



Manage storage qtrees

REST API reference

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Manage storage qtrees

Storage qtrees endpoint overview

Overview

A qtree is a logically defined file system that can exist as a special subdirectory of the root directory within a FlexVol volume or a FlexGroup volume.

Qtree QoS policy

Qtree QoS policy and settings enforce Service Level Objectives (SLOs) on a qtree. SLOs can be set by specifying "qos_policy.max_throughput_iops" and/or "qos_policy.max_throughput_mbps" or "qos_policy.min_throughput_iops" and/or "qos_policy.min_throughput_mbps". Specifying "min_throughput_iops" or "min_throughput_mbps" is only supported on volumes hosted on a node that is flash optimized. A pre-created QoS policy can also be used by specifying "qos_policy.name" or "qos_policy.uuid" properties. Setting or assigning a QoS policy to a qtree is not supported if its containing volume or SVM has a QoS policy attached, or a file or LUN in its containing volume already has a QoS policy attached.

Qtree APIs

The following APIs are used to create, retrieve, modify, and delete qtrees.

– POST /api/storage/qtrees

– GET /api/storage/qtrees

– GET /api/storage/qtrees/{volume-uuid}/{qtree-id}

– PATCH /api/storage/qtrees/{volume-uuid}/{qtree-id}

– DELETE /api/storage/qtrees/{volume-uuid}/{qtree-id}

Examples

Creating a qtree inside a volume for an SVM

This API is used to create a qtree inside a volume for an SVM.

The following example shows how to create a qtree in a FlexVol volume with a given security style, user, group, UNIX permissions, an export policy, and a QoS policy.

```
# The API:  
POST /api/storage/qtrees  
  
# The call:  
curl -X POST 'https://<mgmt-ip>/api/storage/qtrees?return_records=true' -H  
'accept: application/hal+json' -d @test_qtree_post.txt
```

```

test_qtree_post.txt(body) :
{
  "svm": {
    "name": "svm1"
  },
  "volume": {
    "name": "fv"
  },
  "name": "qt1",
  "security_style": "unix",
  "user": {
    "name": "unix_user1"
  },
  "group": {
    "name": "unix_group1"
  },
  "unix_permissions": 744,
  "export_policy": {
    "name": "default"
  },
  "qos_policy": {
    "max_throughput_iops": 1000
  }
}

# The response:
{
  "num_records": 1,
  "records": [
    {
      "svm": {
        "name": "svm1"
      },
      "volume": {
        "name": "fv"
      },
      "name": "qt1",
      "security_style": "unix",
      "user": {
        "name": "unix_user1"
      },
      "group": {
        "name": "unix_group1"
      },
      "unix_permissions": 744,
      "export_policy": {

```

```

        "name": "default"
    },
    "qos_policy": {
        "min_throughput_iops": 0,
        "min_throughput_mbps": 0,
        "max_throughput_iops": 1000,
        "max_throughput_mbps": 0,
        "uuid": "39ac471f-ff35-11e9-b0f9-005056a7ab52",
        "name": "vs0_auto_gen_policy_39a9522f_ff35_11e9_b0f9_005056a7ab52"
    },
    "_links": {
        "self": {
            "href": "/api/storage/qtrees/?volume.name=fv&name=qt1"
        }
    }
},
"job": {
    "uuid": "84edef3c-4f6d-11e9-9a71-005056a7f717",
    "_links": {
        "self": {
            "href": "/api/cluster/jobs/84edef3c-4f6d-11e9-9a71-005056a7f717"
        }
    }
}
}

```

Retrieving qtrees

This API is used to retrieve qtrees.

