



# Retrieve users

## REST API reference

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# Retrieve users

## Storage volumes volume.uuid top-metrics users endpoint overview

### Overview

You can use this API to retrieve a list of users with the most IO activity for a specified volume. Use the `top_metric` parameter to specify which type of IO activity to filter for. This API is used to provide insight into IO activity and supports ordering by IO activity types, namely `iops` or `throughput` metrics. This API also supports only returning one IO activity type per request.

### Failure to return list of users with most IO activity

The API can sometimes fail to return the list of users with the most IO activity, due to the following reasons:

&ndash; The volume does not have the activity tracking feature enabled.

&ndash; The volume does not have read/write traffic.

&ndash; The read traffic is served by the NFS/CIFS client filesystem cache.

&ndash; On rare occasions, the incoming traffic pattern is not suitable to obtain the list of users with the most IO activity.

### Failure to return the usernames

The API can sometimes fail to obtain the usernames for the list of userid entries, due to internal transient errors. In such cases, instead of the username, the API will return "`{<user-id>}`" for every user entry.

### Retrieve a list of the users with the most IO activity

For a report on the users with the most IO activity returned in descending order, specify the IO activity type you want to filter for by passing the `iops` or `throughput` property into the `top_metric` parameter. If the IO activity type is not specified, by default the API returns a list of the users with the greatest number of the average read operations per second. The maximum number of users returned by the API for an IO activity type is 25.

&ndash; GET `/api/storage/volumes/{volume.uuid}/top-metrics/users`

### Examples

#### Retrieving a list of the users with the greatest average number of read bytes received per second:

```
# The API:  
GET /api/storage/volumes/{volume.uuid}/top-metrics/users  
  
# The Call:  
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-  
metrics/users?top_metric=throughput.read"
```

```

# The Response:
{
"records": [
{
  "volume": {
    "name": "vol1"
  },
  "throughput": {
    "read": 1495,
    "error": {
      "lower_bound": 1495,
      "upper_bound": 1502
    }
  },
  "user_id": "S-1-5-21-256008430-3394229847-3930036330-1001",
  "user_name": "John",
  "svm": {
    "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
    "name": "vs1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
      }
    }
  }
},
{
  "volume": {
    "name": "vol1"
  },
  "throughput": {
    "read": 1022,
    "error": {
      "lower_bound": 1022,
      "upper_bound": 1025
    }
  },
  "user_id": "1988",
  "user_name": "Ryan",
  "svm": {
    "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
    "name": "vs1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
      }
    }
  }
}
]
}

```

```

        }
    },
},
{
    "volume": {
        "name": "vol1"
    },
    "throughput": {
        "read": 345,
        "error": {
            "lower_bound": 345,
            "upper_bound": 348
        }
    },
    "user_id": "S-1-5-21-256008430-3394229847-3930036330-1003",
    "user_name": "Julie",
    "svm": {
        "uuid": "572361f3-e769-439d-9c04-2ba48a08ff43",
        "name": "vs1",
        "_links": {
            "self": {
                "href": "/api/svm/svms/572361f3-e769-439d-9c04-2ba48a08ff43"
            }
        }
    }
},
],
"num_records": 3,
"_links": {
    "self": {
        "href": "/api/storage/volumes/73b293df-e9d7-46cc-a9ce-2df8e52ef864/top-metrics/users?top_metric=throughput.read"
    }
}
}

```

**Example showing the behavior of the API when there is no read/write traffic:**

```

# The Call:
curl -X GET "https://<mgmt-ip>/api/storage/volumes/{volume.uuid}/top-
metrics/users?top_metric=throughput.write"

# The Response:
{
  "records": [
  ],
  "num_records": 0,
  "notice": {
    "message": "The activity tracking report for volume \"FV\" in SVM
\"vs0\" returned zero records. Check whether the volume have read/write
traffic. Refer to the REST API documentation for more information on why
there might be no records.",
    "code": "124518418"
  },
  "_links": {
    "self": {
      "href": "/api/storage/volumes/9af63729-8ac8-11ec-b1bc-
005056a79da4/top-metrics/users?top_metric=throughput.write"
    }
  }
}

```

## Retrieve users with the most I/O activity

GET /storage/volumes/{volume.uuid}/top-metrics/users

**Introduced In:** 9.10

Retrieves a list of users with the most IO activity.

