# Manage LUN attributes

## REST API reference

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# Manage LUN attributes

## Storage luns lun.uuid attributes endpoint overview

### Overview

LUN attributes are caller-defined name/value pairs optionally stored with a LUN. Attributes are available to persist small amounts of application-specific metadata. They are in no way interpreted by ONTAP.

Attribute names and values must be at least one byte and no more than 4091 bytes in length. The sum of the name and value lengths must be no more than 4092 bytes.

The LUN attributes REST API allows you to create, update, delete, and discover attributes for a LUN. The LUN REST API also allows you to set attributes when a LUN is first created.

### Examples

#### Retrieving all attributes from a LUN

This example uses the LUN attribute REST endpoint with the `fields` query parameter to request the names and values.

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

# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes?fields=*' -H 'Accept: application/hal+json'

# The response:
{
"records": [
  {
    "name": "name1",
    "value": "value1",
    "_links": {
      "self": {
        "href": "/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes/name1"
      }
    }
  },
  {
    "name": "name2",
    "value": "value2",
    "_links": {
      "self": {
        "href": "/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes/name2"
      }
    }
  }
],
"num_records": 2,
"_links": {
  "self": {
    "href": "/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes"
  }
}
}
```

This example uses the LUN REST endpoint with the `fields` query parameter to request the attributes properties.

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

# The call:
curl -X GET 'https://<mgmt-ip>/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90?fields=attributes' -H 'Accept: application/hal+json'

# The response:
{
"uuid": "4bc204df-ecd8-4f35-8207-d0ccb4db3a90",
"name": "/vol/vol1/lun1",
"attributes": [
  {
    "name": "name1",
    "value": "name1",
    "_links": {
      "self": {
        "href": "/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes/name1"
      }
    }
  },
  {
    "name": "name2",
    "value": "value2",
    "_links": {
      "self": {
        "href": "/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes/name2"
      }
    }
  }
],
"_links": {
  "self": {
    "href": "/api/storage/luns/4bc204df-ecd8-4f35-8207-d0ccb4db3a90"
  }
}
}
```

**Adding an attribute to a LUN**

```
# The API:
POST /api/storage/luns/{lun.uuid}/attributes

# The call:
curl -X POST 'https://<mgmt-ip>/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes?return_records=true' -H 'Accept:
application/hal+json' -d '{ "name": "name1", "value": "value1" }'

# The response:
{
"num_records": 1,
"records": [
  {
    "name": "name1",
    "value": "value1",
    "_links": {
      "self": {
        "href": "/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes/name1"
      }
    }
  }
]
}
```

#### Modifying an attribute value for a LUN

```
# The API
PATCH /api/storage/luns/{lun.uuid}/attributes/{name}

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/storage/luns/4bc204df-ecd8-4f35-8207-
d0ccb4db3a90/attributes/name1' -H 'Accept: application/hal+json' -d '{
"value": "newValue" }'
```

#### Deleting an attribute from a LUN

```
# The API:
DELETE /api/storage/luns/{lun.uuid}/attributes/{name}

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/storage/luns/4bc204df-ecd8-4f35-
8207-d0ccb4db3a90/attributes/name1' -H 'Accept: application/hal+json'
```

# Retrieve LUN attributes

GET `/storage/luns/{lun.uuid}/attributes`

**Introduced In:** 9.10

Retrieves LUN attributes.

## Learn more

- DOC /storage/luns/{lun.uuid}/attributes

## Parameters

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| lun.uuid | string | path | True | The unique identifier of the LUN. |
| value | string | query | False | Filter by value<br>• maxLength: 4091<br>• minLength: 1 |
| name | string | query | False | Filter by name<br>• maxLength: 4091<br>• minLength: 1 |
| fields | array[string] | query | False | Specify the fields to return. |
| max_records | integer | query | False | Limit the number of records returned. |

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| return_records | boolean | query | False | The default is true for GET calls. When set to false, only the number of records is returned.<br>• 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.<br>• Default value: 1<br>• Max value: 120<br>• Min value: 0 |
| order_by | array[string] | query | False | Order results by specified fields and optional [asc |

## Response

```
Status: 200, Ok
```

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| num_records | integer | The number of records in the response. |
| records | array[lun_attribute] | |

### Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "lun": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "name": "name1",
      "value": "value1"
    }
  ]
}
```


## 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 | |

lun

The LUN for which the attribute is set.

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| uuid | string | The unique identifier of the LUN. |

lun_attribute

A name/value pair optionally stored with the LUN. Attributes are available to callers to persist small amounts of application-specific metadata. They are in no way interpreted by ONTAP.

Attribute names and values must be at least one byte and no more than 4091 bytes in length. The sum of the name and value lengths must be no more than 4092 bytes.

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| lun | lun | The LUN for which the attribute is set. |
| name | string | The attribute name. Required in POST. |
| value | string | The attribute value. Required in POST; valid in PATCH. |

error_arguments

| Name | Type | Description |
|---|---|---|
| code | string | Argument code |
| message | string | Message argument |

error

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

# Add an attribute to a LUN

POST `/storage/luns/{lun.uuid}/attributes`

**Introduced In:** 9.10

Adds an attribute to a LUN.

## Required properties

- `name` - The name of the attribute to add.
- `value` - The value of the attribute to add.

## Learn more

- DOC /storage/luns/{lun.uuid}/attributes

## Parameters

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

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

## Request Body

| Name | Type | Description |
|---|---|---|
| lun | lun | The LUN for which the attribute is set. |
| name | string | The attribute name. Required in POST. |
| value | string | The attribute value. Required in POST; valid in PATCH. |

### Example request

```
{
  "lun": {
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "name": "name1",
  "value": "value1"
}
```

## Response

```
Status: 201, Created
```

| Name | Type | Description |
|---|---|---|
| num_records | integer | The number of records in the response. |
| records | array[lun_attribute] | |

### Example response


```
{
  "num_records": 1,
  "records": [
    {
      "lun": {
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "name": "name1",
      "value": "value1"
    }
  ]
}
```


### Headers

| Name | Description | Type |
|---|---|---|
| Location | Useful for tracking the resource location | string |

## Error

```
Status: Default
```

ONTAP Error Response Codes

| Error Code | Description |
|---|---|
| 5374875 | The specified LUN was not found. |
| 5374928 | An incomplete attribute name/value pair was supplied. |
| 5374929 | The combined sizes of an attribute name and value are too large. |
| 5374930 | The attribute already exists for the LUN. |

## Definitions

**See Definitions**

href

| Name | Type | Description |
|---|---|---|
| href | string | |

_links

lun

The LUN for which the attribute is set.

| Name | Type | Description |
|---|---|---|
| uuid | string | The unique identifier of the LUN. |

lun_attribute

A name/value pair optionally stored with the LUN. Attributes are available to callers to persist small amounts of application-specific metadata. They are in no way interpreted by ONTAP.

Attribute names and values must be at least one byte and no more than 4091 bytes in length. The sum of the name and value lengths must be no more than 4092 bytes.

| Name | Type | Description |
|---|---|---|
| lun | lun | The LUN for which the attribute is set. |
| name | string | The attribute name. Required in POST. |
| value | string | The attribute value. Required in POST; valid in PATCH. |

error_arguments

| Name | Type | Description |
|---|---|---|
| code | string | Argument code |
| message | string | Message argument |

error

| Name | Type | Description |
|---|---|---|
| arguments | array[error_arguments] | Message arguments |

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

# Delete a LUN attribute

DELETE `/storage/luns/{lun.uuid}/attributes/{name}`

**Introduced In:** 9.10

Deletes a LUN attribute.

## Learn more

- DOC /storage/luns/{lun.uuid}/attributes

## Parameters

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| lun.uuid | string | path | True | |
| name | string | path | True | |

## Response

```
Status: 200, Ok
```

## Error

```
Status: Default
```

ONTAP Error Response Codes

| Error Code | Description |
|---|---|
| 5374875 | The specified LUN was not found. |
| 5374931 | The specified attribute 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 a LUN attribute

GET `/storage/luns/{lun.uuid}/attributes/{name}`

**Introduced In:** 9.10

Retrieves a LUN attribute.

## Learn more

- DOC /storage/luns/{lun.uuid}/attributes

## Parameters

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

## Response

```
Status: 200, Ok
```

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| lun | lun | The LUN for which the attribute is set. |
| name | string | The attribute name. Required in POST. |
| value | string | The attribute value. Required in POST; valid in PATCH. |

**Example response**


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "lun": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "name": "name1",
  "value": "value1"
}
```


## Error

```
Status: Default
```

ONTAP Error Response Codes

| Error Code | Description |
| --- | --- |
| 5374875 | The specified LUN was not found. |
| 5374931 | The specified attribute 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 | |

lun

The LUN for which the attribute is set.