The following example shows how to retrieve qtrees belonging to SVM **svm1** and volume **fv**. The `svm.name` and `volume.name` query parameters are used to find the required qtrees.

```

# The API:
GET /api/storage/qtrees

# The call:
curl -X GET "https://<mgmt-
ip>/api/storage/qtrees/?svm.name=svm1&volume.name=fv" -H 'accept:
application/hal+json'

# The response

```

```
{
  "records": [
    {
      "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "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": 0,
      "name": "",
      "_links": {
        "self": {
          "href": "/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-005056a7f717/0"
        }
      }
    },
    {
      "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"
          }
        }
      }
    }
  ]
}
```

```

        "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": {
        "uid": "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=svml&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": "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",
  "security_style": "unix",
  "user": {

```

```
        "name": "unix_user1"
    },
    "group": {
        "name": "unix_group1"
    },
    "unix_permissions": 744,
    "export_policy": {
        "name": "default",
        "id": 12884901889,
        "_links": {
            "self": {
                "href": "/api/protocols/nfs/export-policies/12884901889"
            }
        }
    },
    "qos_policy": {
        "min_throughput_iops": 0,
        "min_throughput_mbps": 0,
        "max_throughput_iops": 1000,
        "max_throughput_mbps": 0,
        "uuid": "39ac471f-ff35-11e9-b0f9-005056a7ab52",
        "name": "vs0_auto_gen_policy_39a9522f_ff35_11e9_b0f9_005056a7ab52",
        "_links": {
            "self": {
                "href": "/api/storage/qos/policies/39ac471f-ff35-11e9-b0f9-005056a7ab52"
            }
        }
    },
    "statistics": {
        "timestamp": "2019-04-09T05:50:42Z",
        "status": "ok",
        "iops_raw": {
            "read": 0,
            "write": 0,
            "other": 3,
            "total": 3
        },
        "throughput_raw": {
            "read": 0,
            "write": 0,
            "other": 0,
            "total": 0
        }
    },
    "path": "/fv/qt2",
```

```

"nas": {
    "path": "/fv/qt2",
},
"_links": {
    "self": {
        "href": "/api/storage/qtrees/cb20da45-4f6b-11e9-9a71-005056a7f717/2"
    }
}
}

```

Retrieving properties of a specific qtree using the qtree name

This API is used to retrieve properties of a specific qtree using "qtree.name". The following example shows how to retrieve all of the properties belonging to qtree "qt2". The `svm.name` and `volume.name` query parameters are used here along with the qtree name.

```

# The API:
GET /api/storage/qtrees/

# The call:
curl -X GET 'https://<mgmt-
ip>/api/storage/qtrees/?svm.name=svm1&volume.name=fv&name=qt2&fields=*' -H
'accept: application/hal+json'
{
    "svm": {
        "uuid": "b68f961b-4cee-11e9-930a-005056a7f717",
        "name": "svm1",
        "_links": {
            "self": {
                "href": "/api/svm/svms/b68f961b-4cee-11e9-930a-005056a7f717"
            }
        }
    },
    "volume": {
        "uuid": "cb20da45-4f6b-11e9-9a71-005056a7f717",
        "name": "fv",
        "_links": {
            "self": {
                "href": "/api/storage/volumes/cb20da45-4f6b-11e9-9a71-
005056a7f717"
            }
        }
    },
}

