Manage NFS services

REST API reference

NetApp
September 12, 2025

Table of Contents

Manage NFS services

Protocols NFS services endpoint overview

Retrieving an NFS configuration

```
# The API:
GET /api/protocols/nfs/services

# The call:
curl -X GET "https://<mgmt-ip>/api/protocols/nfs/services"
```

Creating an NFS configuration for an SVM

```
# The API:
POST /api/protocols/nfs/services

# The call:
curl  -d "@test_nfs_post.txt" -X POST "https://<mgmt-
ip>/api/protocols/nfs/services"
test_nfs_post.txt(body):
{
"svm": {
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
},
"protocol": {
  "v4_id_domain": "nfs-nsr-w01.rtp.netapp.com"
},
"vstorage_enabled": "true"
}
```

Updating an NFS configuration for an SVM

```
# The API:
PATCH /api/protocols/nfs/services/{svm.uuid}

# The call:
curl -d "@test_nfs_patch.txt" -X PATCH "https://<mgmt-
ip>/api/protocols/nfs/services/4a415601-548c-11e8-a21d-0050568bcbc9"
test_nfs_patch.txt(body):
{
"protocol": {
  "v4_id_domain": "nfs-nsr-w01.rtp.netapp.com"
},
"vstorage_enabled": "false"
}
```

Deleting an NFS configuration for an SVM

```
# The API:
DELETE /api/protocols/nfs/services/{svm.uuid}

# The call:
curl -X DELETE "https://<mgmt-ip>/api/protocols/nfs/services/4a415601-
548c-11e8-a21d-0050568bcbc9"
```

Performance monitoring

Performance of the SVM can be monitored by the `metric.*` and `statistics.*` properties. These show the performance of the SVM in terms of IOPS, latency and throughput. The `metric.*` properties denote an average whereas `statistics.*` properties denote a real-time monotonically increasing value aggregated across all nodes.

Retrieve NFS configuration for SVMs

GET `/protocols/nfs/services`

Introduced In: 9.6

Retrieves the NFS configuration of SVMs.

Expensive properties

There is an added cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `statistics.*`

- `metric.*`

Related ONTAP commands

- `vserver nfs show`
- `vserver nfs status`

Learn more

- DOC /protocols/nfs/services

Parameters

Name	Type	In	Required	Description
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
positive_cached_credential_ttl	integer	query	False	Filter by positive_cached_credential_ttl • Introduced in: 9.8
transport.tcp_enabled	boolean	query	False	Filter by transport.tcp_enabled
transport.udp_enabled	boolean	query	False	Filter by transport.udp_enabled
enabled	boolean	query	False	Filter by enabled
statistics.v4.timestamp	string	query	False	Filter by statistics.v4.timestamp • Introduced in: 9.8
statistics.v4.iops_raw.total	integer	query	False	Filter by statistics.v4.iops_raw.total • Introduced in: 9.8

Name	Type	In	Required	Description
statistics.v4.iops_raw.other	integer	query	False	Filter by statistics.v4.iops_raw.other • Introduced in: 9.8
statistics.v4.iops_raw.read	integer	query	False	Filter by statistics.v4.iops_raw.read • Introduced in: 9.8
statistics.v4.iops_raw.write	integer	query	False	Filter by statistics.v4.iops_raw.write • Introduced in: 9.8
statistics.v4.latency_raw.total	integer	query	False	Filter by statistics.v4.latency_raw.total • Introduced in: 9.8
statistics.v4.latency_raw.other	integer	query	False	Filter by statistics.v4.latency_raw.other • Introduced in: 9.8
statistics.v4.latency_raw.read	integer	query	False	Filter by statistics.v4.latency_raw.read • Introduced in: 9.8
statistics.v4.latency_raw.write	integer	query	False	Filter by statistics.v4.latency_raw.write • Introduced in: 9.8

Name	Type	In	Required	Description
statistics.v4.status	string	query	False	Filter by statistics.v4.status • Introduced in: 9.8
statistics.v4.throughput_raw.total	integer	query	False	Filter by statistics.v4.throughput_raw.total • Introduced in: 9.8
statistics.v4.throughput_raw.read	integer	query	False	Filter by statistics.v4.throughput_raw.read • Introduced in: 9.8
statistics.v4.throughput_raw.write	integer	query	False	Filter by statistics.v4.throughput_raw.write • Introduced in: 9.8
statistics.v3.timestamp	string	query	False	Filter by statistics.v3.timestamp • Introduced in: 9.7
statistics.v3.iops_raw.total	integer	query	False	Filter by statistics.v3.iops_raw.total • Introduced in: 9.7
statistics.v3.iops_raw.other	integer	query	False	Filter by statistics.v3.iops_raw.other • Introduced in: 9.7

