



## **Manage NFS services**

### ONTAP 9.11.1 REST API reference

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# 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"
```

### Retrieving the mount permissions for a specified volume for a given IP address.

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

# The call:
curl -X GET curl -X GET "https://<mgmt-
ip>/api/protocols/nfs/services?protocol_access_rules.volume=testvol12&prot
ocol_access_rules.client_ip=1.2.3.4&protocol_access_rules.auth_type=sys&sv
m.uuid=525928e9-9f84-11eb-a89f-
005056bb70a8&fields=*&return_timeout=15&return_records=true"

#
Returns the protocol_access_rules structure and provides access
permissions for each protocol.
"protocol_access_rules": {
  "nfs3_access_type": "read_write",
  "nfs4_access_type": "read",
  "cifs_access_type": "read_write"
}
```

### 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 the 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.*`

### Advanced properties

- `security.rpcsec_context_idle`
- `security.ntfs_unix_security`
- `security.chown_mode`
- `security.nt_acl_display_permission`
- `protocol.v3_features.ejukebox_enabled`
- `protocol.v3_features.connection_drop`
- `protocol.v3_features.fsid_change`
- `protocol.v3_features.mount_daemon_port`
- `protocol.v3_features.network_lock_manager_port`
- `protocol.v3_features.network_status_monitor_port`
- `protocol.v3_features.rquota_daemon_port`
- `protocol.v41_features.implementation_domain`
- `protocol.v41_features.implementation_name`
- `protocol.v40_features.acl_max_aces`
- `windows.map_unknown_uid_to_default_user`
- `exports.netgroup_trust_any_nsswitch_no_match`

- `credential_cache.negative_ttl`
- `transport.tcp_max_transfer_size`
- `root.*`

## Diagnostic properties

- `credential_cache.transient_error_ttl`
- `access_cache_config.ttl_failure`

## Related ONTAP commands

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

## Learn more

- [DOC /protocols/nfs/services](#)

## Parameters

| Name   | Type   | In    | Required | Description   |
|--|--------|-------|----------|---|
| <code>protocol_access_rules.volume</code>    | string | query | False    | Volume on which access needs to be checked.<br><br>• Introduced in: 9.10  |
| <code>protocol_access_rules.client_ip</code> | string | query | False    | IP address for the client for which access needs to be checked.<br><br>• Introduced in: 9.10                              |
| <code>protocol_access_rules.auth_type</code> | string | query | False    | Authentication method used to check the client's access to the volume.<br><br>• Introduced in: 9.10<br>• Default value: 1 |

| Name                                   | Type    | In    | Required | Description   |
|--|---------|-------|----------|---|
| protocol_access_rules.cifs_access_type | string  | query | False    | Filter by protocol_access_rules.cifs_access_type<br><br>• Introduced in: 9.10 |
| protocol_access_rules.nfs4_access_type | string  | query | False    | Filter by protocol_access_rules.nfs4_access_type<br><br>• Introduced in: 9.10 |
| protocol_access_rules.nfs3_access_type | string  | query | False    | Filter by protocol_access_rules.nfs3_access_type<br><br>• Introduced in: 9.10 |
| rquota_enabled                         | boolean | query | False    | Filter by rquota_enabled<br><br>• Introduced in: 9.8                          |
| metric.v41.latency.other               | integer | query | False    | Filter by metric.v41.latency.other<br><br>• Introduced in: 9.8                |
| metric.v41.latency.read                | integer | query | False    | Filter by metric.v41.latency.read<br><br>• Introduced in: 9.8                 |
| metric.v41.latency.write               | integer | query | False    | Filter by metric.v41.latency.write<br><br>• Introduced in: 9.8                |

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



| Name                        | Type    | In    | Required | Description   |
|-----------------------------|---------|-------|----------|---|
| metric.v41.throughput.total | integer | query | False    | Filter by metric.v41.throughput.total<br><br>• Introduced in: 9.8 |
| metric.v41.throughput.read  | integer | query | False    | Filter by metric.v41.throughput.read<br><br>• Introduced in: 9.8  |
| metric.v41.status           | string  | query | False    | Filter by metric.v41.status<br><br>• Introduced in: 9.8           |
| metric.v41.duration         | string  | query | False    | Filter by metric.v41.duration<br><br>• Introduced in: 9.8         |
| metric.v3.latency.other     | integer | query | False    | Filter by metric.v3.latency.other<br><br>• Introduced in: 9.7     |
| metric.v3.latency.read      | integer | query | False    | Filter by metric.v3.latency.read<br><br>• Introduced in: 9.7      |
| metric.v3.latency.write     | integer | query | False    | Filter by metric.v3.latency.write<br><br>• Introduced in: 9.7     |

| Name                       | Type    | In    | Required | Description  |
|----------------------------|---------|-------|----------|--|
| metric.v3.latency.total    | integer | query | False    | Filter by metric.v3.latency.total<br><br>• Introduced in: 9.7    |
| metric.v3.timestamp        | string  | query | False    | Filter by metric.v3.timestamp<br><br>• Introduced in: 9.7        |
| metric.v3.iops.other       | integer | query | False    | Filter by metric.v3.iops.other<br><br>• Introduced in: 9.7       |
| metric.v3.iops.read        | integer | query | False    | Filter by metric.v3.iops.read<br><br>• Introduced in: 9.7        |
| metric.v3.iops.write       | integer | query | False    | Filter by metric.v3.iops.write<br><br>• Introduced in: 9.7       |
| metric.v3.iops.total       | integer | query | False    | Filter by metric.v3.iops.total<br><br>• Introduced in: 9.7       |
| metric.v3.throughput.write | integer | query | False    | Filter by metric.v3.throughput.write<br><br>• Introduced in: 9.7 |

| Name                       | Type    | In    | Required | Description  |
|----------------------------|---------|-------|----------|--|
| metric.v3.throughput.total | integer | query | False    | Filter by metric.v3.throughput.total<br><br>• Introduced in: 9.7 |
| metric.v3.throughput.read  | integer | query | False    | Filter by metric.v3.throughput.read<br><br>• Introduced in: 9.7  |
| metric.v3.status           | string  | query | False    | Filter by metric.v3.status<br><br>• Introduced in: 9.7           |
| metric.v3.duration         | string  | query | False    | Filter by metric.v3.duration<br><br>• Introduced in: 9.7         |
| metric.v4.latency.other    | integer | query | False    | Filter by metric.v4.latency.other<br><br>• Introduced in: 9.8    |
| metric.v4.latency.read     | integer | query | False    | Filter by metric.v4.latency.read<br><br>• Introduced in: 9.8     |
| metric.v4.latency.write    | integer | query | False    | Filter by metric.v4.latency.write<br><br>• Introduced in: 9.8    |

| Name                       | Type    | In    | Required | Description  |
|----------------------------|---------|-------|----------|--|
| metric.v4.latency.total    | integer | query | False    | Filter by metric.v4.latency.total<br><br>• Introduced in: 9.8    |
| metric.v4.timestamp        | string  | query | False    | Filter by metric.v4.timestamp<br><br>• Introduced in: 9.8        |
| metric.v4.iops.other       | integer | query | False    | Filter by metric.v4.iops.other<br><br>• Introduced in: 9.8       |
| metric.v4.iops.read        | integer | query | False    | Filter by metric.v4.iops.read<br><br>• Introduced in: 9.8        |
| metric.v4.iops.write       | integer | query | False    | Filter by metric.v4.iops.write<br><br>• Introduced in: 9.8       |
| metric.v4.iops.total       | integer | query | False    | Filter by metric.v4.iops.total<br><br>• Introduced in: 9.8       |
| metric.v4.throughput.write | integer | query | False    | Filter by metric.v4.throughput.write<br><br>• Introduced in: 9.8 |

| Name                                  | Type    | In    | Required | Description   |
|---------------------------------------|---------|-------|----------|---|
| metric.v4.throughput<br>.total        | integer | query | False    | Filter by<br>metric.v4.throughput<br>.total<br><br>• Introduced in:<br>9.8  |
| metric.v4.throughput<br>.read         | integer | query | False    | Filter by<br>metric.v4.throughput<br>.read<br><br>• Introduced in:<br>9.8   |
| metric.v4.status                      | string  | query | False    | Filter by<br>metric.v4.status<br><br>• Introduced in:<br>9.8  |
| metric.v4.duration                    | string  | query | False    | Filter by<br>metric.v4.duration<br><br>• Introduced in:<br>9.8  |
| file_session_io_grou<br>ping_duration | integer | query | False    | Filter by<br>file_session_io_grou<br>ping_duration<br><br>• Introduced in:<br>9.11<br>• Max value: 600<br>• Min value: 60 |
| state                                 | string  | query | False    | Filter by state   |
| root.ignore_nt_acl                    | boolean | query | False    | Filter by<br>root.ignore_nt_acl<br><br>• Introduced in:<br>9.11   |

| Name   | Type    | In    | Required | Description   |
|--|---------|-------|----------|---|
| root.skip_write_permission_check                 | boolean | query | False    | Filter by root.skip_write_permission_check<br><br>• Introduced in: 9.11                 |
| protocol.v41_enabled                             | boolean | query | False    | Filter by protocol.v41_enabled  |
| protocol.v40_enabled                             | boolean | query | False    | Filter by protocol.v40_enabled  |
| protocol.v4_id_domain                            | string  | query | False    | Filter by protocol.v4_id_domain   |
| protocol.v3_features.network_status_monitor_port | integer | query | False    | Filter by protocol.v3_features.network_status_monitor_port<br><br>• Introduced in: 9.11 |
| protocol.v3_features.connection_drop             | boolean | query | False    | Filter by protocol.v3_features.connection_drop<br><br>• Introduced in: 9.11             |
| protocol.v3_features.fsid_change                 | boolean | query | False    | Filter by protocol.v3_features.fsid_change<br><br>• Introduced in: 9.11                 |
| protocol.v3_features.network_lock_manager_port   | integer | query | False    | Filter by protocol.v3_features.network_lock_manager_port<br><br>• Introduced in: 9.11   |

| Name  | Type    | In    | Required | Description  |
|---|---------|-------|----------|--|
| protocol.v3_features.ejukebox_enabled         | boolean | query | False    | Filter by protocol.v3_features.ejukebox_enabled<br><br>• Introduced in: 9.11   |
| protocol.v3_features.mount_daemon_port        | integer | query | False    | Filter by protocol.v3_features.mount_daemon_port<br><br>• Introduced in: 9.11  |
| protocol.v3_features.mount_root_only          | boolean | query | False    | Filter by protocol.v3_features.mount_root_only<br><br>• Introduced in: 9.11    |
| protocol.v3_features.rquota_daemon_port       | integer | query | False    | Filter by protocol.v3_features.rquota_daemon_port<br><br>• Introduced in: 9.11 |
| protocol.v4_64bit_identifiers_enabled         | boolean | query | False    | Filter by protocol.v4_64bit_identifiers_enabled<br><br>• Introduced in: 9.8    |
| protocol.v41_features.acl_enabled             | boolean | query | False    | Filter by protocol.v41_features.acl_enabled                                    |
| protocol.v41_features.read_delegation_enabled | boolean | query | False    | Filter by protocol.v41_features.read_delegation_enabled                        |
| protocol.v41_features.pnfs_enabled            | boolean | query | False    | Filter by protocol.v41_features.pnfs_enabled                                   |

