Manage cluster licensing

ONTAP 9.8 REST API reference

NetApp
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Cluster licensing licenses endpoint overview

Overview

Licensing allows you to tailor a system to meet an organization’s specific needs. You can enable new features by purchasing a license from a NetApp sales associate. After installation of the license, the new feature is available immediately.

This interface manages licenses according to their supported feature. By default, the interface displays packages with installed licenses, but you can also return unlicensed packages.

Each feature has a compliance state that is indicated at the package level. Individual licenses also contain a compliance state indicated in the "licenses" array. The state of the package is determined by analyzing the underlying licenses according to the following criteria:

- Licensing terms
- Cluster state

Licensing terms

The licensing terms define the conditions under which a package is considered "compliant". Individual licenses are evaluated based on the following:

- Scope
- Time period
- Usage

Scope A package can be licensed under the following scopes:

- Site - Permits the feature to be used by any node that is a member of the cluster.
- Cluster - Permits the feature to be used by any node that is a member of the cluster.
- Node - Permits the authorized node to use the feature. Within a cluster, if you don’t supply every node with a valid license, the package state indicates "noncompliant". You must purchase a license for each node in a cluster for the package to be considered "compliant".

Time period Some package licenses are only valid for a limited period of time. After a license has expired, the package state changes to "noncompliant". You need to purchase a new license for the package to return to a "compliant" state.

Usage Some package licenses have additional terms that need to be maintained to keep a license in compliance. These conditions are defined by the individual license. For example, a license might define the maximum amount of storage that a node can allocate for the license to be "compliant".

Cluster state

A cluster’s state consists of the following:

- Node online status

- Node cluster membership

Some features require that a node be online to display a valid compliance state. If a node cannot be reached or is not known to the cluster, the individual license might indicate an "unknown" state.

Licensing keys

A license is issued in one of the following two formats:

- 28-character key
- NetApp License File (NLF)

The following is an example of a 28-character key:

```
  AMEPOSOIKLKGEEEEDGNDEKSJDEEE
```

The following is an example of an NLF key:

```
{
"statusResp": {
"version": "1",
"serialNumber": "123456789",
"message": "Success",
"licenses": {
  "capacity": "1",
  "type": "capacity",
  "licenseProtocol": "FABRICPOOL-TB",
  "package": "FabricPool",
  "licenseScope": "cluster"
},
"snStatus": "Active",
"product": "fabricpool",
"statusCode": "S007"
},
"Signature": "signatureABC"
}
```

You can use this API to submit either format to enable features.

Examples

Retrieving a collection of licenses organized by package

This example retrieves a collection that contains one entry for each package (filtered to only the 'fabricpool' package).

```
# API
curl -X GET "https://<mgmt-
ip>/api/cluster/licensing/licenses/?fields=*&name=fabricpool"

# Response
200 OK

# JSON Body
{
"records": [
{
  "name": "fabricpool",
  "scope": "cluster",
  "state": "compliant",
  "licenses": [
  {
    "owner": "testcluster-1",
    "serial_number": "4149027342",
    "state": "compliant",
    "capacity": {
    "maximum_size": 1099511627776,
    "used_size": 0
    }
  }
  ],
  "_links": {
  "self": {
    "href": "/api/cluster/licensing/licenses/fabricpool"
  }
  }
}
],
"num_records": 1,
"_links": {
"self": {
  "href": "/api/cluster/licensing/licenses/?fields=*&name=fabricpool"
}
}
}
```

Retrieving a collection of installed licenses

This example retrieves a collection containing all packages (except base) that have installed licenses.

```
# API
curl -X GET "https://<mgmt-
ip>/api/cluster/licensing/licenses/?fields=*&name=!base"

# Response
200 OK

# JSON Body
{
"records": [
{
  "name": "nfs",
  "scope": "node",
  "state": "compliant",
  "licenses": [
  {
    "owner": "testcluster-1",
    "serial_number": "1-81-0000000000000004149027492",
    "state": "compliant"
  }
  ],
  "_links": {
  "self": {
    "href": "/api/cluster/licensing/licenses/nfs"
  }
  }
},
{
  "name": "cifs",
  "scope": "node",
  "state": "compliant",
  "licenses": [
  {
    "owner": "testcluster-1",
    "serial_number": "1-81-0000000000000004149027492",
    "state": "compliant"
  }
  ],
  "_links": {
  "self": {
    "href": "/api/cluster/licensing/licenses/cifs"
  }
```

```
  }
}
],
"num_records": 2,
"_links": {
"self": {
  "href": "/api/cluster/licensing/licenses/?fields=*&name=!base"
}
}
}
```