Name	Type	In	Required	Description
statistics.v3.iops_raw.read	integer	query	False	Filter by statistics.v3.iops_raw.read • Introduced in: 9.7
statistics.v3.iops_raw.write	integer	query	False	Filter by statistics.v3.iops_raw.write • Introduced in: 9.7
statistics.v3.latency_raw.total	integer	query	False	Filter by statistics.v3.latency_raw.total • Introduced in: 9.7
statistics.v3.latency_raw.other	integer	query	False	Filter by statistics.v3.latency_raw.other • Introduced in: 9.7
statistics.v3.latency_raw.read	integer	query	False	Filter by statistics.v3.latency_raw.read • Introduced in: 9.7
statistics.v3.latency_raw.write	integer	query	False	Filter by statistics.v3.latency_raw.write • Introduced in: 9.7
statistics.v3.status	string	query	False	Filter by statistics.v3.status • Introduced in: 9.7

Name	Type	In	Required	Description
statistics.v3.throughput_raw.total	integer	query	False	Filter by statistics.v3.throughput_raw.total • Introduced in: 9.7
statistics.v3.throughput_raw.read	integer	query	False	Filter by statistics.v3.throughput_raw.read • Introduced in: 9.7
statistics.v3.throughput_raw.write	integer	query	False	Filter by statistics.v3.throughput_raw.write • Introduced in: 9.7
statistics.v41.timestamp	string	query	False	Filter by statistics.v41.timestamp • Introduced in: 9.8
statistics.v41.iops_raw.total	integer	query	False	Filter by statistics.v41.iops_raw.total • Introduced in: 9.8
statistics.v41.iops_raw.other	integer	query	False	Filter by statistics.v41.iops_raw.other • Introduced in: 9.8
statistics.v41.iops_raw.read	integer	query	False	Filter by statistics.v41.iops_raw.read • Introduced in: 9.8

Name	Type	In	Required	Description
statistics.v41.iops_raw.write	integer	query	False	Filter by statistics.v41.iops_raw.write • Introduced in: 9.8
statistics.v41.latency_raw.total	integer	query	False	Filter by statistics.v41.latency_raw.total • Introduced in: 9.8
statistics.v41.latency_raw.other	integer	query	False	Filter by statistics.v41.latency_raw.other • Introduced in: 9.8
statistics.v41.latency_raw.read	integer	query	False	Filter by statistics.v41.latency_raw.read • Introduced in: 9.8
statistics.v41.latency_raw.write	integer	query	False	Filter by statistics.v41.latency_raw.write • Introduced in: 9.8
statistics.v41.status	string	query	False	Filter by statistics.v41.status • Introduced in: 9.8
statistics.v41.throughput_raw.total	integer	query	False	Filter by statistics.v41.throughput_raw.total • Introduced in: 9.8

Name	Type	In	Required	Description
statistics.v41.throughput_raw.read	integer	query	False	Filter by statistics.v41.throughput_raw.read • Introduced in: 9.8
statistics.v41.throughput_raw.write	integer	query	False	Filter by statistics.v41.throughput_raw.write • Introduced in: 9.8
protocol.v40_features.acl_enabled	boolean	query	False	Filter by protocol.v40_features.acl_enabled
protocol.v40_features.write_delegation_enabled	boolean	query	False	Filter by protocol.v40_features.write_delegation_enabled
protocol.v40_features.read_delegation_enabled	boolean	query	False	Filter by protocol.v40_features.read_delegation_enabled
protocol.v4_id_domain	string	query	False	Filter by protocol.v4_id_domain
protocol.v4_64bit_identifiers_enabled	boolean	query	False	Filter by protocol.v4_64bit_identifiers_enabled • Introduced in: 9.8
protocol.v41_features.acl_enabled	boolean	query	False	Filter by protocol.v41_features.acl_enabled
protocol.v41_features.pnfs_enabled	boolean	query	False	Filter by protocol.v41_features.pnfs_enabled

Name	Type	In	Required	Description
protocol.v41_features.write_delegation_enabled	boolean	query	False	Filter by protocol.v41_features.write_delegation_enabled
protocol.v41_features.read_delegation_enabled	boolean	query	False	Filter by protocol.v41_features.read_delegation_enabled
protocol.v41_enabled	boolean	query	False	Filter by protocol.v41_enabled
protocol.v3_enabled	boolean	query	False	Filter by protocol.v3_enabled
protocol.v3_64bit_identifiers_enabled	boolean	query	False	Filter by protocol.v3_64bit_identifiers_enabled • Introduced in: 9.8
protocol.v40_enabled	boolean	query	False	Filter by protocol.v40_enabled
auth_sys_extended_groups_enabled	boolean	query	False	Filter by auth_sys_extended_groups_enabled • Introduced in: 9.8
showmount_enabled	boolean	query	False	Filter by showmount_enabled • Introduced in: 9.8
state	string	query	False	Filter by state

Name	Type	In	Required	Description
metric.v41.timestamp	string	query	False	Filter by metric.v41.timestamp • Introduced in: 9.8
metric.v41.throughput.total	integer	query	False	Filter by metric.v41.throughput.total • Introduced in: 9.8
metric.v41.throughput.read	integer	query	False	Filter by metric.v41.throughput.read • Introduced in: 9.8
metric.v41.throughput.write	integer	query	False	Filter by metric.v41.throughput.write • Introduced in: 9.8
metric.v41.latency.total	integer	query	False	Filter by metric.v41.latency.total • Introduced in: 9.8
metric.v41.latency.other	integer	query	False	Filter by metric.v41.latency.other • Introduced in: 9.8
metric.v41.latency.read	integer	query	False	Filter by metric.v41.latency.read • Introduced in: 9.8