```

```
"id": 2,
"name": "qt2",
"security_style": "unix",
"user": {
  "name": "unix_user1"
},
"group": {
  "name": "unix_group1"
},
"unix_permissions": 744,
"export_policy": {
  "name": "default",
  "id": 12884901889,
  "_links": {
    "self": {
      "href": "/api/protocols/nfs/export-policies/12884901889"
    }
  }
},
"qos_policy": {
  "min_throughput_iops": 0,
  "min_throughput_mbps": 0,
  "max_throughput_iops": 1000,
  "max_throughput_mbps": 0,
  "uuid": "39ac471f-ff35-11e9-b0f9-005056a7ab52",
  "name": "vs0_auto_gen_policy_39a9522f_ff35_11e9_b0f9_005056a7ab52",
  "_links": {
    "self": {
      "href": "/api/storage/qos/policies/39ac471f-ff35-11e9-b0f9-005056a7ab52"
    }
  }
},
"statistics": {
  "timestamp": "2019-04-09T05:50:42Z",
  "status": "ok",
  "iops_raw": {
    "read": 0,
    "write": 0,
    "other": 3,
    "total": 3
  },
  "throughput_raw": {
    "read": 0,
    "write": 0,
    "other": 0,
    "total": 0
  }
}
```

```

        "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 computational 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
id	integer	query	False	Filter by id <ul style="list-style-type: none">• Max value: 4994• Min value: 0
path	string	query	False	Filter by path
export_policy.id	integer	query	False	Filter by export_policy.id
export_policy.name	string	query	False	Filter by export_policy.name
name	string	query	False	Filter by name
user.id	string	query	False	Filter by user.id <ul style="list-style-type: none">• Introduced in: 9.9
user.name	string	query	False	Filter by user.name <ul style="list-style-type: none">• Introduced in: 9.9
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
security_style	string	query	False	Filter by security_style

Name	Type	In	Required	Description
group.name	string	query	False	Filter by group.name <ul style="list-style-type: none"> • Introduced in: 9.9
group.id	string	query	False	Filter by group.id <ul style="list-style-type: none"> • Introduced in: 9.9
nas.path	string	query	False	Filter by nas.path <ul style="list-style-type: none"> • Introduced in: 9.9
unix_permissions	integer	query	False	Filter by unix_permissions
_tags	string	query	False	Filter by _tags <ul style="list-style-type: none"> • Introduced in: 9.13
statistics.status	string	query	False	Filter by statistics.status <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.iops_raw.to tal	integer	query	False	Filter by statistics.iops_raw.to tal <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.iops_raw.ot her	integer	query	False	Filter by statistics.iops_raw.ot her <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.iops_raw.w rite	integer	query	False	Filter by statistics.iops_raw.w rite <ul style="list-style-type: none"> • Introduced in: 9.8

Name	Type	In	Required	Description
statistics.iops_raw.read	integer	query	False	Filter by statistics.iops_raw.read <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.timestamp	string	query	False	Filter by statistics.timestamp <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.throughput_raw.total	integer	query	False	Filter by statistics.throughput_raw.total <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.throughput_raw.other	integer	query	False	Filter by statistics.throughput_raw.other <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write <ul style="list-style-type: none"> • Introduced in: 9.8
statistics.throughput_raw.read	integer	query	False	Filter by statistics.throughput_raw.read <ul style="list-style-type: none"> • Introduced in: 9.8
qos_policy.uuid	string	query	False	Filter by qos_policy.uuid <ul style="list-style-type: none"> • Introduced in: 9.8

Name	Type	In	Required	Description
qos_policy.max_throughput_mbps	integer	query	False	<p>Filter by qos_policy.max_throughput_mbps</p> <ul style="list-style-type: none"> • Max value: 4194303 • Min value: 0 • Introduced in: 9.8
qos_policy.name	string	query	False	<p>Filter by qos_policy.name</p> <ul style="list-style-type: none"> • Introduced in: 9.8
qos_policy.max_throughput_iops	integer	query	False	<p>Filter by qos_policy.max_throughput_iops</p> <ul style="list-style-type: none"> • Max value: 2147483647 • Min value: 0 • Introduced in: 9.8
qos_policy.min_throughput_iops	integer	query	False	<p>Filter by qos_policy.min_throughput_iops</p> <ul style="list-style-type: none"> • Max value: 2147483647 • Min value: 0 • Introduced in: 9.8
qos_policy.min_throughput_mbps	integer	query	False	<p>Filter by qos_policy.min_throughput_mbps</p> <ul style="list-style-type: none"> • Max value: 4194303 • Min value: 0 • Introduced in: 9.8

Name	Type	In	Required	Description
volume.name	string	query	False	Filter by volume.name
volume.uuid	string	query	False	Filter by volume.uuid
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
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"> Max value: 120 Min value: 0 Default value: 1
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

Status: 200, Ok

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

Example response

