



Manage LUNs

ONTAP 9.8 REST API reference

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April 02, 2024

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Manage LUNs

Storage luns endpoint overview

Overview

A LUN is the logical representation of storage in a storage area network (SAN).

The LUN REST API allows you to create, update, delete, and discover LUNs.

In ONTAP, a LUN is located within a volume. Optionally, it can be located within a qtree in a volume.

A LUN can be created to a specified size using thin or thick provisioning. A LUN can then be renamed, resized, cloned, and moved to a different volume. LUNs support the assignment of a quality of service (QoS) policy for performance management or a QoS policy can be assigned to the volume containing the LUN. See the LUN object model to learn more about each of the properties supported by the LUN REST API.

A LUN must be mapped to an initiator group to grant access to the initiator group's initiators (client hosts). Initiators can then access the LUN and perform I/O over a Fibre Channel (FC) fabric using the FC Protocol or a TCP/IP network using iSCSI.

Performance monitoring

Performance of a LUN can be monitored by observing the `metric.*` and `statistics.*` properties. These properties show the performance of a LUN 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.

Examples

Creating a LUN

This example creates a 300 gigabyte, thin-provisioned LUN in SVM `svm1`, volume `vol1`, configured for use by `linux` initiators. The `return_records` query parameter is used to retrieve properties of the newly created LUN in the POST response.

```
# The API:
POST /api/storage/luns

# The call:
curl -X POST 'https://<mgmt-ip>/api/storage/luns?return_records=true' -H
'accept: application/hal+json' -d '{ "svm": { "name": "svm1" }, "os_type":
"linux", "space": { "size": "300G" }, "name" : "/vol/vol1/lun1" }'

# The response:
{
  "num_records": 1,
  "records": [
    {
```

```
"uuid": "5a24ae5b-28af-47fb-b129-5adf6cfba0a6",
"svm": {
  "uuid": "6bf967fd-2a1c-11e9-b682-005056bbc17d",
  "name": "svm1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/6bf967fd-2a1c-11e9-b682-005056bbc17d"
    }
  }
},
"name": "/vol/vol1/lun1",
"location": {
  "logical_unit": "lun1",
  "volume": {
    "uuid": "71cd0dba-2a1c-11e9-b682-005056bbc17d",
    "name": "vol1",
    "_links": {
      "self": {
        "href": "/api/storage/volumes/71cd0dba-2a1c-11e9-b682-005056bbc17d"
      }
    }
  }
},
"class": "regular",
"enabled": true,
"os_type": "linux",
"serial_number": "wf0Iq+N4uck3",
"space": {
  "size": 322163441664,
  "used": 0,
  "guarantee": {
    "requested": false,
    "reserved": false
  }
},
"status": {
  "container_state": "online",
  "read_only": false,
  "state": "online"
},
"_links": {
  "self": {
    "href": "/api/storage/luns/5a24ae5b-28af-47fb-b129-5adf6cfba0a6"
  }
}
}
```

```
}  
]  
}
```

Updating a LUN

This example sets the `comment` property of a LUN.

```
# The API:  
PATCH /api/storage/luns/{uuid}  
  
# The call:  
curl -X PATCH 'https://<mgmt-ip>/api/storage/luns/5a24ae5b-28af-47fb-b129-5adf6cfba0a6' -H 'accept: application/hal+json' -d '{ "comment": "Data for the finance department." }'
```

Retrieving LUNs

This example retrieves summary information for all online LUNs in SVM `svm1`. The `svm.name` and `status.state` query parameters are used to find the desired LUNs.

```
# The API:  
GET /api/storage/luns  
  
# The call:  
curl -X GET 'https://<mgmt-ip>/api/storage/luns?svm.name=svm1&status.state=online' -H 'accept: application/hal+json'  
  
# The response:  
{  
  "records": [  
    {  
      "uuid": "5a24ae5b-28af-47fb-b129-5adf6cfba0a6",  
      "svm": {  
        "name": "svm1"  
      },  
      "name": "/vol/vol1/lun1",  
      "status": {  
        "state": "online"  
      },  
      "_links": {
```

```
    "self": {
      "href": "/api/storage/luns/5a24ae5b-28af-47fb-b129-5adf6cfba0a6"
    }
  },
  {
    "uuid": "c903a978-9bac-4ce9-8237-4a3ba8b13f08",
    "svm": {
      "name": "svm1"
    },
    "name": "/vol/vol1/lun2",
    "status": {
      "state": "online"
    },
    "_links": {
      "self": {
        "href": "/api/storage/luns/c903a978-9bac-4ce9-8237-4a3ba8b13f08"
      }
    }
  },
  {
    "uuid": "7faf0a9e-0a47-4876-8318-3638d5da16bf",
    "svm": {
      "name": "svm1"
    },
    "name": "/vol/vol2/lun3",
    "status": {
      "state": "online"
    },
    "_links": {
      "self": {
        "href": "/api/storage/luns/7faf0a9e-0a47-4876-8318-3638d5da16bf"
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/storage/luns?svm.name=svm1&status.state=online"
  }
}
}
```

Retrieving details for a specific LUN

In this example, the `fields` query parameter is used to request all fields, including advanced fields, that would not otherwise be returned by default for the LUN.

```
# The API:
GET /api/storage/luns/{uuid}

# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/luns/5a24ae5b-28af-47fb-b129-5adf6cfba0a6?fields=**' -H 'accept: application/hal+json'

# The response:
{
  "uuid": "5a24ae5b-28af-47fb-b129-5adf6cfba0a6",
  "svm": {
    "uuid": "6bf967fd-2a1c-11e9-b682-005056bbc17d",
    "name": "svm1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/6bf967fd-2a1c-11e9-b682-005056bbc17d"
      }
    }
  },
  "name": "/vol/vol1/lun1",
  "location": {
    "logical_unit": "lun1",
    "volume": {
      "uuid": "71cd0dba-2a1c-11e9-b682-005056bbc17d",
      "name": "vol1",
      "_links": {
        "self": {
          "href": "/api/storage/volumes/71cd0dba-2a1c-11e9-b682-005056bbc17d"
        }
      }
    }
  },
  "auto_delete": false,
  "class": "regular",
  "comment": "Data for the finance department.",
  "enabled": true,
  "lun_maps": [
    {
      "logical_unit_number": 0,
      "igroup": {
```

```
"uuid": "2b9d57e1-2a66-11e9-b682-005056bbc17d",
"name": "ig1",
"_links": {
  "self": {
    "href": "/api/protocols/san/igroups/2b9d57e1-2a66-11e9-b682-005056bbc17d"
  }
},
"_links": {
  "self": {
    "href": "/api/protocols/san/lun-maps/5a24ae5b-28af-47fb-b129-5adf6cfba0a6/2b9d57e1-2a66-11e9-b682-005056bbc17d"
  }
},
],
"os_type": "linux",
"serial_number": "wf0Iq+N4uck3",
"space": {
  "size": 322163441664,
  "used": 0,
  "guarantee": {
    "requested": false,
    "reserved": false
  }
},
"metric": {
  "timestamp": "2019-04-09T05:50:15Z",
  "duration": "PT15S",
  "status": "ok",
  "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
  }
},
"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
  }
},
"status": {
  "container_state": "online",
  "mapped": true,
  "read_only": false,
  "state": "online"
},
"_links": {
  "self": {
    "href": "/api/storage/luns/5a24ae5b-28af-47fb-b129-5adf6cfba0a6?fields=**"
  }
}
}
}

```

Cloning LUNs

A clone of a LUN is an independent "copy" of the LUN that shares unchanged data blocks with the original. As blocks of the source and clone are modified, unique blocks are written for each. LUN clones can be created quickly and consume very little space initially. They can be created for the purpose of back-up, or to replicate

data for multiple consumers.

Space reservations can be set for the LUN clone independent of the source LUN by setting the `space.guarantee.requested` property in a POST or PATCH request.

A LUN clone can also be set to auto-delete by setting the `auto_delete` property. If the LUN's volume is configured for automatic deletion, LUNs that have auto-delete enabled are deleted when a volume is nearly full to reclaim a target amount of free space in the volume.

Examples

Creating a new LUN clone

You create a new LUN clone as you create any LUN - a POST request to [/storage/luns](#). Set `clone.source.uuid` or `clone.source.name` to identify the source LUN from which the clone is created. The LUN clone and its source must reside in the same volume.

The source LUN can reside in a Snapshot copy, in which case the `clone.source.name` field must be used to identify it. Add `/.snapshot/<snapshot_name>` to the path after the volume name to identify the Snapshot copy. For example `/vol/vol1/.snapshot/snap1/lun1`.

By default, new LUN clones do not inherit the QoS policy of the source LUN; a QoS policy should be set for the clone by setting the `qos_policy` property.

```
# The API:
POST /api/storage/luns

# The call:
curl -X POST 'https://<mgmt-ip>/api/storage/luns' -H 'accept:
application/hal+json' -d '{ "svm": { "name": "svm1" }, "name":
"/vol/vol1/lun2clone1", "clone": { "source": { "name": "/vol/vol1/lun2" }
}, "qos_policy": { "name": "qos1" } }'
```

Over-writing an existing LUN's data as a clone of another

You can overwrite an existing LUN as a clone of another, using a PATCH request to [/storage/luns/{uuid}](#). Set the `clone.source.uuid` or `clone.source.name` property to identify the source LUN from which the clone data is taken. The LUN clone and its source must reside in the same volume.

When used in a PATCH request, the patched LUN's data is overwritten as a clone of the source. The following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: `class`, `auto_delete`, `lun_maps`, `serial_number`, `status.state`, and `uuid`.

Persistent reservations for the updated LUN are also preserved.

```
# The API:
PATCH /api/storage/luns/{uuid}

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/storage/luns/5a24ae5b-28af-47fb-b129-5adf6cfba0a6' -H 'accept: application/hal+json' -d '{ "clone": { "source": { "name": "/vol/vol1/lun2" } } }'
```

Moving LUNs between volumes

You move a LUN between volumes by using a PATCH request to [/storage/luns/{uuid}](#). Set the volume portion of the fully qualified LUN path name property, `path.volume.uuid`, or `path.volume.name` property to a different volume than the LUN's current volume. Moving a LUN between volumes is an asynchronous activity. A successful request returns a response of 200 synchronously, which indicates that the movement has been successfully queued. The LUN object can then be further polled with a GET request to [/storage/luns/{uuid}](#) to monitor the status of the movement.

The `movement` sub-object of the LUN object is populated while a LUN movement is in progress and for two minutes following completion of a movement.