Name	Type	In	Required	Description
metric.v41.latency.write	integer	query	False	Filter by metric.v41.latency.write • Introduced in: 9.8
metric.v41.iops.total	integer	query	False	Filter by metric.v41.iops.total • Introduced in: 9.8
metric.v41.iops.other	integer	query	False	Filter by metric.v41.iops.other • Introduced in: 9.8
metric.v41.iops.read	integer	query	False	Filter by metric.v41.iops.read • Introduced in: 9.8
metric.v41.iops.write	integer	query	False	Filter by metric.v41.iops.write • Introduced in: 9.8
metric.v41.duration	string	query	False	Filter by metric.v41.duration • Introduced in: 9.8
metric.v41.status	string	query	False	Filter by metric.v41.status • Introduced in: 9.8
metric.v3.timestamp	string	query	False	Filter by metric.v3.timestamp • Introduced in: 9.7

Name	Type	In	Required	Description
metric.v3.throughput.total	integer	query	False	Filter by metric.v3.throughput.total • Introduced in: 9.7
metric.v3.throughput.read	integer	query	False	Filter by metric.v3.throughput.read • Introduced in: 9.7
metric.v3.throughput.write	integer	query	False	Filter by metric.v3.throughput.write • Introduced in: 9.7
metric.v3.latency.total	integer	query	False	Filter by metric.v3.latency.total • Introduced in: 9.7
metric.v3.latency.other	integer	query	False	Filter by metric.v3.latency.other • Introduced in: 9.7
metric.v3.latency.read	integer	query	False	Filter by metric.v3.latency.read • Introduced in: 9.7
metric.v3.latency.write	integer	query	False	Filter by metric.v3.latency.write • Introduced in: 9.7

Name	Type	In	Required	Description
metric.v3.iops.total	integer	query	False	Filter by metric.v3.iops.total • Introduced in: 9.7
metric.v3.iops.other	integer	query	False	Filter by metric.v3.iops.other • Introduced in: 9.7
metric.v3.iops.read	integer	query	False	Filter by metric.v3.iops.read • Introduced in: 9.7
metric.v3.iops.write	integer	query	False	Filter by metric.v3.iops.write • Introduced in: 9.7
metric.v3.duration	string	query	False	Filter by metric.v3.duration • Introduced in: 9.7
metric.v3.status	string	query	False	Filter by metric.v3.status • Introduced in: 9.7
metric.v4.timestamp	string	query	False	Filter by metric.v4.timestamp • Introduced in: 9.8
metric.v4.throughput.total	integer	query	False	Filter by metric.v4.throughput.total • Introduced in: 9.8

Name	Type	In	Required	Description
metric.v4.throughput.read	integer	query	False	Filter by metric.v4.throughput.read • Introduced in: 9.8
metric.v4.throughput.write	integer	query	False	Filter by metric.v4.throughput.write • Introduced in: 9.8
metric.v4.latency.total	integer	query	False	Filter by metric.v4.latency.total • Introduced in: 9.8
metric.v4.latency.other	integer	query	False	Filter by metric.v4.latency.other • Introduced in: 9.8
metric.v4.latency.read	integer	query	False	Filter by metric.v4.latency.read • Introduced in: 9.8
metric.v4.latency.write	integer	query	False	Filter by metric.v4.latency.write • Introduced in: 9.8
metric.v4.iops.total	integer	query	False	Filter by metric.v4.iops.total • Introduced in: 9.8

Name	Type	In	Required	Description
metric.v4.iops.other	integer	query	False	Filter by metric.v4.iops.other • Introduced in: 9.8
metric.v4.iops.read	integer	query	False	Filter by metric.v4.iops.read • Introduced in: 9.8
metric.v4.iops.write	integer	query	False	Filter by metric.v4.iops.write • Introduced in: 9.8
metric.v4.duration	string	query	False	Filter by metric.v4.duration • Introduced in: 9.8
metric.v4.status	string	query	False	Filter by metric.v4.status • Introduced in: 9.8
extended_groups_limit	integer	query	False	Filter by extended_groups_limit • Introduced in: 9.8
vstorage_enabled	boolean	query	False	Filter by vstorage_enabled
rquota_enabled	boolean	query	False	Filter by rquota_enabled • Introduced in: 9.8
fields	array[string]	query	False	Specify the fields to return.

Name	Type	In	Required	Description
max_records	integer	query	False	Limit the number of records returned.
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
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
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 NFS Server Records
records	array[nfs_service]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "extended_groups_limit": "32",
      "metric": {
        "v3": {
          "_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"
        },
        "v4": {
```

```
      "_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"
    },
    "v41": {
      "_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"
    }
  },
  "positive_cached_credential_ttl": "7200000",
  "protocol": {
    "v4_id_domain": "string"
  },
  "state": "string",
  "statistics": {
    "v3": {
      "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"
    },
    "v4": {
      "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"
        },
        "v41": {
          "iops_raw": {
            "read": "200",
            "total": "1000",
            "write": "100"
          },
          "latency_raw": {
            "read": "200",
            "total": "1000",
            "write": "100"
          },
          "status": "ok",
          "throughput_raw": {
            "read": "200",
            "total": "1000",
            "write": "100"
          },
          "timestamp": "2017-01-25T11:20:13Z"
        }
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```


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
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.

v3

The NFSv3 operations

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.