```
{  
  "_links": {  
    "next": {  
      "href": "/api/resourcelink"  
    },  
    "self": {  
      "href": "/api/resourcelink"  
    }  
  },  
  "num_records": 1,  
  "records": [  
    {  
      "_links": {  
        "self": {  
          "href": "/api/resourcelink"  
        }  
      },  
      "_tags": [  
        "team:csi",  
        "environment:test"  
      ],  
      "export_policy": {  
        "_links": {  
          "self": {  
            "href": "/api/resourcelink"  
          }  
        },  
        "id": 100,  
        "name": "default"  
      },  
      "group": {  
        "id": "20001",  
        "name": "unix_group1"  
      },  
      "id": 1,  
      "name": "string",  
      "nas": {  
        "path": "/volume3/qtree1"  
      },  
      "path": "/volume3/qtree1",  
      "qos_policy": {  
        "_links": {  
          "self": {  
            "href": "/api/resourcelink"  
          }  
        }  
      }  
    }  
  ]  
}
```

```

        }
    },
    "max_throughput_iops": 10000,
    "max_throughput_mbps": 500,
    "min_throughput_iops": 2000,
    "min_throughput_mbps": 500,
    "name": "performance",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"security_style": "string",
"statistics": {
    "iops_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
    },
    "status": "ok",
    "throughput_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
    },
    "timestamp": "2017-01-25 06:20:13 -0500"
},
"svm": {
    "_links": {
        "self": {
            "href": "/api/resourcelink"
        }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"unix_permissions": 493,
"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.
2621462	The specified SVM does not exist.
5242889	Failed to get the qtree from volume.
5242956	Failed to obtain qtree.
5242965	Invalid qtree path. The volume name component of the qtree path, must be the same as the volume specified with the parameter.

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Name	Type	Description
error	returned_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", "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.

Name	Type	Description
_links	_links	
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.

Name	Type	Description
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.

Name	Type	Description
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.

Name	Type	Description
timestamp	string	The timestamp of the performance data.

svm

Required in POST

Name	Type	Description
_links	_links	
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

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. This field cannot be specified in a POST or PATCH method.

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 x-nullable: true

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	
_tags	array[string]	Tags are an optional way to track the uses of a resource. Tag values must be formatted as key:value strings.
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.

Name	Type	Description
qos_policy	qos_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.
security_style	string	Security style. Valid in POST or PATCH.
statistics	statistics	These are raw IOPS and throughput performance numbers. These numbers are aggregated across all nodes in the cluster and increase with the uptime of the cluster.
svm	svm	Required in POST
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.
volume	volume	Required in POST

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

returned_error

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

Create a qtree in a FlexVol or FlexGroup volume

POST /storage/qtrees

Introduced In: 9.6

Creates a qtree in a FlexVol volume or a FlexGroup volume.

After a qtree is created, the new qtree is assigned an identifier. This identifier is obtained using a qtree GET request. This identifier is used in the API path for the qtree PATCH and DELETE operations.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create the qtree.
- `volume.uuid` or `volume.name` - Existing volume in which to create the qtree.
- `name` - Name for the qtree.

Recommended optional properties

If not specified in POST, the values are inherited from the volume.

- `security_style` - Security style for the qtree.
- `unix_permissions` - UNIX permissions for the qtree.
- `export_policy.name` or `export_policy.id` - Export policy of the SVM for the qtree.

Related ONTAP commands

- `qtree create`

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	<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
_tags	array[string]	Tags are an optional way to track the uses of a resource. Tag values must be formatted as key:value strings.