| Name   | Type    | In    | Required | Description  |
|--|---------|-------|----------|--|
| protocol.v41_features.implementation_domain    | string  | query | False    | Filter by protocol.v41_features.implementation_domain<br><br>• Introduced in: 9.11 |
| protocol.v41_features.implementation_name      | string  | query | False    | Filter by protocol.v41_features.implementation_name<br><br>• Introduced in: 9.11   |
| protocol.v41_features.write_delegation_enabled | boolean | query | False    | Filter by protocol.v41_features.write_delegation_enabled                           |
| protocol.v3_64bit_identifiers_enabled          | boolean | query | False    | Filter by protocol.v3_64bit_identifiers_enabled<br><br>• Introduced in: 9.8        |
| protocol.v3_enabled                            | boolean | query | False    | Filter by protocol.v3_enabled  |
| protocol.v40_features.read_delegation_enabled  | boolean | query | False    | Filter by protocol.v40_features.read_delegation_enabled                            |
| protocol.v40_features.acl_enabled              | boolean | query | False    | Filter by protocol.v40_features.acl_enabled  |
| protocol.v40_features.acl_preserve             | boolean | query | False    | Filter by protocol.v40_features.acl_preserve<br><br>• Introduced in: 9.11          |



| Name   | Type    | In    | Required | Description   |
|--|---------|-------|----------|---|
| protocol.v40_features.acl_max_aces             | integer | query | False    | Filter by protocol.v40_features.acl_max_aces <ul style="list-style-type: none"> <li>• Introduced in: 9.11</li> <li>• Max value: 1024</li> <li>• Min value: 192</li> </ul> |
| protocol.v40_features.write_delegation_enabled | boolean | query | False    | Filter by protocol.v40_features.write_delegation_enabled  |
| svm.uuid                                       | string  | query | False    | Filter by svm.uuid  |
| svm.name                                       | string  | query | False    | Filter by svm.name  |
| enabled  | boolean | query | False    | Filter by enabled   |
| qtree.validate_export                          | boolean | query | False    | Filter by qtree.validate_export <ul style="list-style-type: none"> <li>• Introduced in: 9.10</li> </ul>   |
| qtree.export_enabled                           | boolean | query | False    | Filter by qtree.export_enabled <ul style="list-style-type: none"> <li>• Introduced in: 9.10</li> </ul>  |
| vstorage_enabled                               | boolean | query | False    | Filter by vstorage_enabled  |
| statistics.v41.status                          | string  | query | False    | Filter by statistics.v41.status <ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul>  |

| Name                                | Type    | In    | Required | Description   |
|-------------------------------------|---------|-------|----------|---|
| statistics.v41.iops_raw.other       | integer | query | False    | Filter by statistics.v41.iops_raw.other<br><br>• Introduced in: 9.8       |
| statistics.v41.iops_raw.read        | integer | query | False    | Filter by statistics.v41.iops_raw.read<br><br>• Introduced in: 9.8        |
| statistics.v41.iops_raw.write       | integer | query | False    | Filter by statistics.v41.iops_raw.write<br><br>• Introduced in: 9.8       |
| statistics.v41.iops_raw.total       | integer | query | False    | Filter by statistics.v41.iops_raw.total<br><br>• Introduced in: 9.8       |
| statistics.v41.throughput_raw.write | integer | query | False    | Filter by statistics.v41.throughput_raw.write<br><br>• Introduced in: 9.8 |
| statistics.v41.throughput_raw.total | integer | query | False    | Filter by statistics.v41.throughput_raw.total<br><br>• Introduced in: 9.8 |
| statistics.v41.throughput_raw.read  | integer | query | False    | Filter by statistics.v41.throughput_raw.read<br><br>• Introduced in: 9.8  |

| Name                             | Type    | In    | Required | Description  |
|----------------------------------|---------|-------|----------|--|
| statistics.v41.latency_raw.other | integer | query | False    | Filter by statistics.v41.latency_raw.other<br><br>• Introduced in: 9.8 |
| statistics.v41.latency_raw.read  | integer | query | False    | Filter by statistics.v41.latency_raw.read<br><br>• Introduced in: 9.8  |
| statistics.v41.latency_raw.write | integer | query | False    | Filter by statistics.v41.latency_raw.write<br><br>• Introduced in: 9.8 |
| statistics.v41.latency_raw.total | integer | query | False    | Filter by statistics.v41.latency_raw.total<br><br>• Introduced in: 9.8 |
| statistics.v41.timestamp         | string  | query | False    | Filter by statistics.v41.timestamp<br><br>• Introduced in: 9.8         |
| statistics.v3.status             | string  | query | False    | Filter by statistics.v3.status<br><br>• Introduced in: 9.7             |
| statistics.v3.iops_raw.other     | integer | query | False    | Filter by statistics.v3.iops_raw.other<br><br>• Introduced in: 9.7     |

| Name                               | Type    | In    | Required | Description  |
|------------------------------------|---------|-------|----------|--|
| statistics.v3.iops_read            | integer | query | False    | Filter by statistics.v3.iops_read<br><br>• Introduced in: 9.7            |
| statistics.v3.iops_write           | integer | query | False    | Filter by statistics.v3.iops_write<br><br>• Introduced in: 9.7           |
| statistics.v3.iops_total           | integer | query | False    | Filter by statistics.v3.iops_total<br><br>• Introduced in: 9.7           |
| statistics.v3.throughput_raw.write | integer | query | False    | Filter by statistics.v3.throughput_raw.write<br><br>• Introduced in: 9.7 |
| statistics.v3.throughput_raw.total | integer | query | False    | Filter by statistics.v3.throughput_raw.total<br><br>• Introduced in: 9.7 |
| statistics.v3.throughput_raw.read  | integer | query | False    | Filter by statistics.v3.throughput_raw.read<br><br>• Introduced in: 9.7  |
| statistics.v3.latency_raw.other    | integer | query | False    | Filter by statistics.v3.latency_raw.other<br><br>• Introduced in: 9.7    |

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

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

| Name                             | Type    | In    | Required | Description   |
|----------------------------------|---------|-------|----------|---|
| statistics.v4.latency_raw.write  | integer | query | False    | Filter by statistics.v4.latency_raw.write<br><br>• Introduced in: 9.8   |
| statistics.v4.latency_raw.total  | integer | query | False    | Filter by statistics.v4.latency_raw.total<br><br>• Introduced in: 9.8   |
| statistics.v4.timestamp          | string  | query | False    | Filter by statistics.v4.timestamp<br><br>• Introduced in: 9.8   |
| transport.udp_enabled            | boolean | query | False    | Filter by transport.udp_enabled   |
| transport.tcp_enabled            | boolean | query | False    | Filter by transport.tcp_enabled   |
| transport.tcp_max_transfer_size  | integer | query | False    | Filter by transport.tcp_max_transfer_size<br><br>• Introduced in: 9.11<br>• Max value: 1048576<br>• Min value: 8192 |
| auth_sys_extended_groups_enabled | boolean | query | False    | Filter by auth_sys_extended_groups_enabled<br><br>• Introduced in: 9.8  |

| Name                                 | Type    | In    | Required | Description   |
|--------------------------------------|---------|-------|----------|---|
| file_session_io_grouping_count       | integer | query | False    | Filter by file_session_io_grouping_count <ul style="list-style-type: none"> <li>• Introduced in: 9.11</li> <li>• Max value: 20000</li> <li>• Min value: 1000</li> </ul>         |
| credential_cache.negative_ttl        | integer | query | False    | Filter by credential_cache.negative_ttl <ul style="list-style-type: none"> <li>• Introduced in: 9.11</li> <li>• Max value: 604800000</li> <li>• Min value: 60000</li> </ul>     |
| credential_cache.transient_error_ttl | integer | query | False    | Filter by credential_cache.transient_error_ttl <ul style="list-style-type: none"> <li>• Introduced in: 9.11</li> <li>• Max value: 300000</li> <li>• Min value: 30000</li> </ul> |
| credential_cache.positive_ttl        | integer | query | False    | Filter by credential_cache.positive_ttl <ul style="list-style-type: none"> <li>• Introduced in: 9.11</li> <li>• Max value: 604800000</li> <li>• Min value: 60000</li> </ul>     |



| Name                                    | Type    | In    | Required | Description  |
|---|---------|-------|----------|--|
| security.ntfs_unix_security             | string  | query | False    | Filter by security.ntfs_unix_security<br><br>• Introduced in: 9.11             |
| security.chown_mode                     | string  | query | False    | Filter by security.chown_mode<br><br>• Introduced in: 9.11                     |
| security.rpcsec_ext_idle                | integer | query | False    | Filter by security.rpcsec_ext_idle<br><br>• Introduced in: 9.11                |
| security.nt_acl_display_permission      | boolean | query | False    | Filter by security.nt_acl_display_permission<br><br>• Introduced in: 9.11      |
| security.permitted_encryption_types     | string  | query | False    | Filter by security.permitted_encryption_types<br><br>• Introduced in: 9.11     |
| windows.default_user                    | string  | query | False    | Filter by windows.default_user<br><br>• Introduced in: 9.11                    |
| windows.map_unknown_uid_to_default_user | boolean | query | False    | Filter by windows.map_unknown_uid_to_default_user<br><br>• Introduced in: 9.11 |

| Name   | Type    | In    | Required | Description   |
|--|---------|-------|----------|---|
| windows.v3_ms_dos_client_enabled             | boolean | query | False    | Filter by windows.v3_ms_dos_client_enabled<br><br>• Introduced in: 9.11             |
| exports.name_service_lookup_protocol         | string  | query | False    | Filter by exports.name_service_lookup_protocol<br><br>• Introduced in: 9.11         |
| exports.netgroup_trust_any_nsswitch_no_match | boolean | query | False    | Filter by exports.netgroup_trust_any_nsswitch_no_match<br><br>• Introduced in: 9.11 |
| showmount_enabled                            | boolean | query | False    | Filter by showmount_enabled<br><br>• Introduced in: 9.8                             |
| access_cache_config.harvest_timeout          | integer | query | False    | Filter by access_cache_config.harvest_timeout<br><br>• Introduced in: 9.10          |
| access_cache_config.ttl_positive             | integer | query | False    | Filter by access_cache_config.ttl_positive<br><br>• Introduced in: 9.10             |
| access_cache_config.ttl_negative             | integer | query | False    | Filter by access_cache_config.ttl_negative<br><br>• Introduced in: 9.10             |

| Name                                | Type          | In    | Required | Description   |
|-------------------------------------|---------------|-------|----------|---|
| access_cache_config.ttl_failure     | integer       | query | False    | Filter by access_cache_config.ttl_failure <ul style="list-style-type: none"> <li>• Introduced in: 9.10</li> </ul>   |
| access_cache_config.isDnsTTLEnabled | boolean       | query | False    | Filter by access_cache_config.isDnsTTLEnabled <ul style="list-style-type: none"> <li>• Introduced in: 9.10</li> </ul>   |
| extended_groups_limit               | integer       | query | False    | Filter by extended_groups_limit <ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> <li>• Max value: 1024</li> <li>• Min value: 32</li> </ul>  |
| fields                              | array[string] | query | False    | Specify the fields to return.   |
| 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. <ul style="list-style-type: none"> <li>• Default value: 1</li> <li>• Max value: 120</li> <li>• Min value: 0</li> </ul> |

| Name           | Type          | In    | Required | Description   |
|----------------|---------------|-------|----------|---|
| return_records | boolean       | query | False    | The default is true for GET calls. When set to false, only the number of records is returned.<br><br>• 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      | <a href="#">_links</a>               |                              |
| num_records | integer                              | Number of NFS Server Records |
| records     | array[ <a href="#">nfs_service</a> ] |                              |

## Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "credential_cache": {
      "negative_ttl": 720000,
      "positive_ttl": 720000,
      "transient_error_ttl": 72000
    },
    "exports": {
      "name_service_lookup_protocol": "tcp"
    },
    "extended_groups_limit": 32,
    "file_session_io_grouping_count": 5000,
    "file_session_io_grouping_duration": 120,
    "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"
}
},
"protocol": {
  "v40_features": {
    "acl_max_aces": 500
  }
},
"protocol_access_rules": {
  "cifs_access_type": "read",
  "nfs3_access_type": "read",
  "nfs4_access_type": "read"
},
"security": {
  "chown_mode": "restricted",
  "ntfs_unix_security": "ignore",
  "permitted_encryption_types": {
  }
},
"state": "online",
"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"
  },
  "transport": {
    "tcp_max_transfer_size": 16384
  }
}
```

## Error

Status: Default, Error

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

## Example error

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

## Definitions

## See Definitions

href

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

\_links

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

\_links

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

access\_cache\_config

| Name            | Type    | Description   |
|-----------------|---------|---|
| harvest_timeout | integer | Specifies the time after which an entry is deleted from the access cache, if unused.          |
| isDnsTTLEnabled | boolean | Specifies whether Dns TTL is enabled.   |
| ttl_failure     | integer | Specifies the time to live value for entries for which a failure was encountered, in seconds. |
| ttl_negative    | integer | Specifies the time to live value of a negative access cache, in seconds.                      |
| ttl_positive    | integer | Specifies the time to live value of a positive access cache, in seconds.                      |

credential\_cache

| Name                | Type    | Description  |
|---------------------|---------|--|
| negative_ttl        | integer | Specifies the age in milliseconds, of the negative cached credentials after which they are cleared from the cache. |
| positive_ttl        | integer | Specifies the age in milliseconds, of the positive cached credentials after which they are cleared from the cache. |
| transient_error_ttl | integer | Specifies the age in milliseconds, of the cached entries during a transient error situation.                       |

#### exports

| Name                                 | Type    | Description  |
|--------------------------------------|---------|--|
| name_service_lookup_protocol         | string  | Specifies the protocol to use for doing name service lookups.  |
| netgroup_trust_any_nsswitch_no_match | boolean | Specifies if you can consider a no-match result from any of the netgroup ns-switch sources to be authoritative. If this option is enabled, then a no-match response from any of the netgroup ns-switch sources is deemed conclusive even if other sources could not be searched. |

#### 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.  |

| Name  | Type    | Description                                  |
|-------|---------|--|
| write | integer | Performance metric for write I/O operations. |

### latency

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

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

### throughput

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

### v3

The NFSv3 operations

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

| 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.  |

v4

The NFSv4 operations

| Name       | Type                       | Description   |
|------------|----------------------------|---|
| _links     | <a href="#">_links</a>     |   |
| 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       | <a href="#">iops</a>       | The rate of I/O operations observed at the storage object.  |
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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   |
|------------------------|----------------------------|---|
| <a href="#">_links</a> | <a href="#">_links</a>     |   |
| 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                   | <a href="#">iops</a>       | The rate of I/O operations observed at the storage object.  |
| latency                | <a href="#">latency</a>    | 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             | <a href="#">throughput</a> | 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 |

v3\_features

| Name                        | Type    | Description   |
|-----------------------------|---------|---|
| connection_drop             | boolean | Specifies whether the dropping of a connection when an NFSv3 request is dropped is enabled.                     |
| ejukebox_enabled            | boolean | Specifies whether NFSv3 EJUKEBOX error is enabled.  |
| fsid_change                 | boolean | Specifies whether the change in FSID as NFSv3 clients traverse filesystems should be shown.                     |
| mount_daemon_port           | integer | Specifies which port the NFS mount daemon (mountd) uses.  |
| mount_root_only             | boolean | Specifies whether the SVM allows MOUNT protocol calls only from privileged ports (port numbers less than 1024). |
| network_lock_manager_port   | integer | Specifies which port the Network lock manager uses.   |
| network_status_monitor_port | integer | Specifies which port the Network status monitor port uses.  |
| rquota_daemon_port          | integer | Specifies which port the NFS quota daemon port uses.  |

v40\_features



| Name                     | Type    | Description   |
|--------------------------|---------|---|
| acl_enabled              | boolean | Specifies whether NFSv4.0 ACLs is enabled.  |
| acl_max_aces             | integer | Specifies the maximum number of aces in a NFSv4.0 ACL.  |
| acl_preserve             | boolean | Specifies if the NFSv4 ACL is preserved or dropped when chmod is performed. In unified security style, this parameter also specifies if NTFS file permissions are preserved or dropped when chmod, chgrp, or chown are performed. |
| 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.             |
| implementation_domain    | string  | Specifies the NFSv4.1 or later implementation ID domain.        |
| implementation_name      | string  | Specifies the NFSv4.1 or later implementation ID name.          |
| 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.  |
| v3_features                  | <a href="#">v3_features</a>  |   |
| v40_enabled                  | boolean                      | Specifies whether NFSv4.0 protocol is enabled.  |
| v40_features                 | <a href="#">v40_features</a> |   |
| v41_enabled                  | boolean                      | Specifies whether NFSv4.1 or later protocol is enabled.   |
| v41_features                 | <a href="#">v41_features</a> |   |
| 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. |

#### protocol\_access\_rules

| Name             | Type   | Description                              |
|------------------|--------|--|
| cifs_access_type | string | Access available for the CIFS protocol.  |
| nfs3_access_type | string | Access available for the NFSv3 protocol. |
| nfs4_access_type | string | Access available for the NFSv4 protocol. |

#### qtree

| Name           | Type    | Description                                |
|----------------|---------|--|
| export_enabled | boolean | Specifies whether qtree export is enabled. |

| Name            | Type    | Description   |
|-----------------|---------|---|
| validate_export | boolean | Specifies whether qtree export validation is enabled. |

root

| Name                        | Type    | Description  |
|-----------------------------|---------|--|
| ignore_nt_acl               | boolean | Specifies whether Windows ACLs affect root access from NFS. If this option is enabled, root access from NFS ignores the NT ACL set on the file or directory.                                       |
| skip_write_permission_check | boolean | Specifies if permission checks are to be skipped for NFS WRITE calls from root/owner. For copying read-only files to a destination folder which has inheritable ACLs, this option must be enabled. |

security

| Name       | Type   | Description  |
|------------|--------|--|
| chown_mode | string | Specifies whether file ownership can be changed only by the superuser, or if a non-root user can also change file ownership. If you set this parameter to restricted, file ownership can be changed only by the superuser, even though the on-disk permissions allow a non-root user to change file ownership. If you set this parameter to unrestricted, file ownership can be changed by the superuser and by the non-root user, depending upon the access granted by on-disk permissions. If you set this parameter to use-export-policy, file ownership can be changed in accordance with the relevant export rules. |

| Name                       | Type          | Description  |
|----------------------------|---------------|--|
| nt_acl_display_permission  | boolean       | Controls the permissions that are displayed to NFSv3 and NFSv4 clients on a file or directory that has an NT ACL set. When true, the displayed permissions are based on the maximum access granted by the NT ACL to any user. When false, the displayed permissions are based on the minimum access granted by the NT ACL to any user.   |
| ntfs_unix_security         | string        | Specifies how NFSv3 security changes affect NTFS volumes. If you set this parameter to ignore, ONTAP ignores NFSv3 security changes. If you set this parameter to fail, this overrides the UNIX security options set in the relevant export rules. If you set this parameter to use_export_policy, ONTAP processes NFSv3 security changes in accordance with the relevant export rules. <ul style="list-style-type: none"> <li>• Default value: 1</li> <li>• enum: ["ignore", "fail", "use_export_policy"]</li> <li>• Introduced in: 9.11</li> </ul> |
| permitted_encryption_types | array[string] | Specifies the permitted encryption types for Kerberos over NFS.  |
| rpcsec_context_idle        | integer       | Specifies, in seconds, the amount of time a RPCSEC_GSS context is permitted to remain unused before it is deleted.   |

#### iops\_raw

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

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

#### 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 | Performance metric for write I/O operations.   |

#### throughput\_raw

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

| Name | Type    | Description                                 |
|------|---------|---|
| 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 | Performance metric for write I/O operations.                    |

v3

The NFSv3 operations

| Name        | Type                        | Description  |
|-------------|-----------------------------|--|
| iops_raw    | <a href="#">iops_raw</a>    | 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 | <a href="#">latency_raw</a> | 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".<br>"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.<br>"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 | <a href="#">throughput_raw</a> | 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 | <a href="#">iops_raw</a> | 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         | <p>Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data".</p> <p>"Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated.</p> <p>"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.</p> |
| throughput_raw | throughput_raw | Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.   |
| timestamp      | string         | The timestamp of the performance data.   |

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".<br>"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.<br>"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.   |
| tcp_max_transfer_size | integer | Specifies the maximum transfer size in bytes, that the storage system negotiates with the client for TCP transport of data for NFSv3 and NFSv4.x protocols. The range is 8192 to 1048576. |
| udp_enabled           | boolean | Specifies whether UDP transports are enabled on the server.   |

windows

| Name                            | Type    | Description  |
|---------------------------------|---------|--|
| default_user                    | string  | Specifies the default Windows user for the NFS server.   |
| map_unknown_uid_to_default_user | boolean | Specifies whether or not the mapping of an unknown UID to the default Windows user is enabled. |

| Name                     | Type    | Description   |
|--------------------------|---------|---|
| v3_ms_dos_client_enabled | boolean | Specifies whether NFSv3 MS-DOS client support is enabled. |

nfs\_service

| Name                              | Type                                  | Description   |
|-----------------------------------|---------------------------------------|---|
| _links                            | <a href="#">_links</a>                |   |
| access_cache_config               | <a href="#">access_cache_config</a>   |   |
| auth_sys_extended_groups_enabled  | boolean                               | Specifies whether or not extended groups support over AUTH_SYS is enabled.  |
| credential_cache                  | <a href="#">credential_cache</a>      |   |
| enabled                           | boolean                               | Specifies if the NFS service is administratively enabled.   |
| exports                           | <a href="#">exports</a>               |   |
| extended_groups_limit             | integer                               | Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.  |
| file_session_io_grouping_count    | integer                               | Number of I/O operations on a file to be grouped and considered as one session for event generation applications, such as FPolicy.                |
| file_session_io_grouping_duration | integer                               | The duration for which I/O operations on a file will be grouped and considered as one session for event generation applications, such as FPolicy. |
| metric                            | <a href="#">metric</a>                | Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |
| protocol                          | <a href="#">protocol</a>              |   |
| protocol_access_rules             | <a href="#">protocol_access_rules</a> |   |
| qtree                             | <a href="#">qtree</a>                 |   |
| root                              | <a href="#">root</a>                  |   |

| Name              | Type                       | Description   |
|-------------------|----------------------------|---|
| rquota_enabled    | boolean                    | Specifies whether or not the remote quota feature is enabled.   |
| security          | <a href="#">security</a>   |   |
| 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        | <a href="#">statistics</a> | Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |
| svm               | <a href="#">svm</a>        |   |
| transport         | <a href="#">transport</a>  |   |
| vstorage_enabled  | boolean                    | Specifies whether or not the VMware vstorage feature is enabled.  |
| windows           | <a href="#">windows</a>    |   |

#### error\_arguments

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

#### error

| Name      | Type                                     | Description       |
|-----------|--|-------------------|
| arguments | array[ <a href="#">error_arguments</a> ] | Message arguments |
| code      | string                                   | Error code        |
| message   | string                                   | Error message     |

| Name   | Type   | Description                                 |
|--------|--------|---|
| 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*
- qtree.export\_enabled - *false*
- qtree.validate\_export - *true*
- access\_cache\_config.ttl\_positive - *60*
- access\_cache\_config.ttl\_negative - *30*
- access\_cache\_config.ttl\_failure - *1*
- access\_cache\_config.harvest\_timeout - *3600*
- access\_cache\_config.isDnsTTLEnabled - *false*
- file\_session\_io\_grouping\_count - *5000*
- file\_session\_io\_grouping\_duration - *120*
- security.nt\_acl\_display\_permission - *false*
- exports.netgroup\_trust\_any\_nsswitch\_no\_match - *false*
- exports.name\_service\_lookup\_protocol - *udp*
- security.permitted\_encryption\_types - *[aes-256,aes-128,des3,des]*
- security.rpcsec\_context\_idle - *0*
- security.chown\_mode - *use\_export\_policy*
- security.ntfs\_unix\_security - *use\_export\_policy*
- windows.v3\_ms\_dos\_client\_enabled - *false*
- windows.default\_user - *""*
- windows.map\_unknown\_uid\_to\_default\_user - *true*
- credential\_cache.positive\_ttl - *86400000*
- credential\_cache.negative\_ttl - *7200000*
- credential\_cache.transient\_error\_ttl - *30000*
- protocol.v40\_features.acl\_preserve - *true*
- protocol.v41\_features.implementation\_domain - *'netapp.com'*
- protocol.v40\_features.acl\_max\_aces - *400*
- protocol.v3\_features.ejukebox\_enabled - *true*
- protocol.v3\_features.connection\_drop - *true*
- protocol.v3\_features.fsid\_change - *true*
- protocol.v3\_features.mount\_daemon\_port - *635*
- protocol.v3\_features.network\_lock\_manager\_port - *4045*
- protocol.v3\_features.network\_status\_monitor\_port - *4046*

- `protocol.v3_features.rquota_daemon_port` - 4046
- `protocol.v3_features.mount_root_only` - *true*
- `transport.tcp_max_transfer_size` - 65536
- `root.ignore_nt_acl` - *false*
- `root.skip_write_permission_check` - *false*

## Related ONTAP commands

- `vserver nfs create`
- `export-policy access-cache config show`

## Learn more

- [DOC /protocols/nfs/services](#)

## Parameters

| Name                        | Type    | In    | Required | Description  |
|-----------------------------|---------|-------|----------|--|
| <code>return_records</code> | boolean | query | False    | The default is false. If set to true, the records are returned. <ul style="list-style-type: none"> <li>• Default value:</li> </ul> |

## Request Body

| Name  | Type                                | Description  |
|---|-------------------------------------|--|
| <code>_links</code>                           | <a href="#">_links</a>              |  |
| <code>access_cache_config</code>              | <a href="#">access_cache_config</a> |  |
| <code>auth_sys_extended_groups_enabled</code> | boolean                             | Specifies whether or not extended groups support over AUTH_SYS is enabled.     |
| <code>credential_cache</code>                 | <a href="#">credential_cache</a>    |  |
| <code>enabled</code>                          | boolean                             | Specifies if the NFS service is administratively enabled.                      |
| <code>exports</code>                          | <a href="#">exports</a>             |  |
| <code>extended_groups_limit</code>            | integer                             | Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS. |

| Name                              | Type                                  | Description   |
|-----------------------------------|---------------------------------------|---|
| file_session_io_grouping_count    | integer                               | Number of I/O operations on a file to be grouped and considered as one session for event generation applications, such as FPolicy.  |
| file_session_io_grouping_duration | integer                               | The duration for which I/O operations on a file will be grouped and considered as one session for event generation applications, such as FPolicy.   |
| metric                            | <a href="#">metric</a>                | Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |
| protocol                          | <a href="#">protocol</a>              |   |
| protocol_access_rules             | <a href="#">protocol_access_rules</a> |   |
| qtree                             | <a href="#">qtree</a>                 |   |
| root                              | <a href="#">root</a>                  |   |
| rquota_enabled                    | boolean                               | Specifies whether or not the remote quota feature is enabled.   |
| security                          | <a href="#">security</a>              |   |
| 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                        | <a href="#">statistics</a>            | Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |
| svm                               | <a href="#">svm</a>                   |   |
| transport                         | <a href="#">transport</a>             |   |
| vstorage_enabled                  | boolean                               | Specifies whether or not the VMware vstorage feature is enabled.  |
| windows                           | <a href="#">windows</a>               |   |



## Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "credential_cache": {
    "negative_ttl": 720000,
    "positive_ttl": 720000,
    "transient_error_ttl": 72000
  },
  "exports": {
    "name_service_lookup_protocol": "tcp"
  },
  "extended_groups_limit": 32,
  "file_session_io_grouping_count": 5000,
  "file_session_io_grouping_duration": 120,
  "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"
  }
},
"protocol": {
  "v40_features": {
    "acl_max_aces": 500
  }
},
"protocol_access_rules": {
  "cifs_access_type": "read",
  "nfs3_access_type": "read",
  "nfs4_access_type": "read"
},
"security": {
  "chown_mode": "restricted",
  "ntfs_unix_security": "ignore",
  "permitted_encryption_types": {
  }
},
"state": "online",
"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"
},
"transport": {
  "tcp_max_transfer_size": 16384
}