Examples

Starting a LUN movement

```
# The API:
PATCH /api/storage/luns/{uuid}

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/storage/luns/7faf0a9e-0a47-4876-8318-3638d5da16bf' -H 'accept: application/hal+json' -d '{ "name": "/vol/vol1/lun3" }'
```

Checking on the status of the LUN movement

```
# The API:
GET /api/storage/luns/{uuid}

# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/luns/7faf0a9e-0a47-4876-8318-3638d5da16bf?fields=movement' -H 'accept: application/hal+json'

# The response:
{
  "uuid": "7faf0a9e-0a47-4876-8318-3638d5da16bf",
  "name": "/vol/vol1/lun3",
  "movement": {
    "paths": {
      "destination": "/vol/vol1/lun3",
      "source": "/vol/vol2/lun3"
    },
    "progress": {
      "elapsed": 1,
      "percent_complete": 0,
      "state": "preparing",
      "volume_snapshot_blocked": false
    }
  },
  "_links": {
    "self": {
      "href": "/api/storage/luns/7faf0a9e-0a47-4876-8318-3638d5da16bf"
    }
  }
}
```

Deleting a LUN

```
# The API:
DELETE /api/storage/luns/{uuid}

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/storage/luns/c903a978-9bac-4ce9-8237-4a3ba8b13f08' -H 'accept: application/hal+json'
```

Retrieve LUNs

GET /storage/luns

Introduced In: 9.6

Retrieves LUNs.

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.

- `auto_delete`
- `lun_maps.*`
- `movement.*`
- `status.mapped`
- `statistics.*`
- `metric.*`

Related ONTAP commands

- `lun mapping show`
- `lun move show`
- `lun show`
- `volume file clone show-autodelete`

Learn more

- [DOC /storage/luns](#)

Parameters

Name	Type	In	Required	Description
<code>create_time</code>	string	query	False	Filter by <code>create_time</code> • Introduced in: 9.7
<code>location.logical_unit</code>	string	query	False	Filter by <code>location.logical_unit</code>
<code>location.qtree.name</code>	string	query	False	Filter by <code>location.qtree.name</code>

Name	Type	In	Required	Description
location.qtree.id	integer	query	False	Filter by location.qtree.id
location.volume.uuid	string	query	False	Filter by location.volume.uuid
location.volume.name	string	query	False	Filter by location.volume.name
enabled	boolean	query	False	Filter by enabled
qos_policy.uuid	string	query	False	Filter by qos_policy.uuid
qos_policy.name	string	query	False	Filter by qos_policy.name
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
movement.max_throughput	string	query	False	Filter by movement.max_throughput
movement.paths.destination	string	query	False	Filter by movement.paths.destination
movement.paths.source	string	query	False	Filter by movement.paths.source
movement.progress.volume_snapshot_blocked	boolean	query	False	Filter by movement.progress.volume_snapshot_blocked
movement.progress.state	string	query	False	Filter by movement.progress.state
movement.progress.elapsed	integer	query	False	Filter by movement.progress.elapsed

Name	Type	In	Required	Description
movement.progress.failure.code	string	query	False	Filter by movement.progress.failure.code
movement.progress.failure.message	string	query	False	Filter by movement.progress.failure.message
movement.progress.percent_complete	integer	query	False	Filter by movement.progress.percent_complete
statistics.iops_raw.total	integer	query	False	Filter by statistics.iops_raw.total • Introduced in: 9.7
statistics.iops_raw.read	integer	query	False	Filter by statistics.iops_raw.read • Introduced in: 9.7
statistics.iops_raw.other	integer	query	False	Filter by statistics.iops_raw.other • Introduced in: 9.7
statistics.iops_raw.write	integer	query	False	Filter by statistics.iops_raw.write • Introduced in: 9.7
statistics.latency_raw.total	integer	query	False	Filter by statistics.latency_raw.total • Introduced in: 9.7

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

Name	Type	In	Required	Description
statistics.throughput_raw.other	integer	query	False	Filter by statistics.throughput_raw.other • Introduced in: 9.7
statistics.throughput_raw.write	integer	query	False	Filter by statistics.throughput_raw.write • Introduced in: 9.7
serial_number	string	query	False	Filter by serial_number
auto_delete	boolean	query	False	Filter by auto_delete
uuid	string	query	False	Filter by uuid
os_type	string	query	False	Filter by os_type
metric.timestamp	string	query	False	Filter by metric.timestamp • Introduced in: 9.7
metric.duration	string	query	False	Filter by metric.duration • Introduced in: 9.7
metric.throughput.total	integer	query	False	Filter by metric.throughput.total • 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.other	integer	query	False	Filter by metric.throughput.other • Introduced in: 9.7
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.read	integer	query	False	Filter by metric.latency.read • Introduced in: 9.7
metric.latency.other	integer	query	False	Filter by metric.latency.other • Introduced in: 9.7
metric.latency.write	integer	query	False	Filter by metric.latency.write • Introduced in: 9.7
metric.status	string	query	False	Filter by metric.status • Introduced in: 9.7
metric.iops.total	integer	query	False	Filter by metric.iops.total • Introduced in: 9.7

Name	Type	In	Required	Description
metric.iops.read	integer	query	False	Filter by metric.iops.read • Introduced in: 9.7
metric.iops.other	integer	query	False	Filter by metric.iops.other • Introduced in: 9.7
metric.iops.write	integer	query	False	Filter by metric.iops.write • Introduced in: 9.7
comment	string	query	False	Filter by comment
name	string	query	False	Filter by name
space.size	integer	query	False	Filter by space.size
space.used	integer	query	False	Filter by space.used
space.guarantee.reserved	boolean	query	False	Filter by space.guarantee.reserved
space.guarantee.requested	boolean	query	False	Filter by space.guarantee.requested
class	string	query	False	Filter by class
status.read_only	boolean	query	False	Filter by status.read_only
status.mapped	boolean	query	False	Filter by status.mapped
status.container_state	string	query	False	Filter by status.container_state

Name	Type	In	Required	Description
status.state	string	query	False	Filter by status.state
lun_maps.logical_unit_number	integer	query	False	Filter by lun_maps.logical_unit_number
lun_maps.igroup.name	string	query	False	Filter by lun_maps.igroup.name
lun_maps.igroup.uuid	string	query	False	Filter by lun_maps.igroup.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	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0

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

Response

Status: 200, Ok

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

Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "class": "regular",
    "clone": {
      "source": {
        "name": "/vol/volume1/lun1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    },
    "comment": "string",
    "create_time": "2018-06-04T19:00:00Z",
    "location": {
      "logical_unit": "lun1",
      "qtree": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "id": "1",
        "name": "qt1"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  }
}
```

```

},
"lun_maps": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
},
"igroup": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "igroup1",
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
},
"logical_unit_number": 0
},
"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"
},
"movement": {
  "paths": {
    "destination": "/vol/vol1/lun1",

```

```

    "source": "/vol/vol2/lun2"
  },
  "progress": {
    "elapsed": 0,
    "failure": {
      "code": "4",
      "message": "Destination volume is offline."
    },
    "percent_complete": 0,
    "state": "preparing"
  }
},
"name": "/vol/volume1/mtree1/lun1",
"os_type": "aix",
"qos_policy": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "qos1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"serial_number": "string",
"space": {
  "size": "1073741824",
  "used": 0
},
"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"
}

```



```

    },
    "status": {
      "container_state": "online",
      "state": "online"
    },
    "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	

source

The source LUN for a LUN clone operation. This can be specified using property `clone.source.uuid` or `clone.source.name`. If both properties are supplied, they must refer to the same LUN.

Valid in POST to create a new LUN as a clone of the source.

Valid in PATCH to overwrite an existing LUN's data as a clone of another.

Name	Type	Description
name	string	The fully qualified path name of the clone source LUN composed of a <code>"/vol"</code> prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the clone source LUN. Valid in POST and PATCH.

clone

This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: `auto_delete`, `qos_policy`, and `space.guarantee.requested`.

When used in a PATCH, the patched LUN's data is over-written as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: `class`,

auto_delete, lun_maps, serial_number, status.state, and uuid.

Persistent reservations for the patched LUN are also preserved.

Name	Type	Description
source	source	<p>The source LUN for a LUN clone operation. This can be specified using property <code>clone.source.uuid</code> or <code>clone.source.name</code>. If both properties are supplied, they must refer to the same LUN.</p> <p>Valid in POST to create a new LUN as a clone of the source.</p> <p>Valid in PATCH to overwrite an existing LUN's data as a clone of another.</p>

qtree

The qtree in which the LUN is optionally located. Valid in POST and PATCH.

If properties `name` and `location.qtree.name` and/or `location.qtree.uuid` are specified in the same request, they must refer to the same qtree.

A PATCH that modifies the qtree of the LUN is considered a rename operation.

Name	Type	Description
_links	_links	
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree.

volume

The volume in which the LUN is located. Valid in POST and PATCH.

If properties `name` and `location.volume.name` and/or `location.volume.uuid` are specified in the same request, they must refer to the same volume.

A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.

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

location

The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.

Name	Type	Description
logical_unit	string	<p>The base name component of the LUN. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.logical_unit</code> are specified in the same request, they must refer to the base name.</p> <p>A PATCH that modifies the base name of the LUN is considered a rename operation.</p>
qtree	qtree	<p>The qtree in which the LUN is optionally located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.qtree.name</code> and/or <code>location.qtree.uuid</code> are specified in the same request, they must refer to the same qtree.</p> <p>A PATCH that modifies the qtree of the LUN is considered a rename operation.</p>

Name	Type	Description
volume	volume	<p>The volume in which the LUN is located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.volume.name</code> and/or <code>location.volume.uuid</code> are specified in the same request, they must refer to the same volume.</p> <p>A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.</p>

igroup

The initiator group to which the LUN is mapped.

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

lun_maps

A LUN map with which the LUN is associated.

Name	Type	Description
_links	_links	
igroup	igroup	The initiator group to which the LUN is mapped.
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.

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.

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.

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.

paths

The fully qualified LUN path names involved in the LUN movement.

Name	Type	Description
destination	string	The fully qualified path of the LUN movement destination composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

Name	Type	Description
source	string	The fully qualified path of the LUN movement source composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

failure

Error information provided if the asynchronous LUN movement operation fails.

Name	Type	Description
code	string	The error code.
message	string	The error message.

progress

Name	Type	Description
elapsed	integer	The amount of time, in seconds, that has elapsed since the start of the LUN movement.
failure	failure	Error information provided if the asynchronous LUN movement operation fails.
percent_complete	integer	The percentage complete of the LUN movement.
state	string	The state of the LUN movement. Valid in PATCH when an LUN movement is active. Set to <i>paused</i> to pause a LUN movement. Set to <i>replicating</i> to resume a paused LUN movement.
volume_snapshot_blocked	boolean	This property reports if volume Snapshot copies are blocked by the LUN movement. This property can be polled to identify when volume Snapshot copies can be resumed after beginning a LUN movement.

movement

This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property `name`, `location.volume.uuid`, or `location.volume.name`. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.

Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The `movement` sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.

While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the `movement` properties. The LUN movement operation can be further modified using a PATCH on the properties on the `movement` sub-object.