Name	Type	Description
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", "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.
security_style	string	Security style. Valid in POST or PATCH.
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

```
{  
  "_tags": [  
    "team:csi",  
    "environment:test"  
,  
  "export_policy": {  
    "id": 100,  
    "name": "default"  
,  
  "group": {  
    "id": "20001",  
    "name": "unix_group1"  
,  
    "id": 1,  
    "name": "string",  
  "nas": {  
    "path": "/volume3/qtree1"  
,  
    "path": "/volume3/qtree1",  
  "qos_policy": {  
    "max_throughput_iops": 10000,  
    "max_throughput_mbps": 500,  
    "min_throughput_iops": 2000,  
    "min_throughput_mbps": 500,  
    "name": "performance",  
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
,  
    "security_style": "string",  
  "svm": {  
    "name": "svm1",  
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"  
,  
    "unix_permissions": 493,  
  "user": {  
    "id": "10001",  
    "name": "unix_user1"  
,  
  "volume": {  
    "name": "volume1",  
    "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"  
,  
  }  
}
```

Response

Status: 202, Accepted

Name	Type	Description
job	job_link	

Example response

```
{  
  "job": {  
    "uuid": "string"  
  }  
}
```

Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Response

Status: 201, Created

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
262245	Invalid field value.
262247	Invalid field value.
917525	The specified volume does not exist in Vserver.
917927	The specified volume was not found.
918232	Either volume.name or volume.uuid must be provided.

Error Code	Description
918236	The specified <code>volume.uuid</code> and <code>volume.name</code> refer to different volumes.
1703954	Export Policy name specified is invalid.
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.
5242881	Cannot create qtree because the volume is read-only.
5242886	Failed to create qtree.
5242894	Qtree with empty name "" is not allowed, as that is reserved for the default qtree.
5242900	Qtree not supported on FlexCache volume
5242948	Qtree is not supported on FlexCache origin volume.
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.
5242970	FlexCache create is in progress for the volume.
6622064	Security-style ntfs is not supported on SnapMirror Business Continuity (SMBC) relationship volume.
8454348	QoS on qtrees is not supported because not all nodes in the cluster can support it.
9437324	The security style unified is not supported.
23724050	Failed to resolve user or group name.
66846755	Failed to determine whether volume is a FlexCache volume or not.
66846839	Failed to determine the effective cluster version of all the nodes hosting FlexCache volumes connected to FlexCache origin volume.

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

export_policy

Export Policy

Name	Type	Description
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", "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.

Name	Type	Description
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

iops_raw

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

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.

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	<p>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".</p> <p>"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.</p> <p>"inconsistent_old_data" is returned when one or more nodes does not have the latest data.</p>
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
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

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
name	string	The name of the volume. This field cannot be specified in a POST or PATCH method.
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-11e9-81d5-00a0986138f7Introduced in: 9.6x-nullable: true

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
_tags	array[string]	Tags are an optional way to track the uses of a resource. Tag values must be formatted as key:value strings.
export_policy	export_policy	Export Policy
group	group	The user set as owner of the qtree.

Name	Type	Description
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", "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.
security_style	string	Security style. Valid in POST or PATCH.
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
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

returned_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: 200, Ok

Name	Type	Description
job	job_link	

Example response

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

Response

Status: 202, Accepted

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
917505	Vserver not found.
917506	Volume not found.
917525	The specified volume does not exist in Vserver.
918235	A volume with UUID was not found.
5242894	The default qtree cannot be deleted.
5242895	Failed to delete the qtree.
5242897	This operation is not permitted on read-only volume.
5242898	This operation is only permitted on a data Vserver.
5242916	Cannot delete qtree because the volume contains one or more LUNs.
5242925	The limit for the number of concurrent delete jobs has been reached.
5242927	Unable to find qtree.
5242955	The UUID of the volume is required.

Error Code	Description
5242957	Failed to delete qtree with ID in the volume and SVM.
5242965	Invalid qtree path. The volume name component of the qtree path, must be the same as the volume specified with the parameter.
10485796	Cannot delete qtree because it contains a Storage Level Access Guard (SLAG).