```

```
}
```

## Response

Status: 201, Created

| Name                   | Type                                 | Description                  |
|------------------------|--------------------------------------|------------------------------|
| <a href="#">_links</a> | <a href="#">_links</a>               |                              |
| num_records            | integer                              | Number of NFS Server Records |
| records                | array[ <a href="#">nfs_service</a> ] |                              |

## Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "credential_cache": {
      "negative_ttl": 720000,
      "positive_ttl": 720000,
      "transient_error_ttl": 72000
    },
    "exports": {
      "name_service_lookup_protocol": "tcp"
    },
    "extended_groups_limit": 32,
    "file_session_io_grouping_count": 5000,
    "file_session_io_grouping_duration": 120,
    "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"
}
},
"protocol": {
  "v40_features": {
    "acl_max_aces": 500
  }
},
"protocol_access_rules": {
  "cifs_access_type": "read",
  "nfs3_access_type": "read",
  "nfs4_access_type": "read"
},
"security": {
  "chown_mode": "restricted",
  "ntfs_unix_security": "ignore",
  "permitted_encryption_types": {
  }
},
"state": "online",
"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"
},
"transport": {
    "tcp_max_transfer_size": 16384
}
}
}

```

## 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  |
| 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   |

| Error Code | Description   |
|------------|---|
| 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 |

| 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 | <a href="#">href</a> |             |

access\_cache\_config

| Name            | Type    | Description   |
|-----------------|---------|---|
| harvest_timeout | integer | Specifies the time after which an entry is deleted from the access cache, if unused.          |
| isDnsTTLEnabled | boolean | Specifies whether Dns TTL is enabled.   |
| ttl_failure     | integer | Specifies the time to live value for entries for which a failure was encountered, in seconds. |
| ttl_negative    | integer | Specifies the time to live value of a negative access cache, in seconds.                      |
| ttl_positive    | integer | Specifies the time to live value of a positive access cache, in seconds.                      |

credential\_cache

| Name         | Type    | Description  |
|--------------|---------|--|
| negative_ttl | integer | Specifies the age in milliseconds, of the negative cached credentials after which they are cleared from the cache. |
| positive_ttl | integer | Specifies the age in milliseconds, of the positive cached credentials after which they are cleared from the cache. |

| Name                | Type    | Description  |
|---------------------|---------|--|
| transient_error_ttl | integer | Specifies the age in milliseconds, of the cached entries during a transient error situation. |

#### exports

| Name                                 | Type    | Description  |
|--------------------------------------|---------|--|
| name_service_lookup_protocol         | string  | Specifies the protocol to use for doing name service lookups.  |
| netgroup_trust_any_nsswitch_no_match | boolean | Specifies if you can consider a no-match result from any of the netgroup ns-switch sources to be authoritative. If this option is enabled, then a no-match response from any of the netgroup ns-switch sources is deemed conclusive even if other sources could not be searched. |

#### iops

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

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

#### latency

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

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

### throughput

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

### v3

The NFSv3 operations

| Name                   | Type                   | Description  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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                   | <a href="#">iops</a>   | The rate of I/O operations observed at the storage object.   |

| Name       | Type                       | Description   |
|------------|----------------------------|---|
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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       | <a href="#">iops</a>       | The rate of I/O operations observed at the storage object.  |
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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 |
|------------------------|------------------------|-------------|
| <a href="#">_links</a> | <a href="#">_links</a> |             |



| 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 |

#### v3\_features

| Name                        | Type    | Description   |
|-----------------------------|---------|---|
| connection_drop             | boolean | Specifies whether the dropping of a connection when an NFSv3 request is dropped is enabled.                     |
| ejukebox_enabled            | boolean | Specifies whether NFSv3 EJUKEBOX error is enabled.  |
| fsid_change                 | boolean | Specifies whether the change in FSID as NFSv3 clients traverse filesystems should be shown.                     |
| mount_daemon_port           | integer | Specifies which port the NFS mount daemon (mountd) uses.  |
| mount_root_only             | boolean | Specifies whether the SVM allows MOUNT protocol calls only from privileged ports (port numbers less than 1024). |
| network_lock_manager_port   | integer | Specifies which port the Network lock manager uses.   |
| network_status_monitor_port | integer | Specifies which port the Network status monitor port uses.  |
| rquota_daemon_port          | integer | Specifies which port the NFS quota daemon port uses.  |

#### v40\_features

| Name        | Type    | Description                                |
|-------------|---------|--|
| acl_enabled | boolean | Specifies whether NFSv4.0 ACLs is enabled. |

| Name                     | Type    | Description   |
|--------------------------|---------|---|
| acl_max_aces             | integer | Specifies the maximum number of aces in a NFSv4.0 ACL.  |
| acl_preserve             | boolean | Specifies if the NFSv4 ACL is preserved or dropped when chmod is performed. In unified security style, this parameter also specifies if NTFS file permissions are preserved or dropped when chmod, chgrp, or chown are performed. |
| 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.             |
| implementation_domain    | string  | Specifies the NFSv4.1 or later implementation ID domain.        |
| implementation_name      | string  | Specifies the NFSv4.1 or later implementation ID name.          |
| 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. |

| Name                         | Type                         | Description   |
|------------------------------|------------------------------|---|
| v3_enabled                   | boolean                      | Specifies whether NFSv3 protocol is enabled.  |
| v3_features                  | <a href="#">v3_features</a>  |   |
| v40_enabled                  | boolean                      | Specifies whether NFSv4.0 protocol is enabled.  |
| v40_features                 | <a href="#">v40_features</a> |   |
| v41_enabled                  | boolean                      | Specifies whether NFSv4.1 or later protocol is enabled.   |
| v41_features                 | <a href="#">v41_features</a> |   |
| 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. |

#### protocol\_access\_rules

| Name             | Type   | Description                              |
|------------------|--------|--|
| cifs_access_type | string | Access available for the CIFS protocol.  |
| nfs3_access_type | string | Access available for the NFSv3 protocol. |
| nfs4_access_type | string | Access available for the NFSv4 protocol. |

#### qtree

| Name            | Type    | Description   |
|-----------------|---------|---|
| export_enabled  | boolean | Specifies whether qtree export is enabled.            |
| validate_export | boolean | Specifies whether qtree export validation is enabled. |

#### root

| Name                        | Type    | Description  |
|-----------------------------|---------|--|
| ignore_nt_acl               | boolean | Specifies whether Windows ACLs affect root access from NFS. If this option is enabled, root access from NFS ignores the NT ACL set on the file or directory.                                       |
| skip_write_permission_check | boolean | Specifies if permission checks are to be skipped for NFS WRITE calls from root/owner. For copying read-only files to a destination folder which has inheritable ACLs, this option must be enabled. |

security

| Name                      | Type    | Description  |
|---------------------------|---------|--|
| chown_mode                | string  | Specifies whether file ownership can be changed only by the superuser, or if a non-root user can also change file ownership. If you set this parameter to restricted, file ownership can be changed only by the superuser, even though the on-disk permissions allow a non-root user to change file ownership. If you set this parameter to unrestricted, file ownership can be changed by the superuser and by the non-root user, depending upon the access granted by on-disk permissions. If you set this parameter to use-export-policy, file ownership can be changed in accordance with the relevant export rules. |
| nt_acl_display_permission | boolean | Controls the permissions that are displayed to NFSv3 and NFSv4 clients on a file or directory that has an NT ACL set. When true, the displayed permissions are based on the maximum access granted by the NT ACL to any user. When false, the displayed permissions are based on the minimum access granted by the NT ACL to any user.   |

| Name                       | Type          | Description   |
|----------------------------|---------------|---|
| ntfs_unix_security         | string        | <p>Specifies how NFSv3 security changes affect NTFS volumes. If you set this parameter to ignore, ONTAP ignores NFSv3 security changes. If you set this parameter to fail, this overrides the UNIX security options set in the relevant export rules. If you set this parameter to use_export_policy, ONTAP processes NFSv3 security changes in accordance with the relevant export rules.</p> <ul style="list-style-type: none"> <li>• Default value: 1</li> <li>• enum: ["ignore", "fail", "use_export_policy"]</li> <li>• Introduced in: 9.11</li> </ul> |
| permitted_encryption_types | array[string] | Specifies the permitted encryption types for Kerberos over NFS.   |
| rpcsec_context_idle        | integer       | Specifies, in seconds, the amount of time a RPCSEC_GSS context is permitted to remain unused before it is deleted.  |

#### 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.  |

| Name  | Type    | Description                                  |
|-------|---------|--|
| write | integer | Performance metric for write I/O operations. |

#### latency\_raw

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

#### throughput\_raw

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

#### v3

The NFSv3 operations

| Name           | Type                           | Description   |
|----------------|--------------------------------|---|
| iops_raw       | <a href="#">iops_raw</a>       | 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    | <a href="#">latency_raw</a>    | 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".<br>"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.<br>"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 | <a href="#">throughput_raw</a> | 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       | <a href="#">iops_raw</a>       | 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    | <a href="#">latency_raw</a>    | 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".<br>"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.<br>"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 | <a href="#">throughput_raw</a> | 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.  |

## 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         | <p>Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data".</p> <p>"Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated.</p> <p>"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.</p> |
| throughput_raw | throughput_raw | Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.   |

| Name      | Type   | Description                            |
|-----------|--------|--|
| 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   | <a href="#">v3</a>  | The NFSv3 operations   |
| v4   | <a href="#">v4</a>  | The NFSv4 operations   |
| v41  | <a href="#">v41</a> | The NFSv4.1 operations |

#### svm

| Name                   | Type                   | Description                       |
|------------------------|------------------------|-----------------------------------|
| <a href="#">_links</a> | <a href="#">_links</a> |                                   |
| 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.   |
| tcp_max_transfer_size | integer | Specifies the maximum transfer size in bytes, that the storage system negotiates with the client for TCP transport of data for NFSv3 and NFSv4.x protocols. The range is 8192 to 1048576. |
| udp_enabled           | boolean | Specifies whether UDP transports are enabled on the server.   |

#### windows

| Name                            | Type    | Description  |
|---------------------------------|---------|--|
| default_user                    | string  | Specifies the default Windows user for the NFS server.   |
| map_unknown_uid_to_default_user | boolean | Specifies whether or not the mapping of an unknown UID to the default Windows user is enabled. |
| v3_ms_dos_client_enabled        | boolean | Specifies whether NFSv3 MS-DOS client support is enabled.                                      |

#### nfs\_service

| Name                              | Type                                | Description   |
|-----------------------------------|-------------------------------------|---|
| _links                            | <a href="#">_links</a>              |   |
| access_cache_config               | <a href="#">access_cache_config</a> |   |
| auth_sys_extended_groups_enabled  | boolean                             | Specifies whether or not extended groups support over AUTH_SYS is enabled.  |
| credential_cache                  | <a href="#">credential_cache</a>    |   |
| enabled                           | boolean                             | Specifies if the NFS service is administratively enabled.   |
| exports                           | <a href="#">exports</a>             |   |
| extended_groups_limit             | integer                             | Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.  |
| file_session_io_grouping_count    | integer                             | Number of I/O operations on a file to be grouped and considered as one session for event generation applications, such as FPolicy.                |
| file_session_io_grouping_duration | integer                             | The duration for which I/O operations on a file will be grouped and considered as one session for event generation applications, such as FPolicy. |
| metric                            | <a href="#">metric</a>              | Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |

| Name                  | Type                                  | Description   |
|-----------------------|---------------------------------------|---|
| protocol              | <a href="#">protocol</a>              |   |
| protocol_access_rules | <a href="#">protocol_access_rules</a> |   |
| qtree                 | <a href="#">qtree</a>                 |   |
| root                  | <a href="#">root</a>                  |   |
| rquota_enabled        | boolean                               | Specifies whether or not the remote quota feature is enabled.   |
| security              | <a href="#">security</a>              |   |
| 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            | <a href="#">statistics</a>            | Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |
| svm                   | <a href="#">svm</a>                   |   |
| transport             | <a href="#">transport</a>             |   |
| vstorage_enabled      | boolean                               | Specifies whether or not the VMware vstorage feature is enabled.  |
| windows               | <a href="#">windows</a>               |   |

#### [\\_links](#)

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

#### nfs\_service

| Name                   | Type                                | Description |
|------------------------|-------------------------------------|-------------|
| <a href="#">_links</a> | <a href="#">_links</a>              |             |
| access_cache_config    | <a href="#">access_cache_config</a> |             |

| Name                              | Type                                  | Description   |
|-----------------------------------|---------------------------------------|---|
| auth_sys_extended_groups_enabled  | boolean                               | Specifies whether or not extended groups support over AUTH_SYS is enabled.  |
| credential_cache                  | <a href="#">credential_cache</a>      |   |
| enabled                           | boolean                               | Specifies if the NFS service is administratively enabled.   |
| exports                           | <a href="#">exports</a>               |   |
| extended_groups_limit             | integer                               | Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.  |
| file_session_io_grouping_count    | integer                               | Number of I/O operations on a file to be grouped and considered as one session for event generation applications, such as FPolicy.                |
| file_session_io_grouping_duration | integer                               | The duration for which I/O operations on a file will be grouped and considered as one session for event generation applications, such as FPolicy. |
| metric                            | <a href="#">metric</a>                | Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |
| protocol                          | <a href="#">protocol</a>              |   |
| protocol_access_rules             | <a href="#">protocol_access_rules</a> |   |
| qtree                             | <a href="#">qtree</a>                 |   |
| root                              | <a href="#">root</a>                  |   |
| rquota_enabled                    | boolean                               | Specifies whether or not the remote quota feature is enabled.   |
| security                          | <a href="#">security</a>              |   |
| 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: <ul style="list-style-type: none"> <li>• online - NFS server is ready to accept client requests.</li> <li>• offline - NFS server is not ready to accept client requests.</li> </ul> |
| statistics       | <a href="#">statistics</a> | Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.   |
| svm              | <a href="#">svm</a>        |  |
| transport        | <a href="#">transport</a>  |  |
| vstorage_enabled | boolean                    | Specifies whether or not the VMware vstorage feature is enabled.   |
| windows          | <a href="#">windows</a>    |  |

#### error\_arguments

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

#### error

| Name      | Type                                     | Description                                 |
|-----------|--|---|
| arguments | array[ <a href="#">error_arguments</a> ] | Message arguments                           |
| code      | string                                   | Error code                                  |
| message   | string                                   | Error message                               |
| target    | string                                   | The target parameter that caused the error. |

# Delete the 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[ <a href="#">error_arguments</a> ] | Message arguments                           |
| code      | string                                   | Error code                                  |
| message   | string                                   | Error message                               |
| target    | string                                   | The target parameter that caused the error. |

# Retrieve the 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  |
|-------------------------------------|-------------------------------------|--|
| <a href="#">_links</a>              | <a href="#">_links</a>              |  |
| <a href="#">access_cache_config</a> | <a href="#">access_cache_config</a> |  |
| auth_sys_extended_groups_enabled    | boolean                             | Specifies whether or not extended groups support over AUTH_SYS is enabled.     |
| credential_cache                    | <a href="#">credential_cache</a>    |  |
| enabled                             | boolean                             | Specifies if the NFS service is administratively enabled.                      |
| <a href="#">exports</a>             | <a href="#">exports</a>             |  |
| extended_groups_limit               | integer                             | Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS. |

| Name                              | Type                                  | Description  |
|-----------------------------------|---------------------------------------|--|
| file_session_io_grouping_count    | integer                               | Number of I/O operations on a file to be grouped and considered as one session for event generation applications, such as FPolicy.   |
| file_session_io_grouping_duration | integer                               | The duration for which I/O operations on a file will be grouped and considered as one session for event generation applications, such as FPolicy.  |
| metric                            | <a href="#">metric</a>                | Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.   |
| protocol                          | <a href="#">protocol</a>              |  |
| protocol_access_rules             | <a href="#">protocol_access_rules</a> |  |
| qtree                             | <a href="#">qtree</a>                 |  |
| root                              | <a href="#">root</a>                  |  |
| rquota_enabled                    | boolean                               | Specifies whether or not the remote quota feature is enabled.  |
| security                          | <a href="#">security</a>              |  |
| 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: <ul style="list-style-type: none"> <li>• online - NFS server is ready to accept client requests.</li> <li>• offline - NFS server is not ready to accept client requests.</li> </ul> |
| statistics                        | <a href="#">statistics</a>            | Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.   |
| svm                               | <a href="#">svm</a>                   |  |
| transport                         | <a href="#">transport</a>             |  |
| vstorage_enabled                  | boolean                               | Specifies whether or not the VMware vstorage feature is enabled.   |

| Name    | Type    | Description |
|---------|---------|-------------|
| windows | windows |             |

## Example response

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "credential_cache": {
    "negative_ttl": 720000,
    "positive_ttl": 720000,
    "transient_error_ttl": 72000
  },
  "exports": {
    "name_service_lookup_protocol": "tcp"
  },
  "extended_groups_limit": 32,
  "file_session_io_grouping_count": 5000,
  "file_session_io_grouping_duration": 120,
  "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"
  }
},
"protocol": {
  "v40_features": {
    "acl_max_aces": 500
  }
},
"protocol_access_rules": {
  "cifs_access_type": "read",
  "nfs3_access_type": "read",
  "nfs4_access_type": "read"
},
"security": {
  "chown_mode": "restricted",
  "ntfs_unix_security": "ignore",
  "permitted_encryption_types": {
  }
},
"state": "online",
"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"
},
"transport": {
  "tcp_max_transfer_size": 16384
}