There is added cost to retrieving property values for `movement`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See [Requesting specific fields](#) to learn more.

Name	Type	Description
<code>max_throughput</code>	string	<p>The maximum data throughput that should be utilized in support of the LUN movement. This property can be used to throttle a transfer and limit its impact on the performance of the source and destination nodes. The specified value will be rounded up to the nearest megabyte.</p> <p>If this property is not specified in a POST that begins a LUN movement, throttling is not applied to the data transfer.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <p>This property is valid only in a POST that begins a LUN movement or a PATCH when a LUN movement is already in process.</p> <ul style="list-style-type: none">• Introduced in: 9.6

Name	Type	Description
paths	paths	The fully qualified LUN path names involved in the LUN movement.
progress	progress	

qos_policy

The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property `qos_policy.uuid` and `qos_policy.name` are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property `qos_policy.name` to an empty string ("") in a PATCH request. Valid in POST and PATCH.

Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.

Name	Type	Description
_links	_links	
name	string	The name of the QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set this property to an empty string ("") in a PATCH request. Valid in POST and PATCH.
uuid	string	The unique identifier of the QoS policy. Valid in POST and PATCH.

guarantee

Properties that request and report the space guarantee for the LUN.

Name	Type	Description
requested	boolean	The requested space reservation policy for the LUN. If <i>true</i> , a space reservation is requested for the LUN; if <i>false</i> , the LUN is thin provisioned. Guaranteeing a space reservation request for a LUN requires that the volume in which the LUN resides is also space reserved and that the fractional reserve for the volume is 100%. Valid in POST and PATCH.

Name	Type	Description
reserved	boolean	<p>Reports if the LUN is space guaranteed.</p> <p>If <i>true</i>, a space guarantee is requested and the containing volume and aggregate support the request. If <i>false</i>, a space guarantee is not requested or a space guarantee is requested and either the containing volume or aggregate do not support the request.</p>

space

The storage space related properties of the LUN.

Name	Type	Description
guarantee	guarantee	Properties that request and report the space guarantee for the LUN.
size	integer	<p>The total provisioned size of the LUN. The LUN size can be increased but not be made smaller using the REST interface.</p> <p>The maximum and minimum sizes listed here are the absolute maximum and absolute minimum sizes in bytes. The actual minimum and maximum sizes vary depending on the ONTAP version, ONTAP platform and the available space in the containing volume and aggregate. For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • example: 1073741824 • Max value: 140737488355328 • Min value: 4096 • Introduced in: 9.6

Name	Type	Description
used	integer	<p>The amount of space consumed by the main data stream of the LUN.</p> <p>This value is the total space consumed in the volume by the LUN, including filesystem overhead, but excluding prefix and suffix streams. Due to internal filesystem overhead and the many ways SAN filesystems and applications utilize blocks within a LUN, this value does not necessarily reflect actual consumption/availability from the perspective of the filesystem or application. Without specific knowledge of how the LUN blocks are utilized outside of ONTAP, this property should not be used as an indicator for an out-of-space condition.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • readOnly: 1 • Introduced in: 9.6

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

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.
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.

status

Status information about the LUN.

Name	Type	Description
container_state	string	The state of the volume and aggregate that contain the LUN. LUNs are only available when their containers are available.
mapped	boolean	Reports if the LUN is mapped to one or more initiator groups. There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.
read_only	boolean	Reports if the LUN allows only read access.
state	string	The state of the LUN. Normal states for a LUN are <i>online</i> and <i>offline</i> . Other states indicate errors.

svm

The SVM in which the LUN is located.

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

lun

A LUN is the logical representation of storage in a storage area network (SAN).

In ONTAP, a LUN is located within a volume. Optionally, it can be located within a qtree in a volume.

A LUN can be created to a specified size using thin or thick provisioning. A LUN can then be renamed, resized, cloned, and moved to a different volume. LUNs support the assignment of a quality of service (QoS) policy for performance management or a QoS policy can be assigned to the volume containing the

LUN. See the LUN object model to learn more about each of the properties supported by the LUN REST API.

A LUN must be mapped to an initiator group to grant access to the initiator group's initiators (client hosts). Initiators can then access the LUN and perform I/O over a Fibre Channel (FC) fabric using the Fibre Channel Protocol or a TCP/IP network using iSCSI.

Name	Type	Description
_links	_links	
auto_delete	boolean	<p>This property marks the LUN for auto deletion when the volume containing the LUN runs out of space. This is most commonly set on LUN clones.</p> <p>When set to <i>true</i>, the LUN becomes eligible for automatic deletion when the volume runs out of space. Auto deletion only occurs when the volume containing the LUN is also configured for auto deletion and free space in the volume decreases below a particular threshold.</p> <p>This property is optional in POST and PATCH. The default value for a new LUN is <i>false</i>.</p> <p>There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
class	string	The class of LUN. Only <i>regular</i> LUNs can be created using the REST API.

Name	Type	Description
clone	clone	<p>This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: <code>auto_delete</code>, <code>qos_policy</code>, and <code>space.guarantee.requested</code>.</p> <p>When used in a PATCH, the patched LUN's data is overwritten as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: <code>class</code>, <code>auto_delete</code>, <code>lun_maps</code>, <code>serial_number</code>, <code>status.state</code>, and <code>uuid</code>.</p> <p>Persistent reservations for the patched LUN are also preserved.</p>
comment	string	A configurable comment available for use by the administrator. Valid in POST and PATCH.
create_time	string	The time the LUN was created.

Name	Type	Description
enabled	boolean	<p>The enabled state of the LUN. LUNs can be disabled to prevent access to the LUN. Certain error conditions also cause the LUN to become disabled. If the LUN is disabled, you can consult the <code>state</code> property to determine if the LUN is administratively disabled (<i>offline</i>) or has become disabled as a result of an error. A LUN in an error condition can be brought online by setting the <code>enabled</code> property to <i>true</i> or brought administratively offline by setting the <code>enabled</code> property to <i>false</i>. Upon creation, a LUN is enabled by default. Valid in PATCH.</p>
location	location	<p>The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.</p> <ul style="list-style-type: none"> • Introduced in: 9.6
lun_maps	array[lun_maps]	<p>The LUN maps with which the LUN is associated.</p> <p>There is an added cost to retrieving property values for <code>lun_maps</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
metric	metric	<p>Performance numbers, such as IOPS latency and throughput.</p>

Name	Type	Description
movement	movement	<p>This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property <code>name</code>, <code>location.volume.uuid</code>, or <code>location.volume.name</code>. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.</p> <p>Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The <code>movement</code> sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.</p> <p>While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the <code>movement</code> properties. The LUN movement operation can be further modified using a PATCH on the properties on the <code>movement</code> sub-object.</p> <p>There is added cost to retrieving property values for <code>movement</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>

Name	Type	Description
name	string	<p>The fully qualified path name of the LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.</p> <p>A PATCH that modifies the qtree and/or base name portion of the LUN path is considered a rename operation.</p> <p>A PATCH that modifies the volume portion of the LUN path begins an asynchronous LUN movement operation.</p>
os_type	string	<p>The operating system type of the LUN.</p> <p>Required in POST when creating a LUN that is not a clone of another. Disallowed in POST when creating a LUN clone.</p>
qos_policy	qos_policy	<p>The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property <code>qos_policy.uuid</code> and <code>qos_policy.name</code> are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property <code>qos_policy.name</code> to an empty string ("") in a PATCH request. Valid in POST and PATCH.</p> <p>Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.</p>

Name	Type	Description
serial_number	string	The LUN serial number. The serial number is generated by ONTAP when the LUN is created. <ul style="list-style-type: none"> • maxLength: 12 • minLength: 12 • readOnly: 1 • Introduced in: 9.6
space	space	The storage space related properties of the LUN.
statistics	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.
status	status	Status information about the LUN.
svm	svm	The SVM in which the LUN is located.
uuid	string	The unique identifier of the LUN. The UUID is generated by ONTAP when the LUN is created. <ul style="list-style-type: none"> • example: 1cd8a442-86d1-11e0-ae1c-123478563412 • readOnly: 1 • 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.

Create a LUN

POST /storage/luns

Introduced In: 9.6

Creates a LUN.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create the LUN.
- `name`, `location.volume.name` or `location.volume.uuid` - Existing volume in which to create the LUN.
- `name` or `location.logical_unit` - Base name of the LUN.
- `os_type` - Operating system from which the LUN will be accessed. Required when creating a non-clone LUN and disallowed when creating a clone of an existing LUN. A clone's `os_type` is taken from the source LUN.
- `space.size` - Size of the LUN. Required when creating a non-clone LUN and disallowed when creating a clone of an existing LUN. A clone's size is taken from the source LUN.

Recommended optional properties

- `qos_policy.name` or `qos_policy.uuid` - Existing traditional or adaptive QoS policy to be applied to the LUN. All LUNs should be managed by a QoS policy at the volume or LUN level.

Default property values

If not specified in POST, the follow default property values are assigned.

- `auto_delete` - *false*

Related ONTAP commands

- `lun create`
- `volume file clone autodelete`

- volume file clone create

Learn more

- [DOC /storage/luns](#)

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	
auto_delete	boolean	<p>This property marks the LUN for auto deletion when the volume containing the LUN runs out of space. This is most commonly set on LUN clones.</p> <p>When set to <i>true</i>, the LUN becomes eligible for automatic deletion when the volume runs out of space. Auto deletion only occurs when the volume containing the LUN is also configured for auto deletion and free space in the volume decreases below a particular threshold.</p> <p>This property is optional in POST and PATCH. The default value for a new LUN is <i>false</i>.</p> <p>There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>

Name	Type	Description
class	string	The class of LUN. Only <i>regular</i> LUNs can be created using the REST API.
clone	clone	<p>This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: <code>auto_delete</code>, <code>qos_policy</code>, and <code>space.guarantee.requested</code>.</p> <p>When used in a PATCH, the patched LUN's data is over-written as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: <code>class</code>, <code>auto_delete</code>, <code>lun_maps</code>, <code>serial_number</code>, <code>status.state</code>, and <code>uuid</code>.</p> <p>Persistent reservations for the patched LUN are also preserved.</p>
comment	string	A configurable comment available for use by the administrator. Valid in POST and PATCH.
create_time	string	The time the LUN was created.