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Name	Type	Description
error	returned_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

returned_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 computational 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>_tags</code>	array[string]	Tags are an optional way to track the uses of a resource. Tag values must be formatted as key:value strings.
<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.

Name	Type	Description
name	string	The name of the qtree. Required in POST; optional in PATCH.
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	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.
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"  
    }  
  },  
  "_tags": [  
    "team:csi",  
    "environment:test"  
  ],  
  "export_policy": {  
    "_links": {  
      "self": {  
        "href": "/api/resourcelink"  
      }  
    },  
    "id": 100,  
    "name": "default"  
  },  
  "group": {  
    "id": "20001",  
    "name": "unix_group1"  
  },  
  "id": 1,  
  "name": "string",  
  "nas": {  
    "path": "/volume3/qtree1"  
  },  
  "path": "/volume3/qtree1",  
  "qos_policy": {  
    "_links": {  
      "self": {  
        "href": "/api/resourcelink"  
      }  
    },  
    "max_throughput_iops": 10000,  
    "max_throughput_mbps": 500,  
    "min_throughput_iops": 2000,  
    "min_throughput_mbps": 500,  
    "name": "performance",  
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
  },  
  "security_style": "string",  
  "statistics": {
```

```

    "iops_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
    },
    "status": "ok",
    "throughput_raw": {
        "read": 200,
        "total": 1000,
        "write": 100
    },
    "timestamp": "2017-01-25 06:20:13 -0500"
},
"svm": {
    "_links": {
        "self": {
            "href": "/api/resourcelink"
        }
    },
    "name": "svml1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"unix_permissions": 493,
"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.
2621462	The specified SVM does not exist.
5242889	Failed to get the qtree from volume.
5242956	Failed to obtain a qtree with ID.
5242965	Invalid qtree path. The volume name component of the qtree path, must be the same as the volume specified with the parameter.

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Name	Type	Description
error	returned_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", "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.

Name	Type	Description
_links	_links	
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

iops_raw

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

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.
read	integer	Performance metric for read I/O operations.
total	integer	Performance metric aggregated over all types of I/O operations.
write	integer	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	Type	Description
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

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. This field cannot be specified in a POST or PATCH method.
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 x-nullable: true

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

returned_error

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

Update properties for a qtree

PATCH /storage/qtrees/{volume.uuid}/{id}

Introduced In: 9.6

Updates properties for a specific qtree.

Related ONTAP commands

- `qtree modify`
- `qtree rename`

Parameters

Name	Type	In	Required	Description
volume.uuid	string	path	True	Volume UUID
id	string	path	True	Qtree ID

Name	Type	In	Required	Description
return_timeout	integer	query	False	<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
_tags	array[string]	Tags are an optional way to track the uses of a resource. Tag values must be formatted as key:value strings.
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	Type	Description
name	string	The name of the qtree. Required in POST; optional in PATCH.
nas	nas	
path	string	Client visible path to the qtree. This field is not available if the volume does not have a junction-path configured. Not valid in POST or PATCH. This field is to be deprecated and replaced with nas.path.
qos_policy	qos_policy	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.
security_style	string	Security style. Valid in POST or PATCH.
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.

Example request

```
{  
  "_tags": [  
    "team:csi",  
    "environment:test"  
,  
  "export_policy": {  
    "id": 100,  
    "name": "default"  
,  
  "group": {  
    "id": "20001",  
    "name": "unix_group1"  
,  
    "id": 1,  
    "name": "string",  
  "nas": {  
    "path": "/volume3/qtree1"  
,  
    "path": "/volume3/qtree1",  
  "qos_policy": {  
    "max_throughput_iops": 10000,  
    "max_throughput_mbps": 500,  
    "min_throughput_iops": 2000,  
    "min_throughput_mbps": 500,  
    "name": "performance",  
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"  
,  
    "security_style": "string",  
    "unix_permissions": 493,  
  "user": {  
    "id": "10001",  
    "name": "unix_user1"  
,  
  }  
}
```