### Parameters

| Name        | Type   | In   | Required | Description |
|-------------|--------|------|----------|-------------|
| volume.uuid | string | path | True     | Volume UUID |

| Name                         | Type    | In    | Required | Description   |
|------------------------------|---------|-------|----------|---|
| top_metric                   | string  | query | False    | IO activity type <ul style="list-style-type: none"> <li>• Default value: 1</li> <li>• enum: ["iops.read", "iops.write", "throughput.read", "throughput.write"]</li> </ul> |
| iops.error.lower_bound       | integer | query | False    | Filter by iops.error.lower_bound  |
| iops.error.upper_bound       | integer | query | False    | Filter by iops.error.upper_bound  |
| iops.read                    | integer | query | False    | Filter by iops.read   |
| iops.write                   | integer | query | False    | Filter by iops.write  |
| svm.uuid                     | string  | query | False    | Filter by svm.uuid  |
| svm.name                     | string  | query | False    | Filter by svm.name  |
| volume.name                  | string  | query | False    | Filter by volume.name   |
| user_id                      | string  | query | False    | Filter by user_id   |
| user_name                    | string  | query | False    | Filter by user_name   |
| throughput.read              | integer | query | False    | Filter by throughput.read   |
| throughput.write             | integer | query | False    | Filter by throughput.write  |
| throughput.error.lower_bound | integer | query | False    | Filter by throughput.error.lower_bound  |

| Name                         | Type          | In    | Required | Description  |
|------------------------------|---------------|-------|----------|--|
| throughput.error.upper_bound | integer       | query | False    | Filter by throughput.error.upper_bound   |
| fields                       | array[string] | query | False    | Specify the fields to return.  |
| max_records                  | integer       | query | False    | Limit the number of records returned.  |
| return_records               | boolean       | query | False    | <p>The default is true for GET calls. When set to false, only the number of records is returned.</p> <ul style="list-style-type: none"> <li>Default value: 1</li> </ul>  |
| return_timeout               | integer       | query | False    | <p>The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached.</p> <ul style="list-style-type: none"> <li>Default value: 1</li> <li>Max value: 120</li> <li>Min value: 0</li> </ul> |
| order_by                     | array[string] | query | False    | Order results by specified fields and optional [asc  |

## Response

Status: 200, Ok

| Name        | Type                                      | Description   |
|-------------|---|---|
| _links      | <a href="#">_links</a>                    |   |
| notice      | <a href="#">notice</a>                    | Optional field that indicates why no records are returned by the volume activity tracking REST API. |
| num_records | integer                                   | Number of records.  |
| records     | array[ <a href="#">top_metrics_user</a> ] |   |

## Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "notice": {
    "code": "111411207",
    "message": "No read/write traffic on volume."
  },
  "records": [
    {
      "iops": {
        "error": {
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 4,
        "write": 8
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svml",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "throughput": {
        "error": {
          "lower_bound": 34,
          "upper_bound": 54
        },
        "read": 10,
        "write": 7
      },
      "user_id": "S-1-5-21-256008430-3394229847-3930036330-1001",
      "user_name": "James",
      "volume": {
        "links": {
          "self": {
            "href": "/api/volume"
          }
        }
      }
    }
  ]
}
```

```

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

```

## Error

Status: Default, Error

| Name  | Type  | Description |
|-------|-------|-------------|
| error | error |             |

### Example error

```

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

```

## Definitions

## See Definitions

href

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

\_links

| Name | Type                 | Description |
|------|----------------------|-------------|
| next | <a href="#">href</a> |             |
| self | <a href="#">href</a> |             |

notice

Optional field that indicates why no records are returned by the volume activity tracking REST API.

| Name    | Type   | Description  |
|---------|--------|--|
| code    | string | Warning code indicating why no records are returned. |
| message | string | Details why no records are returned.                 |

top\_metric\_value\_error\_bounds

| Name        | Type    | Description                                   |
|-------------|---------|---|
| lower_bound | integer | Lower bound of the nominal value of a metric. |
| upper_bound | integer | Upper bound of the nominal value of a metric. |

iops

| Name  | Type  | Description                                    |
|-------|---|--|
| error | <a href="#">top_metric_value_error_bounds</a> |  |
| read  | integer                                       | Average number of read operations per second.  |
| write | integer                                       | Average number of write operations per second. |

\_links

| Name | Type | Description |
|------|------|-------------|
| self | href |             |

svm

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

throughput

| Name  | Type                          | Description  |
|-------|-------------------------------|--|
| error | top_metric_value_error_bounds |  |
| read  | integer                       | Average number of read bytes received per second.  |
| write | integer                       | Average number of write bytes received per second. |

volume

| Name   | Type   | Description  |
|--------|--------|--|
| _links | _links |  |
| name   | string | The name of the volume.  |
| uuid   | string | <p>Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move.</p> <ul style="list-style-type: none"> <li>example: 028baa66-41bd-11e9-81d5-00a0986138f7</li> <li>Introduced in: 9.6</li> </ul> |

top\_metrics\_user

Information about a user's IO activity.

| Name | Type | Description |
|------|------|-------------|
| iops | iops |             |

| Name       | Type       | Description          |
|------------|------------|----------------------|
| svm        | svm        |                      |
| throughput | throughput |                      |
| user_id    | string     | User ID of the user. |
| user_name  | string     | Name of the user.    |
| volume     | volume     |                      |

error\_arguments

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

error

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

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