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| uuid | string | The unique identifier of the LUN. |

error_arguments

| Name | Type | Description |
|---|---|---|
| code | string | Argument code |
| message | string | Message argument |

error

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

# Update a LUN attribute value

PATCH `/storage/luns/{lun.uuid}/attributes/{name}`

**Introduced In:** 9.10

Updates a LUN attribute value.

## Learn more

- DOC /storage/luns/{lun.uuid}/attributes

## Parameters

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| lun.uuid | string | path | True | The unique identifier of the LUN. |
| name | string | path | True | The name of the attribute. |

## Request Body

| Name | Type | Description |
|---|---|---|
| lun | lun | The LUN for which the attribute is set. |
| value | string | The attribute value. Required in POST; valid in PATCH. |

**Example request**

```
{
  "lun": {
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "value": "value1"
}
```

## Response

```
Status: 200, Ok
```

## Error

```
Status: Default
```

ONTAP Error Response Codes

| Error Code | Description |
| --- | --- |
| 5374875 | The specified LUN was not found. |
| 5374929 | The combined sizes of an attribute name and value are too large. |
| 5374931 | The specified attribute was not found. |

## Definitions

**See Definitions**

href

| Name | Type | Description |
|---|---|---|
| href | string | |

_links

lun

The LUN for which the attribute is set.

| Name | Type | Description |
|---|---|---|
| uuid | string | The unique identifier of the LUN. |

lun_attribute

A name/value pair optionally stored with the LUN. Attributes are available to callers to persist small amounts of application-specific metadata. They are in no way interpreted by ONTAP.

Attribute names and values must be at least one byte and no more than 4091 bytes in length. The sum of the name and value lengths must be no more than 4092 bytes.

| Name | Type | Description |
|---|---|---|
| lun | lun | The LUN for which the attribute is set. |
| value | string | The attribute value. Required in POST; valid in PATCH. |

error_arguments

| Name | Type | Description |
|---|---|---|
| code | string | Argument code |
| message | string | Message argument |

error

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

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

# Retrieve 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 |
|---|---|---|---|---|
| uuid | string | path | True | Unique identifier of the LUN. |

| Name | Type | In | Required | Description |
| --- | --- | --- | --- | --- |
| interval | string | query | False | The time range for the data. Examples can be 1h, 1d, 1m, 1w, 1y. The period for each time range is as follows:<br>• 1h: Metrics over the most recent hour sampled over 15 seconds.<br>• 1d: Metrics over the most recent day sampled over 5 minutes.<br>• 1w: Metrics over the most recent week sampled over 30 minutes.<br>• 1m: Metrics over the most recent month sampled over 2 hours.<br>• 1y: Metrics over the most recent year sampled over a day.<br>• Default value: 1<br>• enum: ["1h", "1d", "1w", "1m", "1y"] |
| 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 |
| latency.total | integer | query | False | Filter by latency.total |
| throughput.read | integer | query | False | Filter by throughput.read |

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| throughput.other | integer | query | False | Filter by throughput.other |
| throughput.write | integer | query | False | Filter by throughput.write |
| throughput.total | integer | query | False | Filter by throughput.total |
| duration | string | query | False | Filter by duration |
| 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 |
| iops.total | integer | query | False | Filter by iops.total |
| timestamp | string | query | False | Filter by timestamp |
| status | string | query | False | Filter by status |
| 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.<br>• Default value: 1<br>• Max value: 120<br>• Min value: 0 |
| fields | array[string] | query | False | Specify the fields to return. |
| max_records | integer | query | False | Limit the number of records returned. |

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| order_by | array[string] | query | False | Order results by specified fields and optional [asc |
| desc] direction. Default direction is 'asc' for ascending. | return_records | boolean | query | False |

## Response

```
Status: 200, Ok
```

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

**Example response**


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "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": "2017-01-25 11:20:13 +0000",
      "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 | |

iops

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

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

latency

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

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

throughput

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

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

records

Performance numbers, such as IOPS latency and throughput.

| Name | Type | Description |
|---|---|---|
| _links | _links | |

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

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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