Name	Type	Description
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v4

The NFSv4 operations

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:

Name	Type	Description
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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v41

The NFSv4.1 operations

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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

metric

Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations
v41	v41	The NFSv4.1 operations

v40_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.0 ACLs is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.0 Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.0 Write Delegation is enabled.

v41_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.1 or later ACLs is enabled.
pnfs_enabled	boolean	Specifies whether NFSv4.1 or later Parallel NFS is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Write Delegation is enabled.

protocol

Name	Type	Description
v3_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv3 FSIDs and file IDs is enabled.
v3_enabled	boolean	Specifies whether NFSv3 protocol is enabled.

Name	Type	Description
v40_enabled	boolean	Specifies whether NFSv4.0 protocol is enabled.
v40_features	v40_features	
v41_enabled	boolean	Specifies whether NFSv4.1 or later protocol is enabled.
v41_features	v41_features	
v4_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv4.x FSIDs and file IDs is enabled.
v4_id_domain	string	Specifies the domain portion of the string form of user and group names as defined by the NFSv4 protocol.

iops_raw

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

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

latency_raw

The raw latency in microseconds observed at the storage object. This should 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	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
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.

v3

The NFSv3 operations

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

Name	Type	Description
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v4

The NFSv4 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v41

The NFSv4.1 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

statistics

Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations
v41	v41	The NFSv4.1 operations

svm

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

transport

Name	Type	Description
tcp_enabled	boolean	Specifies whether TCP transports are enabled on the server.
udp_enabled	boolean	Specifies whether UDP transports are enabled on the server.

nfs_service

Name	Type	Description
_links	_links	
auth_sys_extended_groups_enabled	boolean	Specifies whether or not extended groups support over AUTH_SYS is enabled.
enabled	boolean	Specifies if the NFS service is administratively enabled.
extended_groups_limit	integer	Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.

Name	Type	Description
metric	metric	Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.
positive_cached_credential_ttl	integer	Specifies the time to live value (in msecs) of a positive cached credential
protocol	protocol	
rquota_enabled	boolean	Specifies whether or not the remote quota feature is enabled.
showmount_enabled	boolean	Specifies whether or not the showmount feature is enabled.
state	string	Specifies the state of the NFS service on the SVM. The following values are supported: * online - NFS server is ready to accept client requests. * offline - NFS server is not ready to accept client requests.
statistics	statistics	Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.
svm	svm	
transport	transport	
vstorage_enabled	boolean	Specifies whether or not the VMware vstorage feature is enabled.

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 an NFS configuration for an SVM

POST `/protocols/nfs/services`

Introduced In: 9.6

Creates an NFS configuration for an SVM.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM for which to create the NFS configuration.

Default property values

If not specified in POST, the following default property values are assigned:

- `enabled` - *true*
- `state` - online
- `transport.udp_enabled` - *true*
- `transport.tcp_enabled` - *true*
- `protocol.v3_enabled` - *true*
- `protocol.v3_64bit_identifiers_enabled` - *false*
- `protocol.v4_id_domain` - defaultv4iddomain.com
- `protocol.v4_64bit_identifiers_enabled` - *true*
- `protocol.v4_enabled` - *false*
- `protocol.v41_enabled` - *false*
- `protocol.v40_features.acl_enabled` - *false*
- `protocol.v40_features.read_delegation_enabled` - *false*
- `protocol.v40_features.write_delegation_enabled` - *false*
- `protocol.v41_features.acl_enabled` - *false*

- `protocol.v41_features.read_delegation_enabled` - *false*
- `protocol.v41_features.write_delegation_enabled` - *false*
- `protocol.v41_features.pnfs_enabled` - *false*
- `vstorage_enabled` - *false*
- `rquota_enabled` - *false*
- `showmount_enabled` - *true*
- `auth_sys_extended_groups_enabled` - *false*
- `extended_groups_limit` - *32*
- `positive_cached_credential_ttl` - *7200000*

Related ONTAP commands

- `vserver nfs create`

Learn more

- DOC /protocols/nfs/services

Parameters

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

Request Body

Name	Type	Description
auth_sys_extended_groups_enabled	boolean	Specifies whether or not extended groups support over AUTH_SYS is enabled.
enabled	boolean	Specifies if the NFS service is administratively enabled.
extended_groups_limit	integer	Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.

Name	Type	Description
positive_cached_credential_ttl	integer	Specifies the time to live value (in msecs) of a positive cached credential
protocol	protocol	
rquota_enabled	boolean	Specifies whether or not the remote quota feature is enabled.
showmount_enabled	boolean	Specifies whether or not the showmount feature is enabled.
state	string	Specifies the state of the NFS service on the SVM. The following values are supported: * online - NFS server is ready to accept client requests. * offline - NFS server is not ready to accept client requests.
svm	svm	
transport	transport	
vstorage_enabled	boolean	Specifies whether or not the VMware vstorage feature is enabled.