Name	Type	Description
enabled	boolean	<p>The enabled state of the LUN. LUNs can be disabled to prevent access to the LUN. Certain error conditions also cause the LUN to become disabled. If the LUN is disabled, you can consult the <code>state</code> property to determine if the LUN is administratively disabled (<i>offline</i>) or has become disabled as a result of an error. A LUN in an error condition can be brought online by setting the <code>enabled</code> property to <i>true</i> or brought administratively offline by setting the <code>enabled</code> property to <i>false</i>. Upon creation, a LUN is enabled by default. Valid in PATCH.</p>
location	location	<p>The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.</p> <ul style="list-style-type: none"> • Introduced in: 9.6
lun_maps	array[lun_maps]	<p>The LUN maps with which the LUN is associated.</p> <p>There is an added cost to retrieving property values for <code>lun_maps</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
metric	metric	<p>Performance numbers, such as IOPS latency and throughput.</p>

Name	Type	Description
movement	movement	<p>This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property <code>name</code>, <code>location.volume.uuid</code>, or <code>location.volume.name</code>. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.</p> <p>Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The <code>movement</code> sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.</p> <p>While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the <code>movement</code> properties. The LUN movement operation can be further modified using a PATCH on the properties on the <code>movement</code> sub-object.</p> <p>There is added cost to retrieving property values for <code>movement</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>

Name	Type	Description
name	string	<p>The fully qualified path name of the LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.</p> <p>A PATCH that modifies the qtree and/or base name portion of the LUN path is considered a rename operation.</p> <p>A PATCH that modifies the volume portion of the LUN path begins an asynchronous LUN movement operation.</p>
os_type	string	<p>The operating system type of the LUN.</p> <p>Required in POST when creating a LUN that is not a clone of another. Disallowed in POST when creating a LUN clone.</p>
qos_policy	qos_policy	<p>The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property <code>qos_policy.uuid</code> and <code>qos_policy.name</code> are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property <code>qos_policy.name</code> to an empty string ("") in a PATCH request. Valid in POST and PATCH.</p> <p>Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.</p>

Name	Type	Description
serial_number	string	<p>The LUN serial number. The serial number is generated by ONTAP when the LUN is created.</p> <ul style="list-style-type: none"> • maxLength: 12 • minLength: 12 • readOnly: 1 • Introduced in: 9.6
space	space	The storage space related properties of the LUN.
statistics	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.
status	status	Status information about the LUN.
svm	svm	The SVM in which the LUN is located.
uuid	string	<p>The unique identifier of the LUN. The UUID is generated by ONTAP when the LUN is created.</p> <ul style="list-style-type: none"> • example: 1cd8a442-86d1-11e0-ae1c-123478563412 • readOnly: 1 • Introduced in: 9.6

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "class": "regular",
  "clone": {
    "source": {
      "name": "/vol/volume1/lun1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "comment": "string",
  "create_time": "2018-06-04T19:00:00Z",
  "location": {
    "logical_unit": "lun1",
    "qtree": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "id": "1",
      "name": "qt1"
    },
    "volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "volume1",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    }
  },
  "lun_maps": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "igroup": {
      "_links": {
```

```
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "igroup1",
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
},
"logical_unit_number": 0
},
"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"
},
"movement": {
  "paths": {
    "destination": "/vol/vol1/lun1",
    "source": "/vol/vol2/lun2"
  },
  "progress": {
    "elapsed": 0,
    "failure": {
      "code": "4",
      "message": "Destination volume is offline."
    },
    "percent_complete": 0,
  }
}
```



```

    "state": "preparing"
  }
},
"name": "/vol/volume1/qtrees/lun1",
"os_type": "aix",
"qos_policy": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "qos1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"serial_number": "string",
"space": {
  "size": "1073741824",
  "used": 0
},
"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"
},
"status": {
  "container_state": "online",
  "state": "online"
},
"svm": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  }
}

```

```
    }
  },
  "name": "svm1",
  "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```

Response

Status: 201, Created

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

Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "class": "regular",
    "clone": {
      "source": {
        "name": "/vol/volume1/lun1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    },
    "comment": "string",
    "create_time": "2018-06-04T19:00:00Z",
    "location": {
      "logical_unit": "lun1",
      "qtree": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "id": "1",
        "name": "qt1"
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  }
}
```

```

},
"lun_maps": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
},
"igroup": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "igroup1",
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
},
"logical_unit_number": 0
},
"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"
},
"movement": {
  "paths": {
    "destination": "/vol/vol1/lun1",

```

```
    "source": "/vol/vol2/lun2"
  },
  "progress": {
    "elapsed": 0,
    "failure": {
      "code": "4",
      "message": "Destination volume is offline."
    },
    "percent_complete": 0,
    "state": "preparing"
  }
},
"name": "/vol/volume1/mtree1/lun1",
"os_type": "aix",
"qos_policy": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "qos1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"serial_number": "string",
"space": {
  "size": "1073741824",
  "used": 0
},
"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"
```

