|Filter by duration
```

```
|throughput.total
|integer
|query
|False
```

```
a|Filter by throughput.total
```

```
|throughput.other
```

```
|integer
```

```
|query
```

```
|False
```

```
a|Filter by throughput.other
```

```
|throughput.read
```

```
|integer
```

```
|query
```

```
|False
```

```
a|Filter by throughput.read
```

```
|throughput.write
```

```
|integer
```

```
|query
```

```
|False
```

```
a|Filter by throughput.write
```

```
|status
```

```
|string
```

```
|query
```

```
|False
```

```
a|Filter by status
```

```
|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|Performance 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|Performance 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|Performance 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

[[ID62275704a4cfd856bf4d4d870e204ce3]]

```


= 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 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"
    }
  }
}
-----
```

=== 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  
}
```

[[ID5a8ca58463866f68ef4dc98b9223c492]]

= 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.

== Related ONTAP commands

* `snapshot show`

== Learn more

*

xref:{relative_path}storage_volumes_volume.uuid_snapshots_endpoint_overview.html[DOC /storage/volumes/{volume.uuid}/snapshots]

== Parameters

[cols=5*,options=header]

|===

|Name

|Type

|In

|Required

|Description

|volume.uuid

|string

|path

|True

a|Volume

|volume.name

|string


```
|query
|False
a|Filter by volume.name
```

```
|state
|string
|query
|False
a|Filter by state
```

```
|name
|string
|query
|False
a|Filter by name
```

```
|create_time
|string
|query
|False
a|Filter by create_time
```

```
|snapmirror_label
|string
|query
|False
a|Filter by snapmirror_label
```

* Introduced in: 9.8

```
|owners
|string
|query
|False
a|Filter by owners
```

* Introduced in: 9.7

```
|svm.uuid
|string
|query
```

```
|False  
a|Filter by svm.uuid
```

```
|svm.name  
|string  
|query  
|False  
a|Filter by svm.name
```

```
|comment  
|string  
|query  
|False  
a|Filter by comment
```

```
|snaplock_expiry_time  
|string  
|query  
|False  
a|Filter by snaplock_expiry_time
```

```
|size  
|integer  
|query  
|False  
a|Filter by size
```

* Introduced in: 9.9

```
|uuid  
|string  
|query  
|False  
a|Filter by uuid
```

```
|expiry_time  
|string  
|query  
|False  
a|Filter by expiry_time
```

```
|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:#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": {
},
"size": "122880",
"snaplock_expiry_time": "2019-02-04T19:00:00Z",
"state": "valid",
"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|
```

|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
=====

[[ID3a1e501ea09fd76ed6eca5a25f3fc82a]]
= 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|
```

```
 |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": {
  },
  "size": "122880",
  "snaplock_expiry_time": "2019-02-04T19:00:00Z",
  "state": "valid",
  "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|

|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
====

[[ID6eb0e6fa0f7c0a1fb4f62ead09a16058]]
= 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
=====

```

```
[[ID52050c24d61d30def96fb5c39fc52675]]
= 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|

|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": {  
  },  
  "size": "122880",  
  "snaplock_expiry_time": "2019-02-04T19:00:00Z",  
  "state": "valid",  
  "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
=====

[[ID8fab3f1d98f15b27acbbf199c8cbe0bb]]
= 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|

|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": {
  },
}
```

```
"size": "122880",
"snaplock_expiry_time": "2019-02-04T19:00:00Z",
"state": "valid",
"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|

|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
```

```
:leveloffset: -1
```

```
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