```



```
}
```

## Error

```
Status: Default, Error
```

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

### 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 | <a href="#">href</a> |             |

access\_cache\_config

| Name            | Type    | Description   |
|-----------------|---------|---|
| harvest_timeout | integer | Specifies the time after which an entry is deleted from the access cache, if unused.          |
| isDnsTTLEnabled | boolean | Specifies whether Dns TTL is enabled.   |
| ttl_failure     | integer | Specifies the time to live value for entries for which a failure was encountered, in seconds. |
| ttl_negative    | integer | Specifies the time to live value of a negative access cache, in seconds.                      |
| ttl_positive    | integer | Specifies the time to live value of a positive access cache, in seconds.                      |

credential\_cache

| Name         | Type    | Description  |
|--------------|---------|--|
| negative_ttl | integer | Specifies the age in milliseconds, of the negative cached credentials after which they are cleared from the cache. |
| positive_ttl | integer | Specifies the age in milliseconds, of the positive cached credentials after which they are cleared from the cache. |

| Name                | Type    | Description  |
|---------------------|---------|--|
| transient_error_ttl | integer | Specifies the age in milliseconds, of the cached entries during a transient error situation. |

#### exports

| Name                                 | Type    | Description  |
|--------------------------------------|---------|--|
| name_service_lookup_protocol         | string  | Specifies the protocol to use for doing name service lookups.  |
| netgroup_trust_any_nsswitch_no_match | boolean | Specifies if you can consider a no-match result from any of the netgroup ns-switch sources to be authoritative. If this option is enabled, then a no-match response from any of the netgroup ns-switch sources is deemed conclusive even if other sources could not be searched. |

#### iops

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

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

#### latency

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

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

### throughput

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

### v3

The NFSv3 operations

| Name                   | Type                   | Description  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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                   | <a href="#">iops</a>   | The rate of I/O operations observed at the storage object.   |

| Name       | Type                       | Description   |
|------------|----------------------------|---|
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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       | <a href="#">iops</a>       | The rate of I/O operations observed at the storage object.  |
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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 |
|------------------------|------------------------|-------------|
| <a href="#">_links</a> | <a href="#">_links</a> |             |

| 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 |

#### v3\_features

| Name                        | Type    | Description   |
|-----------------------------|---------|---|
| connection_drop             | boolean | Specifies whether the dropping of a connection when an NFSv3 request is dropped is enabled.                     |
| ejukebox_enabled            | boolean | Specifies whether NFSv3 EJUKEBOX error is enabled.  |
| fsid_change                 | boolean | Specifies whether the change in FSID as NFSv3 clients traverse filesystems should be shown.                     |
| mount_daemon_port           | integer | Specifies which port the NFS mount daemon (mountd) uses.  |
| mount_root_only             | boolean | Specifies whether the SVM allows MOUNT protocol calls only from privileged ports (port numbers less than 1024). |
| network_lock_manager_port   | integer | Specifies which port the Network lock manager uses.   |
| network_status_monitor_port | integer | Specifies which port the Network status monitor port uses.  |
| rquota_daemon_port          | integer | Specifies which port the NFS quota daemon port uses.  |

#### v40\_features

| Name        | Type    | Description                                |
|-------------|---------|--|
| acl_enabled | boolean | Specifies whether NFSv4.0 ACLs is enabled. |



| Name                     | Type    | Description   |
|--------------------------|---------|---|
| acl_max_aces             | integer | Specifies the maximum number of aces in a NFSv4.0 ACL.  |
| acl_preserve             | boolean | Specifies if the NFSv4 ACL is preserved or dropped when chmod is performed. In unified security style, this parameter also specifies if NTFS file permissions are preserved or dropped when chmod, chgrp, or chown are performed. |
| 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.             |
| implementation_domain    | string  | Specifies the NFSv4.1 or later implementation ID domain.        |
| implementation_name      | string  | Specifies the NFSv4.1 or later implementation ID name.          |
| 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. |

| Name                         | Type                         | Description   |
|------------------------------|------------------------------|---|
| v3_enabled                   | boolean                      | Specifies whether NFSv3 protocol is enabled.  |
| v3_features                  | <a href="#">v3_features</a>  |   |
| v40_enabled                  | boolean                      | Specifies whether NFSv4.0 protocol is enabled.  |
| v40_features                 | <a href="#">v40_features</a> |   |
| v41_enabled                  | boolean                      | Specifies whether NFSv4.1 or later protocol is enabled.   |
| v41_features                 | <a href="#">v41_features</a> |   |
| 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. |

#### protocol\_access\_rules

| Name             | Type   | Description                              |
|------------------|--------|--|
| cifs_access_type | string | Access available for the CIFS protocol.  |
| nfs3_access_type | string | Access available for the NFSv3 protocol. |
| nfs4_access_type | string | Access available for the NFSv4 protocol. |

#### qtree

| Name            | Type    | Description   |
|-----------------|---------|---|
| export_enabled  | boolean | Specifies whether qtree export is enabled.            |
| validate_export | boolean | Specifies whether qtree export validation is enabled. |

#### root

| Name                        | Type    | Description  |
|-----------------------------|---------|--|
| ignore_nt_acl               | boolean | Specifies whether Windows ACLs affect root access from NFS. If this option is enabled, root access from NFS ignores the NT ACL set on the file or directory.                                       |
| skip_write_permission_check | boolean | Specifies if permission checks are to be skipped for NFS WRITE calls from root/owner. For copying read-only files to a destination folder which has inheritable ACLs, this option must be enabled. |

#### security

| Name                      | Type    | Description  |
|---------------------------|---------|--|
| chown_mode                | string  | Specifies whether file ownership can be changed only by the superuser, or if a non-root user can also change file ownership. If you set this parameter to restricted, file ownership can be changed only by the superuser, even though the on-disk permissions allow a non-root user to change file ownership. If you set this parameter to unrestricted, file ownership can be changed by the superuser and by the non-root user, depending upon the access granted by on-disk permissions. If you set this parameter to use-export-policy, file ownership can be changed in accordance with the relevant export rules. |
| nt_acl_display_permission | boolean | Controls the permissions that are displayed to NFSv3 and NFSv4 clients on a file or directory that has an NT ACL set. When true, the displayed permissions are based on the maximum access granted by the NT ACL to any user. When false, the displayed permissions are based on the minimum access granted by the NT ACL to any user.   |

| Name                       | Type          | Description   |
|----------------------------|---------------|---|
| ntfs_unix_security         | string        | <p>Specifies how NFSv3 security changes affect NTFS volumes. If you set this parameter to ignore, ONTAP ignores NFSv3 security changes. If you set this parameter to fail, this overrides the UNIX security options set in the relevant export rules. If you set this parameter to use_export_policy, ONTAP processes NFSv3 security changes in accordance with the relevant export rules.</p> <ul style="list-style-type: none"> <li>• Default value: 1</li> <li>• enum: ["ignore", "fail", "use_export_policy"]</li> <li>• Introduced in: 9.11</li> </ul> |
| permitted_encryption_types | array[string] | Specifies the permitted encryption types for Kerberos over NFS.   |
| rpcsec_context_idle        | integer       | Specifies, in seconds, the amount of time a RPCSEC_GSS context is permitted to remain unused before it is deleted.  |

#### 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.  |

| Name  | Type    | Description                                  |
|-------|---------|--|
| write | integer | Performance metric for write I/O operations. |

#### latency\_raw

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

#### throughput\_raw

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

#### v3

The NFSv3 operations

| Name           | Type                           | Description   |
|----------------|--------------------------------|---|
| iops_raw       | <a href="#">iops_raw</a>       | 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    | <a href="#">latency_raw</a>    | 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".<br>"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.<br>"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 | <a href="#">throughput_raw</a> | 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       | <a href="#">iops_raw</a>       | 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    | <a href="#">latency_raw</a>    | 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".<br>"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.<br>"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 | <a href="#">throughput_raw</a> | 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.  |

## 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         | <p>Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data".</p> <p>"Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated.</p> <p>"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.</p> |
| throughput_raw | throughput_raw | Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.   |



| Name      | Type   | Description                            |
|-----------|--------|--|
| 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   | <a href="#">v3</a>  | The NFSv3 operations   |
| v4   | <a href="#">v4</a>  | The NFSv4 operations   |
| v41  | <a href="#">v41</a> | The NFSv4.1 operations |

#### svm

| Name                   | Type                   | Description                       |
|------------------------|------------------------|-----------------------------------|
| <a href="#">_links</a> | <a href="#">_links</a> |                                   |
| 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.   |
| tcp_max_transfer_size | integer | Specifies the maximum transfer size in bytes, that the storage system negotiates with the client for TCP transport of data for NFSv3 and NFSv4.x protocols. The range is 8192 to 1048576. |
| udp_enabled           | boolean | Specifies whether UDP transports are enabled on the server.   |

#### windows

| Name                            | Type    | Description  |
|---------------------------------|---------|--|
| default_user                    | string  | Specifies the default Windows user for the NFS server.   |
| map_unknown_uid_to_default_user | boolean | Specifies whether or not the mapping of an unknown UID to the default Windows user is enabled. |
| v3_ms_dos_client_enabled        | boolean | Specifies whether NFSv3 MS-DOS client support is enabled.                                      |