```

    },
    "status": {
      "container_state": "online",
      "state": "online"
    },
    },
    "svm": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      },
      "name": "svm1",
      "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
    },
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  }
}

```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
917927	The specified volume was not found.
918236	The specified <code>location.volume.uuid</code> and <code>location.volume.name</code> do not refer to the same volume.
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.
5242927	The specified qtree was not found.
5242950	The specified <code>location.qtree.id</code> and <code>location.qtree.name</code> do not refer to the same qtree.
5374121	A LUN name can only contain characters A-Z, a-z, 0-9, "-", ".", "_", "{", and "}".
5374123	A negative size was provided for the LUN.

Error Code	Description
5374124	The specified size is too small for the LUN.
5374125	The specified size is too large for the LUN.
5374129	LUNs cannot be created on a load sharing mirror volume.
5374130	An invalid size value was provided.
5374237	LUNs cannot be created on an SVM root volume.
5374238	LUNs cannot be created in Snapshot copies.
5374241	A size value with invalid units was provided.
5374242	A LUN or NVMe namespace already exists at the specified path.
5374352	An invalid name was provided for the LUN.
5374707	Creating a LUN in the specific volume is not allowed because the volume is reserved for an application.
5374858	The volume specified by <code>name</code> is not the same as that specified by <code>location.volume</code> .
5374859	No volume was specified for the LUN.
5374860	The <code>qtree</code> specified by <code>name</code> is not the same as that specified by <code>location.qtree</code> .
5374861	The LUN base name specified by <code>name</code> is not the same as that specified by <code>location.logical_unit</code> .
5374862	No LUN path base name was provided for the LUN.
5374863	An error occurred after successfully creating the LUN. Some properties were not set.
5374874	The specified <code>clone.source.uuid</code> and <code>clone.source.name</code> do not refer to the same LUN.
5374875	The specified <code>clone.source</code> was not found.
5374876	The specified <code>clone.source</code> was not found.
5374883	The property cannot be specified when creating a LUN clone. The <code>target</code> property of the error object identifies the property.
5374884	The property is required except when creating a LUN clone. The <code>target</code> property of the error object identifies the property.
5374886	An error occurred after successfully creating the LUN preventing the retrieval of its properties.
5374899	The <code>clone.source.uuid</code> property is not supported when specifying a source LUN from a Snapshot copy.

Error Code	Description
13565952	The LUN clone request failed.

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	

source

The source LUN for a LUN clone operation. This can be specified using property `clone.source.uuid` or `clone.source.name`. If both properties are supplied, they must refer to the same LUN.

Valid in POST to create a new LUN as a clone of the source.

Valid in PATCH to overwrite an existing LUN's data as a clone of another.

Name	Type	Description
name	string	The fully qualified path name of the clone source LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the clone source LUN. Valid in POST and PATCH.

clone

This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: `auto_delete`, `qos_policy`, and `space.guarantee.requested`.

When used in a PATCH, the patched LUN's data is over-written as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: `class`, `auto_delete`, `lun_maps`, `serial_number`, `status.state`, and `uuid`.

Persistent reservations for the patched LUN are also preserved.

Name	Type	Description
source	source	<p>The source LUN for a LUN clone operation. This can be specified using property <code>clone.source.uuid</code> or <code>clone.source.name</code>. If both properties are supplied, they must refer to the same LUN.</p> <p>Valid in POST to create a new LUN as a clone of the source.</p> <p>Valid in PATCH to overwrite an existing LUN's data as a clone of another.</p>

qtree

The qtree in which the LUN is optionally located. Valid in POST and PATCH.

If properties `name` and `location.qtree.name` and/or `location.qtree.uuid` are specified in the same request, they must refer to the same qtree.

A PATCH that modifies the qtree of the LUN is considered a rename operation.

Name	Type	Description
_links	_links	
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree.

volume

The volume in which the LUN is located. Valid in POST and PATCH.

If properties `name` and `location.volume.name` and/or `location.volume.uuid` are specified in the same request, they must refer to the same volume.

A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.

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

location

The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.

Name	Type	Description
logical_unit	string	<p>The base name component of the LUN. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.logical_unit</code> are specified in the same request, they must refer to the base name.</p> <p>A PATCH that modifies the base name of the LUN is considered a rename operation.</p>
qtree	qtree	<p>The qtree in which the LUN is optionally located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.qtree.name</code> and/or <code>location.qtree.uuid</code> are specified in the same request, they must refer to the same qtree.</p> <p>A PATCH that modifies the qtree of the LUN is considered a rename operation.</p>

Name	Type	Description
volume	volume	<p>The volume in which the LUN is located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.volume.name</code> and/or <code>location.volume.uuid</code> are specified in the same request, they must refer to the same volume.</p> <p>A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.</p>

igroup

The initiator group to which the LUN is mapped.

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

lun_maps

A LUN map with which the LUN is associated.

Name	Type	Description
_links	_links	
igroup	igroup	The initiator group to which the LUN is mapped.
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.

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.

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.

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.

paths

The fully qualified LUN path names involved in the LUN movement.

Name	Type	Description
destination	string	The fully qualified path of the LUN movement destination composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

Name	Type	Description
source	string	The fully qualified path of the LUN movement source composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

failure

Error information provided if the asynchronous LUN movement operation fails.

Name	Type	Description
code	string	The error code.
message	string	The error message.

progress

Name	Type	Description
elapsed	integer	The amount of time, in seconds, that has elapsed since the start of the LUN movement.
failure	failure	Error information provided if the asynchronous LUN movement operation fails.
percent_complete	integer	The percentage complete of the LUN movement.
state	string	The state of the LUN movement. Valid in PATCH when an LUN movement is active. Set to <i>paused</i> to pause a LUN movement. Set to <i>replicating</i> to resume a paused LUN movement.
volume_snapshot_blocked	boolean	This property reports if volume Snapshot copies are blocked by the LUN movement. This property can be polled to identify when volume Snapshot copies can be resumed after beginning a LUN movement.

movement

This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property `name`, `location.volume.uuid`, or `location.volume.name`. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.

Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The `movement` sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.

While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the `movement` properties. The LUN movement operation can be further modified using a PATCH on the properties on the `movement` sub-object.

There is added cost to retrieving property values for `movement`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See [Requesting specific fields](#) to learn more.

Name	Type	Description
<code>max_throughput</code>	string	<p>The maximum data throughput that should be utilized in support of the LUN movement. This property can be used to throttle a transfer and limit its impact on the performance of the source and destination nodes. The specified value will be rounded up to the nearest megabyte.</p> <p>If this property is not specified in a POST that begins a LUN movement, throttling is not applied to the data transfer.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <p>This property is valid only in a POST that begins a LUN movement or a PATCH when a LUN movement is already in process.</p> <ul style="list-style-type: none">• Introduced in: 9.6

Name	Type	Description
paths	paths	The fully qualified LUN path names involved in the LUN movement.
progress	progress	

qos_policy

The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property `qos_policy.uuid` and `qos_policy.name` are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property `qos_policy.name` to an empty string ("") in a PATCH request. Valid in POST and PATCH.

Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.

Name	Type	Description
_links	_links	
name	string	The name of the QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set this property to an empty string ("") in a PATCH request. Valid in POST and PATCH.
uuid	string	The unique identifier of the QoS policy. Valid in POST and PATCH.

guarantee

Properties that request and report the space guarantee for the LUN.

Name	Type	Description
requested	boolean	The requested space reservation policy for the LUN. If <i>true</i> , a space reservation is requested for the LUN; if <i>false</i> , the LUN is thin provisioned. Guaranteeing a space reservation request for a LUN requires that the volume in which the LUN resides is also space reserved and that the fractional reserve for the volume is 100%. Valid in POST and PATCH.

Name	Type	Description
reserved	boolean	<p>Reports if the LUN is space guaranteed.</p> <p>If <i>true</i>, a space guarantee is requested and the containing volume and aggregate support the request. If <i>false</i>, a space guarantee is not requested or a space guarantee is requested and either the containing volume or aggregate do not support the request.</p>

space

The storage space related properties of the LUN.

Name	Type	Description
guarantee	guarantee	Properties that request and report the space guarantee for the LUN.
size	integer	<p>The total provisioned size of the LUN. The LUN size can be increased but not be made smaller using the REST interface.</p> <p>The maximum and minimum sizes listed here are the absolute maximum and absolute minimum sizes in bytes. The actual minimum and maximum sizes vary depending on the ONTAP version, ONTAP platform and the available space in the containing volume and aggregate. For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • example: 1073741824 • Max value: 140737488355328 • Min value: 4096 • Introduced in: 9.6

Name	Type	Description
used	integer	<p>The amount of space consumed by the main data stream of the LUN.</p> <p>This value is the total space consumed in the volume by the LUN, including filesystem overhead, but excluding prefix and suffix streams. Due to internal filesystem overhead and the many ways SAN filesystems and applications utilize blocks within a LUN, this value does not necessarily reflect actual consumption/availability from the perspective of the filesystem or application. Without specific knowledge of how the LUN blocks are utilized outside of ONTAP, this property should not be used as an indicator for an out-of-space condition.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • readOnly: 1 • Introduced in: 9.6

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

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.
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.

status

Status information about the LUN.

Name	Type	Description
container_state	string	The state of the volume and aggregate that contain the LUN. LUNs are only available when their containers are available.
mapped	boolean	Reports if the LUN is mapped to one or more initiator groups. There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.
read_only	boolean	Reports if the LUN allows only read access.
state	string	The state of the LUN. Normal states for a LUN are <i>online</i> and <i>offline</i> . Other states indicate errors.

svm

The SVM in which the LUN is located.

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

lun

A LUN is the logical representation of storage in a storage area network (SAN).

In ONTAP, a LUN is located within a volume. Optionally, it can be located within a qtree in a volume.

A LUN can be created to a specified size using thin or thick provisioning. A LUN can then be renamed, resized, cloned, and moved to a different volume. LUNs support the assignment of a quality of service (QoS) policy for performance management or a QoS policy can be assigned to the volume containing the

LUN. See the LUN object model to learn more about each of the properties supported by the LUN REST API.

A LUN must be mapped to an initiator group to grant access to the initiator group's initiators (client hosts). Initiators can then access the LUN and perform I/O over a Fibre Channel (FC) fabric using the Fibre Channel Protocol or a TCP/IP network using iSCSI.

Name	Type	Description
_links	_links	
auto_delete	boolean	<p>This property marks the LUN for auto deletion when the volume containing the LUN runs out of space. This is most commonly set on LUN clones.</p> <p>When set to <i>true</i>, the LUN becomes eligible for automatic deletion when the volume runs out of space. Auto deletion only occurs when the volume containing the LUN is also configured for auto deletion and free space in the volume decreases below a particular threshold.</p> <p>This property is optional in POST and PATCH. The default value for a new LUN is <i>false</i>.</p> <p>There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
class	string	The class of LUN. Only <i>regular</i> LUNs can be created using the REST API.

Name	Type	Description
clone	clone	<p>This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: <code>auto_delete</code>, <code>qos_policy</code>, and <code>space.guarantee.requested</code>.</p> <p>When used in a PATCH, the patched LUN's data is overwritten as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: <code>class</code>, <code>auto_delete</code>, <code>lun_maps</code>, <code>serial_number</code>, <code>status.state</code>, and <code>uuid</code>.</p> <p>Persistent reservations for the patched LUN are also preserved.</p>
comment	string	A configurable comment available for use by the administrator. Valid in POST and PATCH.
create_time	string	The time the LUN was created.

Name	Type	Description
enabled	boolean	<p>The enabled state of the LUN. LUNs can be disabled to prevent access to the LUN. Certain error conditions also cause the LUN to become disabled. If the LUN is disabled, you can consult the <code>state</code> property to determine if the LUN is administratively disabled (<i>offline</i>) or has become disabled as a result of an error. A LUN in an error condition can be brought online by setting the <code>enabled</code> property to <i>true</i> or brought administratively offline by setting the <code>enabled</code> property to <i>false</i>. Upon creation, a LUN is enabled by default. Valid in PATCH.</p>
location	location	<p>The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.</p> <ul style="list-style-type: none"> • Introduced in: 9.6
lun_maps	array[lun_maps]	<p>The LUN maps with which the LUN is associated.</p> <p>There is an added cost to retrieving property values for <code>lun_maps</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
metric	metric	<p>Performance numbers, such as IOPS latency and throughput.</p>

Name	Type	Description
movement	movement	<p>This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property <code>name</code>, <code>location.volume.uuid</code>, or <code>location.volume.name</code>. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.</p> <p>Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The <code>movement</code> sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.</p> <p>While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the <code>movement</code> properties. The LUN movement operation can be further modified using a PATCH on the properties on the <code>movement</code> sub-object.</p> <p>There is added cost to retrieving property values for <code>movement</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>

Name	Type	Description
name	string	<p>The fully qualified path name of the LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.</p> <p>A PATCH that modifies the qtree and/or base name portion of the LUN path is considered a rename operation.</p> <p>A PATCH that modifies the volume portion of the LUN path begins an asynchronous LUN movement operation.</p>
os_type	string	<p>The operating system type of the LUN.</p> <p>Required in POST when creating a LUN that is not a clone of another. Disallowed in POST when creating a LUN clone.</p>
qos_policy	qos_policy	<p>The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property <code>qos_policy.uuid</code> and <code>qos_policy.name</code> are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property <code>qos_policy.name</code> to an empty string ("") in a PATCH request. Valid in POST and PATCH.</p> <p>Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.</p>

Name	Type	Description
serial_number	string	The LUN serial number. The serial number is generated by ONTAP when the LUN is created. <ul style="list-style-type: none"> • maxLength: 12 • minLength: 12 • readOnly: 1 • Introduced in: 9.6
space	space	The storage space related properties of the LUN.
statistics	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.
status	status	Status information about the LUN.
svm	svm	The SVM in which the LUN is located.
uuid	string	The unique identifier of the LUN. The UUID is generated by ONTAP when the LUN is created. <ul style="list-style-type: none"> • example: 1cd8a442-86d1-11e0-ae1c-123478563412 • readOnly: 1 • Introduced in: 9.6

_links

Name	Type	Description
next	href	
self	href	

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
message	string	Message argument

error

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

Delete a LUN

DELETE /storage/luns/{uuid}

Introduced In: 9.6

Deletes a LUN.

Related ONTAP commands

- `lun delete`

Learn more

- [DOC /storage/luns](#)

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	The unique identifier of the LUN.

Name	Type	In	Required	Description
allow_delete_while_mapped	boolean	query	False	<p>Allows deletion of a mapped LUN. A mapped LUN might be in use. Deleting a mapped LUN also deletes the LUN map and makes the data no longer available. This might cause a disruption in the availability of data. This parameter should be used with caution.</p> <ul style="list-style-type: none"> • Default value:

Response

Status: 200, Ok

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
1254197	The LUN is mapped and cannot be deleted without specifying the <code>allow_delete_while_mapped</code> query parameter.
5374705	Deleting the LUN is not allowed because it is part of an application.
5374865	The LUN's aggregate is offline. The aggregate must be online to modify or remove the LUN.
5374866	The LUN's volume is offline. The volume must be online to modify or remove the LUN.
5374875	The specified LUN was not found.
5374876	The specified LUN 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

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 LUN properties or data

GET /storage/luns/{uuid}

Introduced In: 9.6

Retrieves a LUN.

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.

- `auto_delete`
- `lun_maps.*`
- `movement.*`
- `status.mapped`
- `statistics.*`
- `metric.*`

Related ONTAP commands

- `lun mapping show`
- `lun move show`
- `lun show`
- `volume file clone show-autodelete`

Learn more

- [DOC /storage/luns](#)

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	The unique identifier of the LUN to retrieve.
fields	array[string]	query	False	Specify the fields to return.

Response

Status: 200, Ok

Name	Type	Description
_links	_links	
auto_delete	boolean	<p>This property marks the LUN for auto deletion when the volume containing the LUN runs out of space. This is most commonly set on LUN clones.</p> <p>When set to <i>true</i>, the LUN becomes eligible for automatic deletion when the volume runs out of space. Auto deletion only occurs when the volume containing the LUN is also configured for auto deletion and free space in the volume decreases below a particular threshold.</p> <p>This property is optional in POST and PATCH. The default value for a new LUN is <i>false</i>.</p> <p>There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
class	string	The class of LUN. Only <i>regular</i> LUNs can be created using the REST API.

Name	Type	Description
clone	clone	<p>This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: <code>auto_delete</code>, <code>qos_policy</code>, and <code>space.guarantee.requested</code>.</p> <p>When used in a PATCH, the patched LUN's data is over-written as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: <code>class</code>, <code>auto_delete</code>, <code>lun_maps</code>, <code>serial_number</code>, <code>status.state</code>, and <code>uuid</code>.</p> <p>Persistent reservations for the patched LUN are also preserved.</p>
comment	string	A configurable comment available for use by the administrator. Valid in POST and PATCH.
create_time	string	The time the LUN was created.
enabled	boolean	<p>The enabled state of the LUN. LUNs can be disabled to prevent access to the LUN. Certain error conditions also cause the LUN to become disabled. If the LUN is disabled, you can consult the <code>state</code> property to determine if the LUN is administratively disabled (<i>offline</i>) or has become disabled as a result of an error. A LUN in an error condition can be brought online by setting the <code>enabled</code> property to <i>true</i> or brought administratively offline by setting the <code>enabled</code> property to <i>false</i>. Upon creation, a LUN is enabled by default. Valid in PATCH.</p>

Name	Type	Description
location	location	<p>The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.</p> <ul style="list-style-type: none"> • Introduced in: 9.6
lun_maps	array[lun_maps]	<p>The LUN maps with which the LUN is associated.</p> <p>There is an added cost to retrieving property values for <code>lun_maps</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
metric	metric	Performance numbers, such as IOPS latency and throughput.

Name	Type	Description
movement	movement	<p>This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property <code>name</code>, <code>location.volume.uuid</code>, or <code>location.volume.name</code>. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.</p> <p>Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The <code>movement</code> sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.</p> <p>While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the <code>movement</code> properties. The LUN movement operation can be further modified using a PATCH on the properties on the <code>movement</code> sub-object.</p> <p>There is added cost to retrieving property values for <code>movement</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>

Name	Type	Description
name	string	<p>The fully qualified path name of the LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.</p> <p>A PATCH that modifies the qtree and/or base name portion of the LUN path is considered a rename operation.</p> <p>A PATCH that modifies the volume portion of the LUN path begins an asynchronous LUN movement operation.</p>
os_type	string	<p>The operating system type of the LUN.</p> <p>Required in POST when creating a LUN that is not a clone of another. Disallowed in POST when creating a LUN clone.</p>
qos_policy	qos_policy	<p>The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property <code>qos_policy.uuid</code> and <code>qos_policy.name</code> are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property <code>qos_policy.name</code> to an empty string ("") in a PATCH request. Valid in POST and PATCH.</p> <p>Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.</p>

Name	Type	Description
serial_number	string	<p>The LUN serial number. The serial number is generated by ONTAP when the LUN is created.</p> <ul style="list-style-type: none"> • maxLength: 12 • minLength: 12 • readOnly: 1 • Introduced in: 9.6
space	space	The storage space related properties of the LUN.
statistics	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.
status	status	Status information about the LUN.
svm	svm	The SVM in which the LUN is located.
uuid	string	<p>The unique identifier of the LUN. The UUID is generated by ONTAP when the LUN is created.</p> <ul style="list-style-type: none"> • example: 1cd8a442-86d1-11e0-ae1c-123478563412 • readOnly: 1 • Introduced in: 9.6

Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "class": "regular",
  "clone": {
    "source": {
      "name": "/vol/volume1/lun1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "comment": "string",
  "create_time": "2018-06-04T19:00:00Z",
  "location": {
    "logical_unit": "lun1",
    "qtree": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "id": "1",
      "name": "qt1"
    },
    "volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "volume1",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    }
  },
  "lun_maps": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "igroup": {
      "_links": {
```



```
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "igroup1",
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
},
"logical_unit_number": 0
},
"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"
},
"movement": {
  "paths": {
    "destination": "/vol/vol1/lun1",
    "source": "/vol/vol2/lun2"
  },
  "progress": {
    "elapsed": 0,
    "failure": {
      "code": "4",
      "message": "Destination volume is offline."
    },
    "percent_complete": 0,
  }
}
```

```

    "state": "preparing"
  }
},
"name": "/vol/volume1/qtrees/lun1",
"os_type": "aix",
"qos_policy": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "qos1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"serial_number": "string",
"space": {
  "size": "1073741824",
  "used": 0
},
"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"
},
"status": {
  "container_state": "online",
  "state": "online"
},
"svm": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  }
}