Retrieving a collection of unlicensed packages

By default, unlicensed packages are filtered from the collection output. This example shows how to use a query to retrieve unlicensed packages.

```
# API
curl -X GET "https://<mgmt-
ip>/api/cluster/licensing/licenses?name=flexcache&state=unlicensed"

# Response
200 OK

# JSON Body
{
"records": [
  {
    "name": "flexcache",
    "_links": {
      "self": {
        "href": "/api/cluster/licensing/licenses/flexcache"
      }
    }
  }
],
"num_records": 1,
"_links": {
  "self": {
    "href":
"/api/cluster/licensing/licenses?name=flexcache&state=unlicensed"
  }
}
}
```

Installing an NLF license

This example installs a single license in the NLF format.

> You must escape all the double quotes and backslash characters of the JSON license before it can be placed in the POST request.

```
# API
curl -X POST "https://<mgmt-ip>/api/cluster/licensing/licenses/"

# JSON Body
{
"keys" : [ "{\"statusResp\":{\"snStatus\": \"Active\", \"licenses\":
{\"package\": \"FabricPool\", \"capacity\": \"1\", \"licenseProtocol\":
\"FABRICPOOL-TB\", \"type\": \"capacity\", \"licenseScope\": \"cluster\"},
\"message\": \"Success\", \"statusCode\": \"S007\", \"version\": \"1\",
\"product\": \"fabricpool\", \"serialNumber\": \"4149027342\"},
\"Signature\":\"SignatureABC\"}" ]
}

# Response
201 Created
```

Installing a 28-character key

This example installs a single 28-character key formatted license.

```
# API
curl -X POST "https://<mgmt-ip>/api/cluster/licensing/licenses/"

# JSON Body
{
"keys" : [ "AAAAAAAAAAAAAAAAAAAAAAAAAAAA" ]
}

# Response
201 Created
```

Installing multiple licenses with one API call

This example shows how multiple keys can be provided to install multiple features in a single API call.

```
# API
curl -X POST "https://<mgmt-ip>/api/cluster/licensing/licenses/"

# JSON Body
{
"keys" : [ "AAAAAAAAAAAAAAAAAAAAAAAAAAAA",
           "BBBBBBBBBBBBBBBBBBBBBBBBBBBB" ]
}

# Response
201 Created
```

Retrieving information for a specific license package

This example shows how to retrieve information about the specific feature package `fabricpool`.

```
# API
curl -X GET "https://<mgmt-ip>/api/cluster/licensing/licenses/fabricpool/"

# Response
200 OK

# JSON Body
{
"name": "fabricpool",
"scope": "cluster",
"state": "compliant",
"licenses": [
{
  "owner": "testcluster-1",
  "serial_number": "123456789",
  "state": "compliant",
  "capacity": {
  "maximum_size": 109951162777600,
  "used_size": 0
  }
}
],
"_links": {
"self": {
  "href": "/api/cluster/licensing/licenses/fabricpool/"
}
}
}
```

Deleting a specific license

This example show how to delete a CIFS site license.

```
# API
curl -X DELETE "https://<mgmt-
ip>/api/cluster/licensing/licenses/cifs/?serial_number=1-80-000011"

# JSON Body
{}

# Response
200 OK
```

Deleting with a query

The following example shows how to delete all NFS licenses specified with the '*' query.

```
# API
curl -X DELETE "https://<mgmt-
ip>/api/cluster/licensing/licenses/nfs/?serial_number=*"

# JSON Body
{}

# Response
200 OK
```

Retrieve license packages

GET `/cluster/licensing/licenses`

Introduced In: 9.6

Retrieves a collection of license packages.

> By default, the GET method only returns licensed packages. You must provide the following query "state=unlicensed" to retrieve unlicensed packages.