Response

```
Status: 200, Ok
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "uuid": "string"
  }
}
```

Response

Status: 202, Accepted

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
262196	The request contains a field which cannot be set in this operation.
262278	Required field is missing in the request.
917505	Vserver not found.
917525	The specified volume does not exist in Vserver.
918235	A volume with UUID was not found.
5242887	Failed to modify qtree.
5242897	This operation is not permitted on read-only volume.
5242898	This operation is only permitted on a data Vserver.
5242902	Missing inputs.
5242915	Failed to assign qtree export policy to qtree.
5242927	Unable to find qtree.
5242945	Failed to modify qtree.
5242951	Export policy supplied does not belong to the specified export policy ID.

Error Code	Description
5242954	Failed to get the qtree from volume.
5242955	The UUID of the volume is required.
5242956	Failed to obtain a qtree with ID.
5242957	Failed to delete the qtree.
5242958	Failed to rename the qtree with ID in the volume and SVM.
5242959	Successfully renamed qtree but the modify operation failed.
5242965	Invalid qtree path. The volume name component of the qtree path, must be the same as the volume specified with the parameter.
5242967	UNIX user or group ID must be 32-bit unsigned integer.
5242971	Qtree was renamed. However, the path modification failed.
5242972	Cannot rename qtree as that name already exists on a volume in the Vserver.
5242973	Cannot rename qtree to name with path concurrently on volume in Vserver, unless non-root qtrees in enabled on the volume.
5242974	Moved qtree. However, other properties were not modified.
5242975	Renamed qtree and moved the qtree. However, other properties were not modified.
6622064	Security-style ntfs is not supported on SnapMirror Business Continuity (SMBC) relationship volume.
8454348	QoS on qtrees is not supported because not all nodes in the cluster can support it.
9437324	The security style unified is not supported.
23724050	Failed to resolve user or group name.

Also see the table of common errors in the [Response body](#) overview section of this documentation.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

export_policy

Export Policy

Name	Type	Description
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", "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.

Name	Type	Description
max_throughput_iops	integer	Specifies the maximum throughput in IOPS, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
max_throughput_mbps	integer	Specifies the maximum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_iops	integer	Specifies the minimum throughput in IOPS, 0 means none. Setting "min_throughput" is supported on AFF platforms only, unless FabricPool tiering policies are set. This is mutually exclusive with name and UUID during POST and PATCH.
min_throughput_mbps	integer	Specifies the minimum throughput in Megabytes per sec, 0 means none. This is mutually exclusive with name and UUID during POST and PATCH.
name	string	The QoS policy group name. This is mutually exclusive with UUID and other QoS attributes during POST and PATCH.
uuid	string	The QoS policy group UUID. This is mutually exclusive with name and other QoS attributes during POST and PATCH.

iops_raw

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

Name	Type	Description
other	integer	Performance metric for other I/O operations. Other I/O operations can be metadata operations, such as directory lookups and so on.

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	<p>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".</p> <p>"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.</p> <p>"inconsistent_old_data" is returned when one or more nodes does not have the latest data.</p>
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
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

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
name	string	The name of the volume. This field cannot be specified in a POST or PATCH method.
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 x-nullable: true

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
_tags	array[string]	Tags are an optional way to track the uses of a resource. Tag values must be formatted as key:value strings.
export_policy	export_policy	Export Policy
group	group	The user set as owner of the qtree.

Name	Type	Description
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", "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.
security_style	string	Security style. Valid in POST or PATCH.
unix_permissions	integer	The UNIX permissions for the qtree. Valid in POST or PATCH.
user	user	The user set as owner of the qtree.

job_link

Name	Type	Description
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

returned_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.

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