```

```

    }
  },
  "name": "svm1",
  "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
},
"uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}

```

Error

Status: Default

ONTAP Error Response Codes

Error Code	Description
5374875	The specified LUN was not found.
5374876	The specified LUN 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	

source

The source LUN for a LUN clone operation. This can be specified using property `clone.source.uuid` or `clone.source.name`. If both properties are supplied, they must refer to the same LUN.

Valid in POST to create a new LUN as a clone of the source.

Valid in PATCH to overwrite an existing LUN's data as a clone of another.

Name	Type	Description
name	string	The fully qualified path name of the clone source LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the clone source LUN. Valid in POST and PATCH.

clone

This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: `auto_delete`, `qos_policy`, and `space.guarantee.requested`.

When used in a PATCH, the patched LUN's data is over-written as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: `class`, `auto_delete`, `lun_maps`, `serial_number`, `status.state`, and `uuid`.

Persistent reservations for the patched LUN are also preserved.

Name	Type	Description
source	source	<p>The source LUN for a LUN clone operation. This can be specified using property <code>clone.source.uuid</code> or <code>clone.source.name</code>. If both properties are supplied, they must refer to the same LUN.</p> <p>Valid in POST to create a new LUN as a clone of the source.</p> <p>Valid in PATCH to overwrite an existing LUN's data as a clone of another.</p>

qtree

The qtree in which the LUN is optionally located. Valid in POST and PATCH.

If properties `name` and `location.qtree.name` and/or `location.qtree.uuid` are specified in the same request, they must refer to the same qtree.

A PATCH that modifies the qtree of the LUN is considered a rename operation.

Name	Type	Description
_links	_links	
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree.

volume

The volume in which the LUN is located. Valid in POST and PATCH.

If properties `name` and `location.volume.name` and/or `location.volume.uuid` are specified in the same request, they must refer to the same volume.

A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.

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

location

The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.

Name	Type	Description
logical_unit	string	<p>The base name component of the LUN. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.logical_unit</code> are specified in the same request, they must refer to the base name.</p> <p>A PATCH that modifies the base name of the LUN is considered a rename operation.</p>
qtree	qtree	<p>The qtree in which the LUN is optionally located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.qtree.name</code> and/or <code>location.qtree.uuid</code> are specified in the same request, they must refer to the same qtree.</p> <p>A PATCH that modifies the qtree of the LUN is considered a rename operation.</p>

Name	Type	Description
volume	volume	<p>The volume in which the LUN is located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.volume.name</code> and/or <code>location.volume.uuid</code> are specified in the same request, they must refer to the same volume.</p> <p>A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.</p>

igroup

The initiator group to which the LUN is mapped.

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

lun_maps

A LUN map with which the LUN is associated.

Name	Type	Description
_links	_links	
igroup	igroup	The initiator group to which the LUN is mapped.
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.

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.

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.

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.

paths

The fully qualified LUN path names involved in the LUN movement.

Name	Type	Description
destination	string	The fully qualified path of the LUN movement destination composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

Name	Type	Description
source	string	The fully qualified path of the LUN movement source composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

failure

Error information provided if the asynchronous LUN movement operation fails.

Name	Type	Description
code	string	The error code.
message	string	The error message.

progress

Name	Type	Description
elapsed	integer	The amount of time, in seconds, that has elapsed since the start of the LUN movement.
failure	failure	Error information provided if the asynchronous LUN movement operation fails.
percent_complete	integer	The percentage complete of the LUN movement.
state	string	The state of the LUN movement. Valid in PATCH when an LUN movement is active. Set to <i>paused</i> to pause a LUN movement. Set to <i>replicating</i> to resume a paused LUN movement.
volume_snapshot_blocked	boolean	This property reports if volume Snapshot copies are blocked by the LUN movement. This property can be polled to identify when volume Snapshot copies can be resumed after beginning a LUN movement.

movement

This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property `name`, `location.volume.uuid`, or `location.volume.name`. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.

Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The `movement` sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.

While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the `movement` properties. The LUN movement operation can be further modified using a PATCH on the properties on the `movement` sub-object.

There is added cost to retrieving property values for `movement`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See [Requesting specific fields](#) to learn more.

Name	Type	Description
<code>max_throughput</code>	string	<p>The maximum data throughput that should be utilized in support of the LUN movement. This property can be used to throttle a transfer and limit its impact on the performance of the source and destination nodes. The specified value will be rounded up to the nearest megabyte.</p> <p>If this property is not specified in a POST that begins a LUN movement, throttling is not applied to the data transfer.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <p>This property is valid only in a POST that begins a LUN movement or a PATCH when a LUN movement is already in process.</p> <ul style="list-style-type: none">• Introduced in: 9.6

Name	Type	Description
paths	paths	The fully qualified LUN path names involved in the LUN movement.
progress	progress	

qos_policy

The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property `qos_policy.uuid` and `qos_policy.name` are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property `qos_policy.name` to an empty string ("") in a PATCH request. Valid in POST and PATCH.

Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.

Name	Type	Description
_links	_links	
name	string	The name of the QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set this property to an empty string ("") in a PATCH request. Valid in POST and PATCH.
uuid	string	The unique identifier of the QoS policy. Valid in POST and PATCH.

guarantee

Properties that request and report the space guarantee for the LUN.

Name	Type	Description
requested	boolean	The requested space reservation policy for the LUN. If <i>true</i> , a space reservation is requested for the LUN; if <i>false</i> , the LUN is thin provisioned. Guaranteeing a space reservation request for a LUN requires that the volume in which the LUN resides is also space reserved and that the fractional reserve for the volume is 100%. Valid in POST and PATCH.

Name	Type	Description
reserved	boolean	<p>Reports if the LUN is space guaranteed.</p> <p>If <i>true</i>, a space guarantee is requested and the containing volume and aggregate support the request. If <i>false</i>, a space guarantee is not requested or a space guarantee is requested and either the containing volume or aggregate do not support the request.</p>

space

The storage space related properties of the LUN.

Name	Type	Description
guarantee	guarantee	Properties that request and report the space guarantee for the LUN.
size	integer	<p>The total provisioned size of the LUN. The LUN size can be increased but not be made smaller using the REST interface.</p> <p>The maximum and minimum sizes listed here are the absolute maximum and absolute minimum sizes in bytes. The actual minimum and maximum sizes vary depending on the ONTAP version, ONTAP platform and the available space in the containing volume and aggregate. For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • example: 1073741824 • Max value: 140737488355328 • Min value: 4096 • Introduced in: 9.6

Name	Type	Description
used	integer	<p>The amount of space consumed by the main data stream of the LUN.</p> <p>This value is the total space consumed in the volume by the LUN, including filesystem overhead, but excluding prefix and suffix streams. Due to internal filesystem overhead and the many ways SAN filesystems and applications utilize blocks within a LUN, this value does not necessarily reflect actual consumption/availability from the perspective of the filesystem or application. Without specific knowledge of how the LUN blocks are utilized outside of ONTAP, this property should not be used as an indicator for an out-of-space condition.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • readOnly: 1 • Introduced in: 9.6

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

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.
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.

status

Status information about the LUN.

Name	Type	Description
container_state	string	The state of the volume and aggregate that contain the LUN. LUNs are only available when their containers are available.
mapped	boolean	Reports if the LUN is mapped to one or more initiator groups. There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.
read_only	boolean	Reports if the LUN allows only read access.
state	string	The state of the LUN. Normal states for a LUN are <i>online</i> and <i>offline</i> . Other states indicate errors.

svm

The SVM in which the LUN is located.