Example request


```
{
  "extended_groups_limit": "32",
  "positive_cached_credential_ttl": "7200000",
  "protocol": {
    "v4_id_domain": "string"
  },
  "state": "string",
  "svm": {
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  }
}
```


Response

```
Status: 201, Created
```

Name	Type	Description
num_records	integer	Number of NFS Server Records
records	array[nfs_service]	

Example response


```
{
  "records": [
    {
      "extended_groups_limit": "32",
      "positive_cached_credential_ttl": "7200000",
      "protocol": {
        "v4_id_domain": "string"
      },
      "state": "string",
      "svm": {
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      }
    }
  ]
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
3276916	Vserver is not running
3276994	Kerberos must be disabled on all LIFs on Vserver before adding or removing AES encryption. Disable Kerberos on the LIF and try again
3277038	Cannot enable \"showmount\" feature because it requires an effective cluster version of Data ONTAP 8.3.0 or later

Error Code	Description
3277049	Cannot enable \"showmount\" feature on ID-Discard Vserver. Ensure that the Vserver is initialized and retry the command
3277052	NFSv4.x access to transitioned volumes in this Vserver could trigger conversion of non-Unicode directories to Unicode, which might impact data-serving performance. Before enabling NFSv4.x for this Vserver, refer to the Data and Configuration Transition Guide
3277069	Cannot disable TCP because the SnapDiff RPC server is in the \"on\" state
3277089	Attempting to create an NFS server using 64-bits for NFSv3 FSIDs and File IDs on Vserver. Older client software might not work with 64-bit identifiers
3277099	Domain name contains invalid characters or it is too short. Allowed characters are: alphabetical characters (A-Za-z), numeric characters (0-9), minus sign (-), and the period (.). The first character must be alphabetical or numeric, last character must not be a minus sign or a period. Minimum supported length: 2 characters, maximum of 256 characters

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

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.

Name	Type	Description
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
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.

v3

The NFSv3 operations

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.

Name	Type	Description
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v4

The NFSv4 operations

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.

Name	Type	Description
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v41

The NFSv4.1 operations

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:

Name	Type	Description
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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

metric

Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations

Name	Type	Description
v41	v41	The NFSv4.1 operations

v40_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.0 ACLs is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.0 Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.0 Write Delegation is enabled.

v41_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.1 or later ACLs is enabled.
pnfs_enabled	boolean	Specifies whether NFSv4.1 or later Parallel NFS is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Write Delegation is enabled.

protocol

Name	Type	Description
v3_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv3 FSIDs and file IDs is enabled.
v3_enabled	boolean	Specifies whether NFSv3 protocol is enabled.
v40_enabled	boolean	Specifies whether NFSv4.0 protocol is enabled.
v40_features	v40_features	

Name	Type	Description
v41_enabled	boolean	Specifies whether NFSv4.1 or later protocol is enabled.
v41_features	v41_features	
v4_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv4.x FSIDs and file IDs is enabled.
v4_id_domain	string	Specifies the domain portion of the string form of user and group names as defined by the NFSv4 protocol.

iops_raw

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

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

latency_raw

The raw latency in microseconds observed at the storage object. This should 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.

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	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
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.

v3

The NFSv3 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v4

The NFSv4 operations

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

Name	Type	Description
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v41

The NFSv4.1 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

statistics

Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations
v41	v41	The NFSv4.1 operations

svm

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

transport

Name	Type	Description
tcp_enabled	boolean	Specifies whether TCP transports are enabled on the server.
udp_enabled	boolean	Specifies whether UDP transports are enabled on the server.

nfs_service

Name	Type	Description
auth_sys_extended_groups_enabled	boolean	Specifies whether or not extended groups support over AUTH_SYS is enabled.
enabled	boolean	Specifies if the NFS service is administratively enabled.
extended_groups_limit	integer	Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.
positive_cached_credential_ttl	integer	Specifies the time to live value (in msecs) of a positive cached credential
protocol	protocol	

Name	Type	Description
rquota_enabled	boolean	Specifies whether or not the remote quota feature is enabled.
showmount_enabled	boolean	Specifies whether or not the showmount feature is enabled.
state	string	Specifies the state of the NFS service on the SVM. The following values are supported: * online - NFS server is ready to accept client requests. * offline - NFS server is not ready to accept client requests.
svm	svm	
transport	transport	
vstorage_enabled	boolean	Specifies whether or not the VMware vstorage feature is enabled.

nfs_service

Name	Type	Description
auth_sys_extended_groups_enabled	boolean	Specifies whether or not extended groups support over AUTH_SYS is enabled.
enabled	boolean	Specifies if the NFS service is administratively enabled.
extended_groups_limit	integer	Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.
positive_cached_credential_ttl	integer	Specifies the time to live value (in msecs) of a positive cached credential
protocol	protocol	
rquota_enabled	boolean	Specifies whether or not the remote quota feature is enabled.
showmount_enabled	boolean	Specifies whether or not the showmount feature is enabled.

Name	Type	Description
state	string	Specifies the state of the NFS service on the SVM. The following values are supported: • online - NFS server is ready to accept client requests. • offline - NFS server is not ready to accept client requests.
svm	svm	
transport	transport	
vstorage_enabled	boolean	Specifies whether or not the VMware vstorage feature is enabled.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Delete NFS configuration for an SVM

DELETE `/protocols/nfs/services/{svm.uuid}`

Introduced In: 9.6

Deletes the NFS configuration of an SVM.

Related ONTAP commands

- `vserver nfs delete`

Learn more

- DOC /protocols/nfs/services

Parameters

Name	Type	In	Required	Description
svm.uuid	string	path	True	

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
3276916	Vserver is not running
3277008	NFS Kerberos must be disabled on all LIFs of Vserver before deleting the NFS configuration. When all LIFs are disabled, try the operation