Related ONTAP commands

- `system license show-status`
- `system license show`

Parameters

Name	Type	In	Required	Description
state	string	query	False	Filter by state
scope	string	query	False	Filter by scope
name	string	query	False	Filter by name
licenses.serial_number	string	query	False	Filter by licenses.serial_number
licenses.start_time	string	query	False	Filter by licenses.start_time
licenses.expiry_time	string	query	False	Filter by licenses.expiry_time
licenses.capacity.used_size	integer	query	False	Filter by licenses.capacity.used_size
licenses.capacity.maximum_size	integer	query	False	Filter by licenses.capacity.maximum_size
licenses.compliance.state	string	query	False	Filter by licenses.compliance.state
licenses.evaluation	boolean	query	False	Filter by licenses.evaluation
licenses.active	boolean	query	False	Filter by licenses.active
licenses.owner	string	query	False	Filter by licenses.owner
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

Name	Type	In	Required	Description
return_records	boolean	query	False	The default is true for GET calls. When set to false, only the number of records is returned. • Default value: 1
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

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

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "keys": {
    },
    "licenses": {
      "capacity": {
        "maximum_size": 0,
        "used_size": 0
      },
      "compliance": {
        "state": "compliant"
      },
      "expiry_time": "2019-03-02T19:00:00Z",
      "owner": "cluster1",
      "serial_number": "123456789",
      "start_time": "2019-02-02T19:00:00Z"
    },
    "name": "NFS",
    "scope": "not_available",
    "state": "compliant"
  }
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


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


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

capacity

Name	Type	Description
maximum_size	integer	Licensed capacity size (in bytes) that can be used.
used_size	integer	Capacity that is currently used (in bytes).

compliance

Name	Type	Description
state	string	Compliance state of the license.

licenses

Name	Type	Description
active	boolean	A flag indicating whether the license is currently being enforced.
capacity	capacity	
compliance	compliance	
evaluation	boolean	A flag indicating whether the license is in evaluation mode.

Name	Type	Description
expiry_time	string	Date and time when the license expires.
owner	string	Cluster, node or license manager that owns the license.
serial_number	string	Serial number of the license.
start_time	string	Date and time when the license starts.

records

Name	Type	Description
_links	_links	
keys	array[string]	
licenses	array[licenses]	Installed licenses of the package.
name	string	Name of the license.
scope	string	Scope of the license.
state	string	Summary state of package based on all installed licenses.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

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

Install one or more feature licenses

POST `/cluster/licensing/licenses`

Introduced In: 9.6

Installs one or more feature licenses.

Required properties

- `keys` - Array containing a list of NLF or 26-character license keys.

Related ONTAP commands

- `system license add`

Parameters

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

Request Body

Name	Type	Description
_links	_links	
keys	array[string]	
licenses	array[licenses]	Installed licenses of the package.
name	string	Name of the license.
scope	string	Scope of the license.
state	string	Summary state of package based on all installed licenses.

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "keys": {
  },
  "licenses": {
    "capacity": {
      "maximum_size": 0,
      "used_size": 0
    },
    "compliance": {
      "state": "compliant"
    },
    "expiry_time": "2019-03-02T19:00:00Z",
    "owner": "cluster1",
    "serial_number": "123456789",
    "start_time": "2019-02-02T19:00:00Z"
  },
  "name": "NFS",
  "scope": "not_available",
  "state": "compliant"
}
```

Response