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 an existing LUN

PATCH /storage/luns/{uuid}

Introduced In: 9.6

Updates the properties of a LUN. A PATCH request can also be used to overwrite the contents of a LUN as a clone of another, to begin movement of a LUN between volumes, and to pause and resume the movement of a LUN between volumes.

Related ONTAP commands

- lun modify
- lun move modify
- lun move pause
- lun move resume
- lun move start
- lun resize
- volume file clone autodelete

Learn more

- [DOC /storage/luns](#)

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	The unique identifier of the LUN to update.

Request Body

Name	Type	Description
_links	_links	
auto_delete	boolean	<p>This property marks the LUN for auto deletion when the volume containing the LUN runs out of space. This is most commonly set on LUN clones.</p> <p>When set to <i>true</i>, the LUN becomes eligible for automatic deletion when the volume runs out of space. Auto deletion only occurs when the volume containing the LUN is also configured for auto deletion and free space in the volume decreases below a particular threshold.</p> <p>This property is optional in POST and PATCH. The default value for a new LUN is <i>false</i>.</p> <p>There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
class	string	The class of LUN. Only <i>regular</i> LUNs can be created using the REST API.

Name	Type	Description
clone	clone	<p>This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: <code>auto_delete</code>, <code>qos_policy</code>, and <code>space.guarantee.requested</code>.</p> <p>When used in a PATCH, the patched LUN's data is over-written as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: <code>class</code>, <code>auto_delete</code>, <code>lun_maps</code>, <code>serial_number</code>, <code>status.state</code>, and <code>uuid</code>.</p> <p>Persistent reservations for the patched LUN are also preserved.</p>
comment	string	A configurable comment available for use by the administrator. Valid in POST and PATCH.
create_time	string	The time the LUN was created.
enabled	boolean	<p>The enabled state of the LUN. LUNs can be disabled to prevent access to the LUN. Certain error conditions also cause the LUN to become disabled. If the LUN is disabled, you can consult the <code>state</code> property to determine if the LUN is administratively disabled (<i>offline</i>) or has become disabled as a result of an error. A LUN in an error condition can be brought online by setting the <code>enabled</code> property to <i>true</i> or brought administratively offline by setting the <code>enabled</code> property to <i>false</i>. Upon creation, a LUN is enabled by default. Valid in PATCH.</p>

Name	Type	Description
location	location	<p>The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.</p> <ul style="list-style-type: none"> • Introduced in: 9.6
lun_maps	array[lun_maps]	<p>The LUN maps with which the LUN is associated.</p> <p>There is an added cost to retrieving property values for <code>lun_maps</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
metric	metric	Performance numbers, such as IOPS latency and throughput.

Name	Type	Description
movement	movement	<p>This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property <code>name</code>, <code>location.volume.uuid</code>, or <code>location.volume.name</code>. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.</p> <p>Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The <code>movement</code> sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.</p> <p>While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the <code>movement</code> properties. The LUN movement operation can be further modified using a PATCH on the properties on the <code>movement</code> sub-object.</p> <p>There is added cost to retrieving property values for <code>movement</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>

Name	Type	Description
name	string	<p>The fully qualified path name of the LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.</p> <p>A PATCH that modifies the qtree and/or base name portion of the LUN path is considered a rename operation.</p> <p>A PATCH that modifies the volume portion of the LUN path begins an asynchronous LUN movement operation.</p>
os_type	string	<p>The operating system type of the LUN.</p> <p>Required in POST when creating a LUN that is not a clone of another. Disallowed in POST when creating a LUN clone.</p>
qos_policy	qos_policy	<p>The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property <code>qos_policy.uuid</code> and <code>qos_policy.name</code> are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property <code>qos_policy.name</code> to an empty string ("") in a PATCH request. Valid in POST and PATCH.</p> <p>Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.</p>

Name	Type	Description
serial_number	string	<p>The LUN serial number. The serial number is generated by ONTAP when the LUN is created.</p> <ul style="list-style-type: none"> • maxLength: 12 • minLength: 12 • readOnly: 1 • Introduced in: 9.6
space	space	The storage space related properties of the LUN.
statistics	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.
status	status	Status information about the LUN.
svm	svm	The SVM in which the LUN is located.
uuid	string	<p>The unique identifier of the LUN. The UUID is generated by ONTAP when the LUN is created.</p> <ul style="list-style-type: none"> • example: 1cd8a442-86d1-11e0-ae1c-123478563412 • readOnly: 1 • Introduced in: 9.6

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "class": "regular",
  "clone": {
    "source": {
      "name": "/vol/volume1/lun1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "comment": "string",
  "create_time": "2018-06-04T19:00:00Z",
  "location": {
    "logical_unit": "lun1",
    "qtree": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "id": "1",
      "name": "qt1"
    },
    "volume": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "volume1",
      "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
    }
  },
  "lun_maps": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "igroup": {
      "_links": {
```

```
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "igroup1",
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
},
"logical_unit_number": 0
},
"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"
},
"movement": {
  "paths": {
    "destination": "/vol/vol1/lun1",
    "source": "/vol/vol2/lun2"
  },
  "progress": {
    "elapsed": 0,
    "failure": {
      "code": "4",
      "message": "Destination volume is offline."
    },
    "percent_complete": 0,

```

```

    "state": "preparing"
  }
},
"name": "/vol/volume1/qtrees/lun1",
"os_type": "aix",
"qos_policy": {
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "qos1",
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"serial_number": "string",
"space": {
  "size": "1073741824",
  "used": 0
},
"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"
},
"status": {
  "container_state": "online",
  "state": "online"
},
"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 Codes

Error Code	Description
917927	The specified volume was not found.
918236	The specified <code>location.volume.uuid</code> and <code>location.volume.name</code> do not refer to the same volume.
5242927	The specified <code>qtree</code> was not found.
5242950	The specified <code>location.qtree.id</code> and <code>location.qtree.name</code> do not refer to the same <code>qtree</code> .
5374124	The specified LUN size is too small.
5374125	The specified LUN size is too large.
5374130	An invalid size value was provided.
5374241	A size value with invalid units was provided.
5374480	Modifying the LUN is not allowed because it is in a foreign LUN import relationship.
5374858	The volume specified by <code>name</code> is not the same as that specified by <code>location.volume</code> .
5374860	The <code>qtree</code> specified by <code>name</code> is not the same as that specified by <code>location.qtree</code> .

Error Code	Description
5374861	The LUN base name specified by <code>name</code> is not the same as that specified by <code>location.logical_unit</code> .
5374864	An error occurred after successfully overwriting data for the LUN as a clone. Some properties were not modified.
5374865	The LUN's aggregate is offline. The aggregate must be online to modify or remove the LUN.
5374866	The LUN's volume is offline. The volume must be online to modify or remove the LUN.
5374874	The specified <code>clone.source.uuid</code> and <code>clone.source.name</code> do not refer to the same LUN.
5374875	The specified LUN was not found. This can apply to <code>clone.source</code> or the target LUN. The <code>target</code> property of the error object identifies the property.
5374876	The specified LUN was not found. This can apply to <code>clone.source</code> or the target LUN. The <code>target</code> property of the error object identifies the property.
5374885	An error occurred after successfully modifying some of the properties of the LUN. Some properties were not modified.
5374889	An invalid value was specified for <code>movement.progress.state</code> . Active LUN movement operations can be PATCHed to only <i>paused</i> or <i>replicating</i> .
5374892	An attempt was made to reduce the size of a LUN.
5374904	The destination volume is not online.
13565952	The LUN clone request failed.

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	

source

The source LUN for a LUN clone operation. This can be specified using property `clone.source.uuid` or `clone.source.name`. If both properties are supplied, they must refer to the same LUN.

Valid in POST to create a new LUN as a clone of the source.

Valid in PATCH to overwrite an existing LUN's data as a clone of another.

Name	Type	Description
name	string	The fully qualified path name of the clone source LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.
uuid	string	The unique identifier of the clone source LUN. Valid in POST and PATCH.

clone

This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: `auto_delete`, `qos_policy`, and `space.guarantee.requested`.

When used in a PATCH, the patched LUN's data is over-written as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: `class`, `auto_delete`, `lun_maps`, `serial_number`, `status.state`, and `uuid`.

Persistent reservations for the patched LUN are also preserved.

Name	Type	Description
source	source	<p>The source LUN for a LUN clone operation. This can be specified using property <code>clone.source.uuid</code> or <code>clone.source.name</code>. If both properties are supplied, they must refer to the same LUN.</p> <p>Valid in POST to create a new LUN as a clone of the source.</p> <p>Valid in PATCH to overwrite an existing LUN's data as a clone of another.</p>

qtree

The qtree in which the LUN is optionally located. Valid in POST and PATCH.

If properties `name` and `location.qtree.name` and/or `location.qtree.uuid` are specified in the same request, they must refer to the same qtree.

A PATCH that modifies the qtree of the LUN is considered a rename operation.

Name	Type	Description
_links	_links	
id	integer	The identifier for the qtree, unique within the qtree's volume.
name	string	The name of the qtree.

volume

The volume in which the LUN is located. Valid in POST and PATCH.

If properties `name` and `location.volume.name` and/or `location.volume.uuid` are specified in the same request, they must refer to the same volume.

A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.

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

location

The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.

Name	Type	Description
logical_unit	string	<p>The base name component of the LUN. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.logical_unit</code> are specified in the same request, they must refer to the base name.</p> <p>A PATCH that modifies the base name of the LUN is considered a rename operation.</p>
qtree	qtree	<p>The qtree in which the LUN is optionally located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.qtree.name</code> and/or <code>location.qtree.uuid</code> are specified in the same request, they must refer to the same qtree.</p> <p>A PATCH that modifies the qtree of the LUN is considered a rename operation.</p>

Name	Type	Description
volume	volume	<p>The volume in which the LUN is located. Valid in POST and PATCH.</p> <p>If properties <code>name</code> and <code>location.volume.name</code> and/or <code>location.volume.uuid</code> are specified in the same request, they must refer to the same volume.</p> <p>A PATCH that modifies the volume of the LUN begins an asynchronous LUN movement operation.</p>

igroup

The initiator group to which the LUN is mapped.

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

lun_maps

A LUN map with which the LUN is associated.

Name	Type	Description
_links	_links	
igroup	igroup	The initiator group to which the LUN is mapped.
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.

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.

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.

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.

paths

The fully qualified LUN path names involved in the LUN movement.

Name	Type	Description
destination	string	The fully qualified path of the LUN movement destination composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

Name	Type	Description
source	string	The fully qualified path of the LUN movement source composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN.

failure

Error information provided if the asynchronous LUN movement operation fails.