3277009	NFS Kerberos realms associated with the Vserver are deleted
3277111	Internal error. Failed to remove NFS-specific security trace filter for Vserver
3277112	Internal error. Failed to modify the protocols field of a security trace filter for Vserver

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 NFS configuration for an SVM

GET `/protocols/nfs/services/{svm.uuid}`

Introduced In: 9.6

Retrieves the NFS configuration of an SVM.

Related ONTAP commands

- `vserver nfs show`
- `vserver nfs status`

Learn more

- DOC /protocols/nfs/services

Parameters

Name	Type	In	Required	Description
svm.uuid	string	path	True	
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
auth_sys_extended_groups_enabled	boolean	Specifies whether or not extended groups support over AUTH_SYS is enabled.
enabled	boolean	Specifies if the NFS service is administratively enabled.
extended_groups_limit	integer	Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.
metric	metric	Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
positive_cached_credential_ttl	integer	Specifies the time to live value (in msecs) of a positive cached credential
protocol	protocol	
rquota_enabled	boolean	Specifies whether or not the remote quota feature is enabled.
showmount_enabled	boolean	Specifies whether or not the showmount feature is enabled.
state	string	Specifies the state of the NFS service on the SVM. The following values are supported: • online - NFS server is ready to accept client requests. • offline - NFS server is not ready to accept client requests.
statistics	statistics	Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.
svm	svm	
transport	transport	
vstorage_enabled	boolean	Specifies whether or not the VMware vstorage feature is enabled.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "extended_groups_limit": "32",
  "metric": {
    "v3": {
      "_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"
    },
    "v4": {
      "_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"
    },
    "v41": {
      "_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"
    }
  },
  "positive_cached_credential_ttl": "7200000",
  "protocol": {
    "v4_id_domain": "string"
  },
  "state": "string",
  "statistics": {
```

```
    "v3": {
      "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"
    },
    "v4": {
      "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"
    },
    "v41": {
      "iops_raw": {
        "read": "200",
        "total": "1000",
        "write": "100"
      },
      "latency_raw": {
        "read": "200",
```

```
        "total": "1000",
        "write": "100"
      },
      "status": "ok",
      "throughput_raw": {
        "read": "200",
        "total": "1000",
        "write": "100"
      },
      "timestamp": "2017-01-25T11:20:13Z"
    }
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


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


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

iops

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

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

Name	Type	Description
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
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.

v3

The NFSv3 operations

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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v4

The NFSv4 operations

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.

Name	Type	Description
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v41

The NFSv4.1 operations

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:

Name	Type	Description
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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

metric

Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations

Name	Type	Description
v41	v41	The NFSv4.1 operations

v40_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.0 ACLs is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.0 Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.0 Write Delegation is enabled.

v41_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.1 or later ACLs is enabled.
pnfs_enabled	boolean	Specifies whether NFSv4.1 or later Parallel NFS is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Write Delegation is enabled.

protocol

Name	Type	Description
v3_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv3 FSIDs and file IDs is enabled.
v3_enabled	boolean	Specifies whether NFSv3 protocol is enabled.
v40_enabled	boolean	Specifies whether NFSv4.0 protocol is enabled.
v40_features	v40_features	

Name	Type	Description
v41_enabled	boolean	Specifies whether NFSv4.1 or later protocol is enabled.
v41_features	v41_features	
v4_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv4.x FSIDs and file IDs is enabled.
v4_id_domain	string	Specifies the domain portion of the string form of user and group names as defined by the NFSv4 protocol.

iops_raw

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

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

latency_raw

The raw latency in microseconds observed at the storage object. This should 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.

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	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
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.

v3

The NFSv3 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v4

The NFSv4 operations

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

Name	Type	Description
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v41

The NFSv4.1 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

statistics

Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations
v41	v41	The NFSv4.1 operations

svm

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

transport

Name	Type	Description
tcp_enabled	boolean	Specifies whether TCP transports are enabled on the server.
udp_enabled	boolean	Specifies whether UDP transports are enabled on the server.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Name	Type	Description
target	string	The target parameter that caused the error.

Update NFS configuration for an SVM

PATCH `/protocols/nfs/services/{svm.uuid}`

Introduced In: 9.6

Updates the NFS configuration of an SVM.

Related ONTAP commands

- `vserver nfs modify`
- `vserver nfs on`
- `vserver nfs off`
- `vserver nfs start`
- `vserver nfs stop`

Learn more

- DOC /protocols/nfs/services

Parameters

Name	Type	In	Required	Description
svm.uuid	string	path	True	

Request Body

Name	Type	Description
auth_sys_extended_groups_enabled	boolean	Specifies whether or not extended groups support over AUTH_SYS is enabled.
enabled	boolean	Specifies if the NFS service is administratively enabled.
extended_groups_limit	integer	Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.

Name	Type	Description
positive_cached_credential_ttl	integer	Specifies the time to live value (in msecs) of a positive cached credential
protocol	protocol	
rquota_enabled	boolean	Specifies whether or not the remote quota feature is enabled.
showmount_enabled	boolean	Specifies whether or not the showmount feature is enabled.
state	string	Specifies the state of the NFS service on the SVM. The following values are supported: • online - NFS server is ready to accept client requests. • offline - NFS server is not ready to accept client requests.
svm	svm	
transport	transport	
vstorage_enabled	boolean	Specifies whether or not the VMware vstorage feature is enabled.

Example request