#### error\_arguments

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

#### error

| Name      | Type                                     | Description                                 |
|-----------|--|---|
| arguments | array[ <a href="#">error_arguments</a> ] | Message arguments                           |
| code      | string                                   | Error code                                  |
| message   | string                                   | Error message                               |
| target    | string                                   | The target parameter that caused the error. |

## Update the 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   |
|--|-------------------------------------|---|
| <code>_links</code>                            | <a href="#">_links</a>              |   |
| <code>access_cache_config</code>               | <a href="#">access_cache_config</a> |   |
| <code>auth_sys_extended_groups_enabled</code>  | boolean                             | Specifies whether or not extended groups support over AUTH_SYS is enabled.  |
| <code>credential_cache</code>                  | <a href="#">credential_cache</a>    |   |
| <code>enabled</code>                           | boolean                             | Specifies if the NFS service is administratively enabled.   |
| <code>exports</code>                           | <a href="#">exports</a>             |   |
| <code>extended_groups_limit</code>             | integer                             | Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.  |
| <code>file_session_io_grouping_count</code>    | integer                             | Number of I/O operations on a file to be grouped and considered as one session for event generation applications, such as FPolicy.                |
| <code>file_session_io_grouping_duration</code> | integer                             | The duration for which I/O operations on a file will be grouped and considered as one session for event generation applications, such as FPolicy. |
| <code>metric</code>                            | <a href="#">metric</a>              | Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |

| Name                  | Type                                  | Description  |
|-----------------------|---------------------------------------|--|
| protocol              | <a href="#">protocol</a>              |  |
| protocol_access_rules | <a href="#">protocol_access_rules</a> |  |
| qtree                 | <a href="#">qtree</a>                 |  |
| root                  | <a href="#">root</a>                  |  |
| rquota_enabled        | boolean                               | Specifies whether or not the remote quota feature is enabled.  |
| security              | <a href="#">security</a>              |  |
| 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: <ul style="list-style-type: none"> <li>• online - NFS server is ready to accept client requests.</li> <li>• offline - NFS server is not ready to accept client requests.</li> </ul> |
| statistics            | <a href="#">statistics</a>            | Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.   |
| svm                   | <a href="#">svm</a>                   |  |
| transport             | <a href="#">transport</a>             |  |
| vstorage_enabled      | boolean                               | Specifies whether or not the VMware vstorage feature is enabled.   |
| windows               | <a href="#">windows</a>               |  |

## Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "credential_cache": {
    "negative_ttl": 720000,
    "positive_ttl": 720000,
    "transient_error_ttl": 72000
  },
  "exports": {
    "name_service_lookup_protocol": "tcp"
  },
  "extended_groups_limit": 32,
  "file_session_io_grouping_count": 5000,
  "file_session_io_grouping_duration": 120,
  "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"
  }
},
"protocol": {
  "v40_features": {
    "acl_max_aces": 500
  }
},
"protocol_access_rules": {
  "cifs_access_type": "read",
  "nfs3_access_type": "read",
  "nfs4_access_type": "read"
},
"security": {
  "chown_mode": "restricted",
  "ntfs_unix_security": "ignore",
  "permitted_encryption_types": {
  }
},
"state": "online",
"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"
},
"transport": {
  "tcp_max_transfer_size": 16384
}

```