Name	Type	Description
code	string	The error code.
message	string	The error message.

progress

Name	Type	Description
elapsed	integer	The amount of time, in seconds, that has elapsed since the start of the LUN movement.
failure	failure	Error information provided if the asynchronous LUN movement operation fails.
percent_complete	integer	The percentage complete of the LUN movement.
state	string	The state of the LUN movement. Valid in PATCH when an LUN movement is active. Set to <i>paused</i> to pause a LUN movement. Set to <i>replicating</i> to resume a paused LUN movement.
volume_snapshot_blocked	boolean	This property reports if volume Snapshot copies are blocked by the LUN movement. This property can be polled to identify when volume Snapshot copies can be resumed after beginning a LUN movement.

movement

This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property `name`, `location.volume.uuid`, or `location.volume.name`. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.

Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The `movement` sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.

While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the `movement` properties. The LUN movement operation can be further modified using a PATCH on the properties on the `movement` sub-object.

There is added cost to retrieving property values for `movement`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See [Requesting specific fields](#) to learn more.

Name	Type	Description
<code>max_throughput</code>	string	<p>The maximum data throughput that should be utilized in support of the LUN movement. This property can be used to throttle a transfer and limit its impact on the performance of the source and destination nodes. The specified value will be rounded up to the nearest megabyte.</p> <p>If this property is not specified in a POST that begins a LUN movement, throttling is not applied to the data transfer.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <p>This property is valid only in a POST that begins a LUN movement or a PATCH when a LUN movement is already in process.</p> <ul style="list-style-type: none">• Introduced in: 9.6

Name	Type	Description
paths	paths	The fully qualified LUN path names involved in the LUN movement.
progress	progress	

qos_policy

The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property `qos_policy.uuid` and `qos_policy.name` are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property `qos_policy.name` to an empty string ("") in a PATCH request. Valid in POST and PATCH.

Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.

Name	Type	Description
_links	_links	
name	string	The name of the QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set this property to an empty string ("") in a PATCH request. Valid in POST and PATCH.
uuid	string	The unique identifier of the QoS policy. Valid in POST and PATCH.

guarantee

Properties that request and report the space guarantee for the LUN.

Name	Type	Description
requested	boolean	The requested space reservation policy for the LUN. If <i>true</i> , a space reservation is requested for the LUN; if <i>false</i> , the LUN is thin provisioned. Guaranteeing a space reservation request for a LUN requires that the volume in which the LUN resides is also space reserved and that the fractional reserve for the volume is 100%. Valid in POST and PATCH.

Name	Type	Description
reserved	boolean	<p>Reports if the LUN is space guaranteed.</p> <p>If <i>true</i>, a space guarantee is requested and the containing volume and aggregate support the request. If <i>false</i>, a space guarantee is not requested or a space guarantee is requested and either the containing volume or aggregate do not support the request.</p>

space

The storage space related properties of the LUN.

Name	Type	Description
guarantee	guarantee	Properties that request and report the space guarantee for the LUN.
size	integer	<p>The total provisioned size of the LUN. The LUN size can be increased but not be made smaller using the REST interface.</p> <p>The maximum and minimum sizes listed here are the absolute maximum and absolute minimum sizes in bytes. The actual minimum and maximum sizes vary depending on the ONTAP version, ONTAP platform and the available space in the containing volume and aggregate. For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • example: 1073741824 • Max value: 140737488355328 • Min value: 4096 • Introduced in: 9.6

Name	Type	Description
used	integer	<p>The amount of space consumed by the main data stream of the LUN.</p> <p>This value is the total space consumed in the volume by the LUN, including filesystem overhead, but excluding prefix and suffix streams. Due to internal filesystem overhead and the many ways SAN filesystems and applications utilize blocks within a LUN, this value does not necessarily reflect actual consumption/availability from the perspective of the filesystem or application. Without specific knowledge of how the LUN blocks are utilized outside of ONTAP, this property should not be used as an indicator for an out-of-space condition.</p> <p>For more information, see <i>Size properties</i> in the <i>docs</i> section of the ONTAP REST API documentation.</p> <ul style="list-style-type: none"> • readOnly: 1 • Introduced in: 9.6

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

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.
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.

status

Status information about the LUN.

Name	Type	Description
container_state	string	The state of the volume and aggregate that contain the LUN. LUNs are only available when their containers are available.
mapped	boolean	Reports if the LUN is mapped to one or more initiator groups. There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.
read_only	boolean	Reports if the LUN allows only read access.
state	string	The state of the LUN. Normal states for a LUN are <i>online</i> and <i>offline</i> . Other states indicate errors.

svm

The SVM in which the LUN is located.

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

lun

A LUN is the logical representation of storage in a storage area network (SAN).

In ONTAP, a LUN is located within a volume. Optionally, it can be located within a qtree in a volume.

A LUN can be created to a specified size using thin or thick provisioning. A LUN can then be renamed, resized, cloned, and moved to a different volume. LUNs support the assignment of a quality of service (QoS) policy for performance management or a QoS policy can be assigned to the volume containing the

LUN. See the LUN object model to learn more about each of the properties supported by the LUN REST API.

A LUN must be mapped to an initiator group to grant access to the initiator group's initiators (client hosts). Initiators can then access the LUN and perform I/O over a Fibre Channel (FC) fabric using the Fibre Channel Protocol or a TCP/IP network using iSCSI.

Name	Type	Description
_links	_links	
auto_delete	boolean	<p>This property marks the LUN for auto deletion when the volume containing the LUN runs out of space. This is most commonly set on LUN clones.</p> <p>When set to <i>true</i>, the LUN becomes eligible for automatic deletion when the volume runs out of space. Auto deletion only occurs when the volume containing the LUN is also configured for auto deletion and free space in the volume decreases below a particular threshold.</p> <p>This property is optional in POST and PATCH. The default value for a new LUN is <i>false</i>.</p> <p>There is an added cost to retrieving this property's value. It is not populated for either a collection GET or an instance GET unless it is explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
class	string	The class of LUN. Only <i>regular</i> LUNs can be created using the REST API.

Name	Type	Description
clone	clone	<p>This sub-object is used in POST to create a new LUN as a clone of an existing LUN, or PATCH to overwrite an existing LUN as a clone of another. Setting a property in this sub-object indicates that a LUN clone is desired. Consider the following other properties when cloning a LUN: <code>auto_delete</code>, <code>qos_policy</code>, and <code>space.guarantee.requested</code>.</p> <p>When used in a PATCH, the patched LUN's data is overwritten as a clone of the source and the following properties are preserved from the patched LUN unless otherwise specified as part of the PATCH: <code>class</code>, <code>auto_delete</code>, <code>lun_maps</code>, <code>serial_number</code>, <code>status.state</code>, and <code>uuid</code>.</p> <p>Persistent reservations for the patched LUN are also preserved.</p>
comment	string	A configurable comment available for use by the administrator. Valid in POST and PATCH.
create_time	string	The time the LUN was created.

Name	Type	Description
enabled	boolean	<p>The enabled state of the LUN. LUNs can be disabled to prevent access to the LUN. Certain error conditions also cause the LUN to become disabled. If the LUN is disabled, you can consult the <code>state</code> property to determine if the LUN is administratively disabled (<i>offline</i>) or has become disabled as a result of an error. A LUN in an error condition can be brought online by setting the <code>enabled</code> property to <i>true</i> or brought administratively offline by setting the <code>enabled</code> property to <i>false</i>. Upon creation, a LUN is enabled by default. Valid in PATCH.</p>
location	location	<p>The location of the LUN within the ONTAP cluster. Valid in POST and PATCH.</p> <ul style="list-style-type: none"> • Introduced in: 9.6
lun_maps	array[lun_maps]	<p>The LUN maps with which the LUN is associated.</p> <p>There is an added cost to retrieving property values for <code>lun_maps</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>
metric	metric	<p>Performance numbers, such as IOPS latency and throughput.</p>

Name	Type	Description
movement	movement	<p>This sub-object applies to LUN movement between volumes. A LUN can be moved to a new volume with a PATCH request that changes either the volume portion of property <code>name</code>, <code>location.volume.uuid</code>, or <code>location.volume.name</code>. If the volume is changed using more than one of these properties, the supplied properties used must refer to the same volume.</p> <p>Moving a LUN between volumes is an asynchronous activity begun by a PATCH request. The data for the LUN is then asynchronously copied from the source volume to the destination volume. The time required to complete the move depends on the size of the LUN and the load on the cluster. The <code>movement</code> sub-object is populated while a LUN movement is in progress and for two (2) minutes following completion of a movement.</p> <p>While the LUN is being moved, the status of the LUN movement operation can be obtained using a GET for the LUN that requests the <code>movement</code> properties. The LUN movement operation can be further modified using a PATCH on the properties on the <code>movement</code> sub-object.</p> <p>There is added cost to retrieving property values for <code>movement</code>. They are not populated for either a collection GET or an instance GET unless explicitly requested using the <code>fields</code> query parameter. See Requesting specific fields to learn more.</p>

Name	Type	Description
name	string	<p>The fully qualified path name of the LUN composed of a "/vol" prefix, the volume name, the (optional) qtree name, and base name of the LUN. Valid in POST and PATCH.</p> <p>A PATCH that modifies the qtree and/or base name portion of the LUN path is considered a rename operation.</p> <p>A PATCH that modifies the volume portion of the LUN path begins an asynchronous LUN movement operation.</p>
os_type	string	<p>The operating system type of the LUN.</p> <p>Required in POST when creating a LUN that is not a clone of another. Disallowed in POST when creating a LUN clone.</p>
qos_policy	qos_policy	<p>The QoS policy for the LUN. Both traditional and adaptive QoS policies are supported. If both property <code>qos_policy.uuid</code> and <code>qos_policy.name</code> are specified in the same request, they must refer to the same QoS policy. To remove the QoS policy from a LUN, leaving it with no QoS policy, set property <code>qos_policy.name</code> to an empty string ("") in a PATCH request. Valid in POST and PATCH.</p> <p>Note that a QoS policy can be set on a LUN, or a LUN's volume, but not both.</p>

Name	Type	Description
serial_number	string	The LUN serial number. The serial number is generated by ONTAP when the LUN is created. <ul style="list-style-type: none"> • maxLength: 12 • minLength: 12 • readOnly: 1 • Introduced in: 9.6
space	space	The storage space related properties of the LUN.
statistics	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.
status	status	Status information about the LUN.
svm	svm	The SVM in which the LUN is located.
uuid	string	The unique identifier of the LUN. The UUID is generated by ONTAP when the LUN is created. <ul style="list-style-type: none"> • example: 1cd8a442-86d1-11e0-ae1c-123478563412 • readOnly: 1 • Introduced in: 9.6

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Retrieve historical performance metrics for a LUN

GET /storage/luns/{uuid}/metrics

Introduced In: 9.7

Retrieves historical performance metrics for a LUN.

Parameters

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

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

Name	Type	In	Required	Description
interval	string	query	False	<p>The time range for the data. Examples can be 1h, 1d, 1m, 1w, 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, 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.

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