```
{
  "extended_groups_limit": "32",
  "positive_cached_credential_ttl": "7200000",
  "protocol": {
    "v4_id_domain": "string"
  },
  "state": "string",
  "svm": {
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  }
}
```

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
3276916	Vserver is not running
3277069	Cannot disable TCP because the SnapDiff RPC server is in the \"on\" state
3277087	Attempting to reduce the number of bits used for NFSv3 FSIDs and File IDs from 64 to 32 on Vserver. This could result in collisions between different File IDs and is not recommended
3277088	Attempting to increase the number of bits used for NFSv3 FSIDs and File IDs from 32 to 64 on Vserver. This could result in older client software no longer working with the volumes owned by Vserver
3277090	Attempting to disallow multiple FSIDs per mount point on Vserver. Since this Vserver currently uses 32-bit NFSv3 FSIDs and File IDs, this could result in collisions between different File IDs and is not recommended
3277099	Domain name contains invalid characters or its too short. Allowed characters are: alphabetical characters (A-Za-z), numeric characters (0-9), minus sign (-), and the period (.). The first character must be alphabetical or numeric, last character must not be a minus sign or a period. Minimum supported length: 2 characters, maximum of 256 characters

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

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.

Name	Type	Description
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
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.

v3

The NFSv3 operations

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.

Name	Type	Description
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v4

The NFSv4 operations

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.

Name	Type	Description
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v41

The NFSv4.1 operations

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:

Name	Type	Description
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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

metric

Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations

Name	Type	Description
v41	v41	The NFSv4.1 operations

v40_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.0 ACLs is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.0 Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.0 Write Delegation is enabled.

v41_features

Name	Type	Description
acl_enabled	boolean	Specifies whether NFSv4.1 or later ACLs is enabled.
pnfs_enabled	boolean	Specifies whether NFSv4.1 or later Parallel NFS is enabled.
read_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Read Delegation is enabled.
write_delegation_enabled	boolean	Specifies whether NFSv4.1 or later Write Delegation is enabled.

protocol

Name	Type	Description
v3_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv3 FSIDs and file IDs is enabled.
v3_enabled	boolean	Specifies whether NFSv3 protocol is enabled.
v40_enabled	boolean	Specifies whether NFSv4.0 protocol is enabled.
v40_features	v40_features	

Name	Type	Description
v41_enabled	boolean	Specifies whether NFSv4.1 or later protocol is enabled.
v41_features	v41_features	
v4_64bit_identifiers_enabled	boolean	Specifies whether 64-bit support for NFSv4.x FSIDs and file IDs is enabled.
v4_id_domain	string	Specifies the domain portion of the string form of user and group names as defined by the NFSv4 protocol.

iops_raw

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

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

latency_raw

The raw latency in microseconds observed at the storage object. This should 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.

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	Peformance metric for write I/O operations.

throughput_raw

Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.

Name	Type	Description
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.

v3

The NFSv3 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.

Name	Type	Description
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v4

The NFSv4 operations

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

Name	Type	Description
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

v41

The NFSv4.1 operations

Name	Type	Description
iops_raw	iops_raw	The number of I/O operations observed at the storage object. This should be used along with delta time to calculate the rate of I/O operations per unit of time.
latency_raw	latency_raw	The raw latency in microseconds observed at the storage object. This should be divided by the raw IOPS value to calculate the average latency per I/O operation.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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 should be used along with delta time to calculate the rate of throughput bytes per unit of time.
timestamp	string	The timestamp of the performance data.

statistics

Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations
v41	v41	The NFSv4.1 operations

svm

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

transport

Name	Type	Description
tcp_enabled	boolean	Specifies whether TCP transports are enabled on the server.
udp_enabled	boolean	Specifies whether UDP transports are enabled on the server.

nfs_service

Name	Type	Description
auth_sys_extended_groups_enabled	boolean	Specifies whether or not extended groups support over AUTH_SYS is enabled.
enabled	boolean	Specifies if the NFS service is administratively enabled.
extended_groups_limit	integer	Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.