```
}
```

## 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 |

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

## 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 | <a href="#">href</a> |             |

access\_cache\_config

| Name            | Type    | Description   |
|-----------------|---------|---|
| harvest_timeout | integer | Specifies the time after which an entry is deleted from the access cache, if unused.          |
| isDnsTTLEnabled | boolean | Specifies whether Dns TTL is enabled.   |
| ttl_failure     | integer | Specifies the time to live value for entries for which a failure was encountered, in seconds. |
| ttl_negative    | integer | Specifies the time to live value of a negative access cache, in seconds.                      |
| ttl_positive    | integer | Specifies the time to live value of a positive access cache, in seconds.                      |

credential\_cache

| Name         | Type    | Description  |
|--------------|---------|--|
| negative_ttl | integer | Specifies the age in milliseconds, of the negative cached credentials after which they are cleared from the cache. |
| positive_ttl | integer | Specifies the age in milliseconds, of the positive cached credentials after which they are cleared from the cache. |

| Name                | Type    | Description  |
|---------------------|---------|--|
| transient_error_ttl | integer | Specifies the age in milliseconds, of the cached entries during a transient error situation. |

#### exports

| Name                                 | Type    | Description  |
|--------------------------------------|---------|--|
| name_service_lookup_protocol         | string  | Specifies the protocol to use for doing name service lookups.  |
| netgroup_trust_any_nsswitch_no_match | boolean | Specifies if you can consider a no-match result from any of the netgroup ns-switch sources to be authoritative. If this option is enabled, then a no-match response from any of the netgroup ns-switch sources is deemed conclusive even if other sources could not be searched. |

#### iops

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

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

#### latency

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

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

### throughput

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

### v3

The NFSv3 operations

| Name                   | Type                   | Description  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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                   | <a href="#">iops</a>   | The rate of I/O operations observed at the storage object.   |

| Name       | Type                       | Description   |
|------------|----------------------------|---|
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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       | <a href="#">iops</a>       | The rate of I/O operations observed at the storage object.  |
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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 |
|------------------------|------------------------|-------------|
| <a href="#">_links</a> | <a href="#">_links</a> |             |

| 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 |

#### v3\_features

| Name                        | Type    | Description   |
|-----------------------------|---------|---|
| connection_drop             | boolean | Specifies whether the dropping of a connection when an NFSv3 request is dropped is enabled.                     |
| ejukebox_enabled            | boolean | Specifies whether NFSv3 EJUKEBOX error is enabled.  |
| fsid_change                 | boolean | Specifies whether the change in FSID as NFSv3 clients traverse filesystems should be shown.                     |
| mount_daemon_port           | integer | Specifies which port the NFS mount daemon (mountd) uses.  |
| mount_root_only             | boolean | Specifies whether the SVM allows MOUNT protocol calls only from privileged ports (port numbers less than 1024). |
| network_lock_manager_port   | integer | Specifies which port the Network lock manager uses.   |
| network_status_monitor_port | integer | Specifies which port the Network status monitor port uses.  |
| rquota_daemon_port          | integer | Specifies which port the NFS quota daemon port uses.  |

#### v40\_features

| Name        | Type    | Description                                |
|-------------|---------|--|
| acl_enabled | boolean | Specifies whether NFSv4.0 ACLs is enabled. |

| Name                     | Type    | Description   |
|--------------------------|---------|---|
| acl_max_aces             | integer | Specifies the maximum number of aces in a NFSv4.0 ACL.  |
| acl_preserve             | boolean | Specifies if the NFSv4 ACL is preserved or dropped when chmod is performed. In unified security style, this parameter also specifies if NTFS file permissions are preserved or dropped when chmod, chgrp, or chown are performed. |
| 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.             |
| implementation_domain    | string  | Specifies the NFSv4.1 or later implementation ID domain.        |
| implementation_name      | string  | Specifies the NFSv4.1 or later implementation ID name.          |
| 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. |

| Name                         | Type                         | Description   |
|------------------------------|------------------------------|---|
| v3_enabled                   | boolean                      | Specifies whether NFSv3 protocol is enabled.  |
| v3_features                  | <a href="#">v3_features</a>  |   |
| v40_enabled                  | boolean                      | Specifies whether NFSv4.0 protocol is enabled.  |
| v40_features                 | <a href="#">v40_features</a> |   |
| v41_enabled                  | boolean                      | Specifies whether NFSv4.1 or later protocol is enabled.   |
| v41_features                 | <a href="#">v41_features</a> |   |
| 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. |

#### protocol\_access\_rules

| Name             | Type   | Description                              |
|------------------|--------|--|
| cifs_access_type | string | Access available for the CIFS protocol.  |
| nfs3_access_type | string | Access available for the NFSv3 protocol. |
| nfs4_access_type | string | Access available for the NFSv4 protocol. |

#### qtree

| Name            | Type    | Description   |
|-----------------|---------|---|
| export_enabled  | boolean | Specifies whether qtree export is enabled.            |
| validate_export | boolean | Specifies whether qtree export validation is enabled. |

#### root

| Name                        | Type    | Description  |
|-----------------------------|---------|--|
| ignore_nt_acl               | boolean | Specifies whether Windows ACLs affect root access from NFS. If this option is enabled, root access from NFS ignores the NT ACL set on the file or directory.                                       |
| skip_write_permission_check | boolean | Specifies if permission checks are to be skipped for NFS WRITE calls from root/owner. For copying read-only files to a destination folder which has inheritable ACLs, this option must be enabled. |

security

| Name                      | Type    | Description  |
|---------------------------|---------|--|
| chown_mode                | string  | Specifies whether file ownership can be changed only by the superuser, or if a non-root user can also change file ownership. If you set this parameter to restricted, file ownership can be changed only by the superuser, even though the on-disk permissions allow a non-root user to change file ownership. If you set this parameter to unrestricted, file ownership can be changed by the superuser and by the non-root user, depending upon the access granted by on-disk permissions. If you set this parameter to use-export-policy, file ownership can be changed in accordance with the relevant export rules. |
| nt_acl_display_permission | boolean | Controls the permissions that are displayed to NFSv3 and NFSv4 clients on a file or directory that has an NT ACL set. When true, the displayed permissions are based on the maximum access granted by the NT ACL to any user. When false, the displayed permissions are based on the minimum access granted by the NT ACL to any user.   |

| Name                       | Type          | Description   |
|----------------------------|---------------|---|
| ntfs_unix_security         | string        | <p>Specifies how NFSv3 security changes affect NTFS volumes. If you set this parameter to ignore, ONTAP ignores NFSv3 security changes. If you set this parameter to fail, this overrides the UNIX security options set in the relevant export rules. If you set this parameter to use_export_policy, ONTAP processes NFSv3 security changes in accordance with the relevant export rules.</p> <ul style="list-style-type: none"> <li>• Default value: 1</li> <li>• enum: ["ignore", "fail", "use_export_policy"]</li> <li>• Introduced in: 9.11</li> </ul> |
| permitted_encryption_types | array[string] | Specifies the permitted encryption types for Kerberos over NFS.   |
| rpcsec_context_idle        | integer       | Specifies, in seconds, the amount of time a RPCSEC_GSS context is permitted to remain unused before it is deleted.  |

#### 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.  |

| Name  | Type    | Description                                  |
|-------|---------|--|
| write | integer | Performance metric for write I/O operations. |

#### latency\_raw

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

#### throughput\_raw

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

#### v3

The NFSv3 operations

| Name           | Type                           | Description   |
|----------------|--------------------------------|---|
| iops_raw       | <a href="#">iops_raw</a>       | 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    | <a href="#">latency_raw</a>    | 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".<br>"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.<br>"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 | <a href="#">throughput_raw</a> | 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       | <a href="#">iops_raw</a>       | 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    | <a href="#">latency_raw</a>    | 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".<br>"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.<br>"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 | <a href="#">throughput_raw</a> | 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.  |



## 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         | <p>Any errors associated with the sample. For example, if the aggregation of data over multiple nodes fails then any of the partial errors might be returned, "ok" on success, or "error" on any internal uncategorized failure. Whenever a sample collection is missed but done at a later time, it is back filled to the previous 15 second timestamp and tagged with "backfilled_data".</p> <p>"Inconsistent_delta_time" is encountered when the time between two collections is not the same for all nodes. Therefore, the aggregated value might be over or under inflated.</p> <p>"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.</p> |
| throughput_raw | throughput_raw | Throughput bytes observed at the storage object. This should be used along with delta time to calculate the rate of throughput bytes per unit of time.   |

| Name      | Type   | Description                            |
|-----------|--------|--|
| 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   | <a href="#">v3</a>  | The NFSv3 operations   |
| v4   | <a href="#">v4</a>  | The NFSv4 operations   |
| v41  | <a href="#">v41</a> | The NFSv4.1 operations |

#### svm

| Name                   | Type                   | Description                       |
|------------------------|------------------------|-----------------------------------|
| <a href="#">_links</a> | <a href="#">_links</a> |                                   |
| 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.   |
| tcp_max_transfer_size | integer | Specifies the maximum transfer size in bytes, that the storage system negotiates with the client for TCP transport of data for NFSv3 and NFSv4.x protocols. The range is 8192 to 1048576. |
| udp_enabled           | boolean | Specifies whether UDP transports are enabled on the server.   |

#### windows

| Name                            | Type    | Description  |