```
Status: 201, Created
```

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

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "keys": {
    },
    "licenses": {
      "capacity": {
        "maximum_size": 0,
        "used_size": 0
      },
      "compliance": {
        "state": "compliant"
      },
      "expiry_time": "2019-03-02T19:00:00Z",
      "owner": "cluster1",
      "serial_number": "123456789",
      "start_time": "2019-02-02T19:00:00Z"
    },
    "name": "NFS",
    "scope": "not_available",
    "state": "compliant"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1115117	Generic licensing error
1115122	No cluster serial number found
1115124	No node serial number found
1115130	No license code was provided
1115131	Installation of the license failed
1115132	License already exists on system
1115134	Serial number does not belong to node
1115141	License data is invalid
1115142	License signature is invalid
1115143	Internal error applying the requested license
1115152	License does not apply to the platform
1115154	Unable to retrieve cluster ID
1115155	Invalid cluster ID found
1115159	License is not in an acceptable format
1115160	License has already expired
1115164	Minimum ONTAP version requirements not met
1115179	FlexCache is not supported on this system
1115180	FlexCache is not supported on cloud systems
1115407	Capacity pool licenses cannot be installed directly
1115427	License is incompatible with capacity pools licensing mode
66846818	Failed to interpret FlexCache license information
66846821	FlexCache is not supported on cloud systems
66846822	Invalid FlexCache capacity information provided
655294464	Failed to extract license contents
655294465	License key is invalid
655294466	Serial number is invalid
655294467	Version number is invalid
655294468	Expired license
655294469	License does not apply to the platform
655294470	License does not apply to the product

Name	Type	Description
errors	array[error]	

Example error


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


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

capacity

Name	Type	Description
maximum_size	integer	Licensed capacity size (in bytes) that can be used.
used_size	integer	Capacity that is currently used (in bytes).

compliance

Name	Type	Description
state	string	Compliance state of the license.

licenses

Name	Type	Description
active	boolean	A flag indicating whether the license is currently being enforced.
capacity	capacity	
compliance	compliance	
evaluation	boolean	A flag indicating whether the license is in evaluation mode.
expiry_time	string	Date and time when the license expires.
owner	string	Cluster, node or license manager that owns the license.

Name	Type	Description
serial_number	string	Serial number of the license.
start_time	string	Date and time when the license starts.

license_package

Name	Type	Description
_links	_links	
keys	array[string]	
licenses	array[licenses]	Installed licenses of the package.
name	string	Name of the license.
scope	string	Scope of the license.
state	string	Summary state of package based on all installed licenses.

_links

Name	Type	Description
next	href	
self	href	

records

Name	Type	Description
_links	_links	
keys	array[string]	
licenses	array[licenses]	Installed licenses of the package.
name	string	Name of the license.
scope	string	Scope of the license.
state	string	Summary state of package based on all installed licenses.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Delete a license

DELETE `/cluster/licensing/licenses/{name}`

Introduced In: 9.6

Deletes a license.

Related ONTAP commands

- `system license delete`

Parameters

Name	Type	In	Required	Description
name	string	path	True	Name of the license package to delete.
serial_number	string	query	True	Serial number of the license to delete.

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
525028	Error during volume limit check, cannot remove license
525029	Current volume use will exceed limits if license is removed
1115137	Cluster license requires a base license to be installed
1115144	Cloud licenses cannot be deleted
1115178	A tier license that is still in use cannot be deleted
1115213	License is still in use and cannot be removed
1115406	Capacity pool licenses cannot be deleted
66846823	A FlexCache license that is still in use cannot be deleted

Name	Type	Description
error	error	

Example error

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

Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Retrieve a license package

GET `/cluster/licensing/licenses/{name}`

Introduced In: 9.6

Retrieves a specific license package.

By default, the GET method only returns licensed packages. You must provide the following query "state=unlicensed" to retrieve unlicensed packages.

Related ONTAP commands

- `system license show`
- `system license show-status`

Parameters

Name	Type	In	Required	Description
name	string	path	True	Name of the license package.

Name	Type	In	Required	Description
state	string	query	False	Filter by state
scope	string	query	False	Filter by scope
name	string	query	False	Filter by name
licenses.serial_number	string	query	False	Filter by licenses.serial_number
licenses.start_time	string	query	False	Filter by licenses.start_time
licenses.expiry_time	string	query	False	Filter by licenses.expiry_time
licenses.capacity.used_size	integer	query	False	Filter by licenses.capacity.used_size
licenses.capacity.maximum_size	integer	query	False	Filter by licenses.capacity.maximum_size
licenses.compliance.state	string	query	False	Filter by licenses.compliance.state
licenses.evaluation	boolean	query	False	Filter by licenses.evaluation
licenses.active	boolean	query	False	Filter by licenses.active
licenses.owner	string	query	False	Filter by licenses.owner
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
keys	array[string]	
licenses	array[licenses]	Installed licenses of the package.
name	string	Name of the license.
scope	string	Scope of the license.
state	string	Summary state of package based on all installed licenses.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "keys": {
  },
  "licenses": {
    "capacity": {
      "maximum_size": 0,
      "used_size": 0
    },
    "compliance": {
      "state": "compliant"
    },
    "expiry_time": "2019-03-02T19:00:00Z",
    "owner": "cluster1",
    "serial_number": "123456789",
    "start_time": "2019-02-02T19:00:00Z"
  },
  "name": "NFS",
  "scope": "not_available",
  "state": "compliant"
}
```

Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


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


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

capacity

Name	Type	Description
maximum_size	integer	Licensed capacity size (in bytes) that can be used.
used_size	integer	Capacity that is currently used (in bytes).

compliance

Name	Type	Description
state	string	Compliance state of the license.

licenses

Name	Type	Description
active	boolean	A flag indicating whether the license is currently being enforced.
capacity	capacity	
compliance	compliance	
evaluation	boolean	A flag indicating whether the license is in evaluation mode.
expiry_time	string	Date and time when the license expires.
owner	string	Cluster, node or license manager that owns the license.

Name	Type	Description
serial_number	string	Serial number of the license.
start_time	string	Date and time when the license starts.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

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