positive_cached_credential_ttl	integer	Specifies the time to live value (in msecs) of a positive cached credential
protocol	protocol	

Name	Type	Description
rquota_enabled	boolean	Specifies whether or not the remote quota feature is enabled.
showmount_enabled	boolean	Specifies whether or not the showmount feature is enabled.
state	string	Specifies the state of the NFS service on the SVM. The following values are supported: • online - NFS server is ready to accept client requests. • offline - NFS server is not ready to accept client requests.
svm	svm	
transport	transport	
vstorage_enabled	boolean	Specifies whether or not the VMware vstorage feature is enabled.

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 NFS protocol historical performance metrics

GET `/protocols/nfs/services/{svm.uuid}/metrics`

Introduced In: 9.7

Retrieves historical performance metrics for the NFS protocol of an SVM.

Parameters

Name	Type	In	Required	Description
timestamp	string	query	False	Filter by timestamp
v3.status	string	query	False	Filter by v3.status
v3.latency.total	integer	query	False	Filter by v3.latency.total
v3.latency.other	integer	query	False	Filter by v3.latency.other
v3.latency.read	integer	query	False	Filter by v3.latency.read
v3.latency.write	integer	query	False	Filter by v3.latency.write
v3.throughput.total	integer	query	False	Filter by v3.throughput.total
v3.throughput.read	integer	query	False	Filter by v3.throughput.read
v3.throughput.write	integer	query	False	Filter by v3.throughput.write
v3.iops.total	integer	query	False	Filter by v3.iops.total
v3.iops.other	integer	query	False	Filter by v3.iops.other
v3.iops.read	integer	query	False	Filter by v3.iops.read
v3.iops.write	integer	query	False	Filter by v3.iops.write

Name	Type	In	Required	Description
v3.duration	string	query	False	Filter by v3.duration
v4.throughput.total	integer	query	False	Filter by v4.throughput.total • Introduced in: 9.8
v4.throughput.read	integer	query	False	Filter by v4.throughput.read • Introduced in: 9.8
v4.throughput.write	integer	query	False	Filter by v4.throughput.write • Introduced in: 9.8
v4.latency.total	integer	query	False	Filter by v4.latency.total • Introduced in: 9.8
v4.latency.other	integer	query	False	Filter by v4.latency.other • Introduced in: 9.8
v4.latency.read	integer	query	False	Filter by v4.latency.read • Introduced in: 9.8
v4.latency.write	integer	query	False	Filter by v4.latency.write • Introduced in: 9.8
v4.duration	string	query	False	Filter by v4.duration • Introduced in: 9.8

Name	Type	In	Required	Description
v4.iops.total	integer	query	False	Filter by v4.iops.total • Introduced in: 9.8
v4.iops.other	integer	query	False	Filter by v4.iops.other • Introduced in: 9.8
v4.iops.read	integer	query	False	Filter by v4.iops.read • Introduced in: 9.8
v4.iops.write	integer	query	False	Filter by v4.iops.write • Introduced in: 9.8
v4.status	string	query	False	Filter by v4.status • Introduced in: 9.8
v41.status	string	query	False	Filter by v41.status • Introduced in: 9.8
v41.iops.total	integer	query	False	Filter by v41.iops.total • Introduced in: 9.8
v41.iops.other	integer	query	False	Filter by v41.iops.other • Introduced in: 9.8

Name	Type	In	Required	Description
v41.iops.read	integer	query	False	Filter by v41.iops.read • Introduced in: 9.8
v41.iops.write	integer	query	False	Filter by v41.iops.write • Introduced in: 9.8
v41.throughput.total	integer	query	False	Filter by v41.throughput.total • Introduced in: 9.8
v41.throughput.read	integer	query	False	Filter by v41.throughput.read • Introduced in: 9.8
v41.throughput.write	integer	query	False	Filter by v41.throughput.write • Introduced in: 9.8
v41.latency.total	integer	query	False	Filter by v41.latency.total • Introduced in: 9.8
v41.latency.other	integer	query	False	Filter by v41.latency.other • Introduced in: 9.8
v41.latency.read	integer	query	False	Filter by v41.latency.read • Introduced in: 9.8

Name	Type	In	Required	Description
v41.latency.write	integer	query	False	Filter by v41.latency.write • Introduced in: 9.8
v41.duration	string	query	False	Filter by v41.duration • Introduced in: 9.8
svm.uuid	string	path	True	Unique identifier of the SVM.
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: • 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. • 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": [
    {
      "v3": {
        "_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"
      },
      "v4": {
        "_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"
      },
      "v41": {
        "_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	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
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.

v3

The NFSv3 operations

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.

Name	Type	Description
latency	latency	The round trip latency in microseconds observed at the storage object.
status	string	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v4

The NFSv4 operations

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:

Name	Type	Description
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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

v41

The NFSv4.1 operations

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	Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled 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.

records

Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.

Name	Type	Description
v3	v3	The NFSv3 operations
v4	v4	The NFSv4 operations
v41	v41	The NFSv4.1 operations

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.

Copyright information

Trademark information