|---------------------------------|---------|--|
| default_user                    | string  | Specifies the default Windows user for the NFS server.   |
| map_unknown_uid_to_default_user | boolean | Specifies whether or not the mapping of an unknown UID to the default Windows user is enabled. |
| v3_ms_dos_client_enabled        | boolean | Specifies whether NFSv3 MS-DOS client support is enabled.                                      |

#### nfs\_service

| Name                              | Type                                | Description   |
|-----------------------------------|-------------------------------------|---|
| _links                            | <a href="#">_links</a>              |   |
| access_cache_config               | <a href="#">access_cache_config</a> |   |
| auth_sys_extended_groups_enabled  | boolean                             | Specifies whether or not extended groups support over AUTH_SYS is enabled.  |
| credential_cache                  | <a href="#">credential_cache</a>    |   |
| enabled                           | boolean                             | Specifies if the NFS service is administratively enabled.   |
| exports                           | <a href="#">exports</a>             |   |
| extended_groups_limit             | integer                             | Specifies the maximum auxillary groups supported over AUTH_SYS and RPCSEC_GSS.  |
| file_session_io_grouping_count    | integer                             | Number of I/O operations on a file to be grouped and considered as one session for event generation applications, such as FPolicy.                |
| file_session_io_grouping_duration | integer                             | The duration for which I/O operations on a file will be grouped and considered as one session for event generation applications, such as FPolicy. |
| metric                            | <a href="#">metric</a>              | Historical performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.  |

| Name                  | Type                                  | Description  |
|-----------------------|---------------------------------------|--|
| protocol              | <a href="#">protocol</a>              |  |
| protocol_access_rules | <a href="#">protocol_access_rules</a> |  |
| qtree                 | <a href="#">qtree</a>                 |  |
| root                  | <a href="#">root</a>                  |  |
| rquota_enabled        | boolean                               | Specifies whether or not the remote quota feature is enabled.  |
| security              | <a href="#">security</a>              |  |
| 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: <ul style="list-style-type: none"> <li>• online - NFS server is ready to accept client requests.</li> <li>• offline - NFS server is not ready to accept client requests.</li> </ul> |
| statistics            | <a href="#">statistics</a>            | Realtime performance numbers, such as IOPS latency and throughput, for SVM-NFS protocol.   |
| svm                   | <a href="#">svm</a>                   |  |
| transport             | <a href="#">transport</a>             |  |
| vstorage_enabled      | boolean                               | Specifies whether or not the VMware vstorage feature is enabled.   |
| windows               | <a href="#">windows</a>               |  |

#### error\_arguments

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

error

| Name      | Type                                     | Description                                 |
|-----------|--|---|
| arguments | array[ <a href="#">error_arguments</a> ] | 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                |
|------------------|---------|-------|----------|----------------------------|
| 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.latency.total | integer | query | False    | Filter by v3.latency.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    |
| v3.iops.total    | integer | query | False    | Filter by v3.iops.total    |

| Name                | Type    | In    | Required | Description   |
|---------------------|---------|-------|----------|---|
| v3.throughput.write | integer | query | False    | Filter by v3.throughput.write                           |
| v3.throughput.total | integer | query | False    | Filter by v3.throughput.total                           |
| v3.throughput.read  | integer | query | False    | Filter by v3.throughput.read                            |
| v3.status           | string  | query | False    | Filter by v3.status                                     |
| v3.duration         | string  | query | False    | Filter by v3.duration                                   |
| timestamp           | string  | query | False    | Filter by timestamp                                     |
| v41.latency.other   | integer | query | False    | Filter by v41.latency.other<br><br>• Introduced in: 9.8 |
| v41.latency.read    | integer | query | False    | Filter by v41.latency.read<br><br>• Introduced in: 9.8  |
| v41.latency.write   | integer | query | False    | Filter by v41.latency.write<br><br>• Introduced in: 9.8 |
| v41.latency.total   | integer | query | False    | Filter by v41.latency.total<br><br>• Introduced in: 9.8 |
| v41.iops.other      | integer | query | False    | Filter by v41.iops.other<br><br>• Introduced in: 9.8    |

| Name                 | Type    | In    | Required | Description  |
|----------------------|---------|-------|----------|--|
| v41.iops.read        | integer | query | False    | Filter by v41.iops.read<br><br>• Introduced in: 9.8        |
| v41.iops.write       | integer | query | False    | Filter by v41.iops.write<br><br>• Introduced in: 9.8       |
| v41.iops.total       | integer | query | False    | Filter by v41.iops.total<br><br>• Introduced in: 9.8       |
| v41.throughput.write | integer | query | False    | Filter by v41.throughput.write<br><br>• Introduced in: 9.8 |
| v41.throughput.total | integer | query | False    | Filter by v41.throughput.total<br><br>• Introduced in: 9.8 |
| v41.throughput.read  | integer | query | False    | Filter by v41.throughput.read<br><br>• Introduced in: 9.8  |
| v41.status           | string  | query | False    | Filter by v41.status<br><br>• Introduced in: 9.8           |
| v41.duration         | string  | query | False    | Filter by v41.duration<br><br>• Introduced in: 9.8         |

| Name                | Type    | In    | Required | Description   |
|---------------------|---------|-------|----------|---|
| v4.status           | string  | query | False    | Filter by v4.status<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul>           |
| v4.throughput.write | integer | query | False    | Filter by v4.throughput.write<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul> |
| v4.throughput.total | integer | query | False    | Filter by v4.throughput.total<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul> |
| v4.throughput.read  | integer | query | False    | Filter by v4.throughput.read<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul>  |
| v4.duration         | string  | query | False    | Filter by v4.duration<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul>         |
| v4.latency.other    | integer | query | False    | Filter by v4.latency.other<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul>    |
| v4.latency.read     | integer | query | False    | Filter by v4.latency.read<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul>     |
| v4.latency.write    | integer | query | False    | Filter by v4.latency.write<br><ul style="list-style-type: none"> <li>• Introduced in: 9.8</li> </ul>    |



| Name             | Type    | In    | Required | Description  |
|------------------|---------|-------|----------|--|
| v4.latency.total | integer | query | False    | Filter by v4.latency.total<br><br>• Introduced in: 9.8 |
| v4.iops.other    | integer | query | False    | Filter by v4.iops.other<br><br>• Introduced in: 9.8    |
| v4.iops.read     | integer | query | False    | Filter by v4.iops.read<br><br>• Introduced in: 9.8     |
| v4.iops.write    | integer | query | False    | Filter by v4.iops.write<br><br>• Introduced in: 9.8    |
| v4.iops.total    | integer | query | False    | Filter by v4.iops.total<br><br>• Introduced in: 9.8    |
| svm.uuid         | string  | path  | True     | Unique identifier of the SVM.                          |

| Name     | Type   | In    | Required | Description   |
|----------|--------|-------|----------|---|
| interval | string | query | False    | <p>The time range for the data. Examples can be 1h, 1d, 1m, 1w, 1y. The period for each time range is as follows:</p> <ul style="list-style-type: none"> <li>• 1h: Metrics over the most recent hour sampled over 15 seconds.</li> <li>• 1d: Metrics over the most recent day sampled over 5 minutes.</li> <li>• 1w: Metrics over the most recent week sampled over 30 minutes.</li> <li>• 1m: Metrics over the most recent month sampled over 2 hours.</li> <li>• 1y: Metrics over the most recent year sampled over a day.</li> <li>• Default value: 1</li> <li>• enum: ["1h", "1d", "1w", "1m", "1y"]</li> </ul> |

| Name   | Type           | In      | Required | Description   |
|--|----------------|---------|----------|---|
| return_timeout   | integer        | query   | False    | The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. <ul style="list-style-type: none"> <li>• Default value: 1</li> <li>• Max value: 120</li> <li>• Min value: 0</li> </ul> |
| 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      | <a href="#">_links</a>           |                   |
| num_records | integer                          | Number of records |
| records     | array[ <a href="#">records</a> ] |                   |

## 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 | <a href="#">href</a> |             |
| self | <a href="#">href</a> |             |

\_links

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

iops

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

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

latency

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

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

### throughput

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

| Name  | Type    | Description   |
|-------|---------|---|
| read  | integer | Performance metric for read I/O operations.                     |
| total | integer | Performance metric aggregated over all types of I/O operations. |
| write | integer | Performance metric for write I/O operations.                    |

### v3

The NFSv3 operations

| Name                   | Type                   | Description  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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                   | <a href="#">iops</a>   | The rate of I/O operations observed at the storage object.   |



| Name       | Type                       | Description   |
|------------|----------------------------|---|
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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  |
|------------------------|------------------------|--|
| <a href="#">_links</a> | <a href="#">_links</a> |  |
| 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       | <a href="#">iops</a>       | The rate of I/O operations observed at the storage object.  |
| latency    | <a href="#">latency</a>    | 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 | <a href="#">throughput</a> | 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 |
|------------------------|------------------------|-------------|
| <a href="#">_links</a> | <a href="#">_links</a> |             |

| 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   | <a href="#">v3</a>  | The NFSv3 operations   |
| v4   | <a href="#">v4</a>  | The NFSv4 operations   |
| v41  | <a href="#">v41</a> | The NFSv4.1 operations |

#### error\_arguments

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

#### error

| Name      | Type                                     | Description                                 |
|-----------|--|---|
| arguments | array[ <a href="#">error_arguments</a> ] | Message arguments                           |
| code      | string                                   | Error code                                  |
| message   | string                                   | Error message                               |
| target    | string                                   | The target parameter that caused the error. |

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