Manage FlexCache volumes

REST API reference

NetApp
September 12, 2025

This PDF was generated from https://docs.netapp.com/us-en/ontap-restapi-9121/storage_flexcache_flexcaches_endpoint_overview.html on September 12, 2025. Always check docs.netapp.com for the latest.

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Manage FlexCache volumes

Storage flexcache flexcaches endpoint overview

Overview

FlexCache is a persistent cache of an origin volume. An origin volume can only be a FlexVol while a FlexCache is always a FlexGroup.

The following relationship configurations are supported:

– Intra-Vserver where FlexCache and the corresponding origin volume reside in the same Vserver.

– Cross-Vserver but intra-cluster where FlexCache and the origin volume reside in the same cluster but belong to different Vservers.

– Cross-cluster where FlexCache and the origin volume reside in different clusters.

FlexCache supports fan-out and more than one FlexCache can be created from one origin volume. This API retrieves and manages FlexCache configurations in the cache cluster.

FlexCache APIs

The following APIs can be used to perform operations related with FlexCache:

– GET /api/storage/flexcache/flexcaches

– GET /api/storage/flexcache/flexcaches/{uuid}

– POST /api/storage/flexcache/flexcaches

– DELETE /api/storage/flexcache/flexcaches/{uuid}

Examples

Creating a FlexCache

The POST request is used to create a FlexCache.

```
# The API:
/api/storage/flexcache/flexcaches

# The call:
curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H
"accept: application/json" -H  "Content-Type: application/json" -d "{
\"aggregates\": [ { \"name\": \"aggr_1\" } ], \"name\": \"fc_333\",
\"origins\": [ {  \"svm\": { \"name\": \"vs_3\"  }, \"volume\": {
\"name\": \"vol_o1\" } } ], \"svm\": { \"name\": \"vs_1\" } }"

# The response:
{
"job": {
  "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79"
    }
  }
}
}
```

curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"aggregates\": [{ \"name\": \"aggr_1\" }], \"name\": \"fc_333\", \"origins\": [{ \"svm\": { \"name\": \"vs_3\" }, \"volume\": { \"name\": \"vol_o1\" } }], \"svm\": { \"name\": \"vs_1\" }, \"path\": \"/fc_333\", \"prepopulate\": { \"dir_paths\": [\"/dir1\"] } }"</mgmt-ip>

The response:

{ "job": { "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79" } } } }

```
curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H
"accept: application/json" -H  "Content-Type: application/json" -d "{
\"aggregates\": [ { \"name\":           \"aggr_1\" } ], \"name\":
\"fc_333\", \"origins\": [ {  \"svm\": { \"name\": \"vs_3\"  },
\"volume\": { \"name\": \"vol_o1\" } } ], \"svm\": { \"name\": \"vs_1\" },
\"path\": \"/       fc_333\", \"prepopulate\": { \"dir_paths\": [
\"/dir1\" ], \"exclude_dir_paths\": [ \"/dir1/dir11\" ] } }"

# The response:
{
"job": {
  "uuid": "5afe9ea4-1dcf-11eb-b006-005056ac6a93",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/5afe9ea4-1dcf-11eb-b006-005056ac6a93"
    }
  }
}
}
```

curl -X POST "https://<mgmt-ip>/api/storage/flexcache/flexcaches" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"aggregates\": [{ \"name\": \"aggr_1\" }], \"name\": \"fc_333\", \"origins\": [{ \"svm\": { \"name\": \"vs_3\" }, \"volume\": { \"name\": \"vol_o1\" } }], \"svm\":{ \"name\": \"vs_1\" }, \"dr_cache\": true, \"path\": \"/fc_333\", \"prepopulate\": { \"dir_paths\": [\"/dir1\"] } }"</mgmt-ip>

The response:

{ "job": { "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79" } } } }

```
### Retrieving FlexCache attributes
The GET request is used to retrieve FlexCache attributes. The object
includes a large set of fields which can be expensive to retrieve. Most
notably, the fields size, guarantee.type, aggregates, path,
origins.ip_address, origins.size, and origins.state are expensive to
retrieve. The recommended method to use this API is to filter and retrieve
only the required fields.
```

The API:

/api/storage/flexcache/flexcaches

The call:

curl -X GET "https://<mgmt-ip>/api/storage/flexcache/flexcaches?" -H "accept: application/json"</mgmt-ip>

The response:

{ "records": [{ "uuid": "04d5e07b-0ebe-11e9-8180-0050568e0b79", "name": "fc_322", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/04d5e07b-0ebe-11e9-8180-0050568e0b79" } } }, { "uuid": "47902654-0ea4-11e9-8180-0050568e0b79", "name": "fc_321", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/47902654-0ea4-11e9-8180-0050568e0b79" } } }, { "uuid": "77e911ff-0ebe-11e9-8180-0050568e0b79", "name": "fc_323", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/77e911ff-0ebe-11e9-8180-0050568e0b79" } } }, { "uuid": "ddb42bbc-0e95-11e9-8180-0050568e0b79", "name": "fc_32", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/ddb42bbc-0e95-11e9-8180-0050568e0b79" } } }, { "uuid": "ec774932-0f3c-11e9-8b2b-0050568e0b79", "name": "fc_333", "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" } } }], "num_records": 5, "_links": { "self": { "href": "/api/storage/flexcache/flexcaches?" } } }

```
### Retrieving the attributes of a FlexCache
The GET request is used to retrieve the attributes of a FlexCache. The
object includes a large set of fields which can be expensive to retrieve.
Most notably, the fields size, guarantee.type, aggregates, path,
origins.ip_address, origins.size, and origins.state are expensive to
retrieve. The recommended method to use this API is to filter and retrieve
only the required fields.
```

The API:

/api/storage/flexcache/flexcaches/{uuid}

The call:

curl -X GET "https://<mgmt-ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" -H "accept: application/json"</mgmt-ip>

The response:

{ "uuid": "ec774932-0f3c-11e9-8b2b-0050568e0b79", "name": "fc_333", "svm": { "name": "vs_1", "uuid": "e708fbe2-0e92-11e9-8180-0050568e0b79" }, "size": 4294967296, "guarantee": { "type": "volume" }, "dr_cache": "true", "aggregates": [{ "name": "aggr_1", "uuid": "26f34b76-88f8-4a47-b5e0-d8e901fb1114" }], "origins": [{ "ip_address": "10.140.103.175", "size": 20971520, "create_time": "2019-01-03T15:19:55+05:30", "state": "online", "volume": { "name": "vol_o1", "uuid": "2bc957dd-2617-4afb-8d2f-66ac6070d313" }, "svm": { "name": "vs_3", "uuid": "8aa2cd28-0e92-11e9-b391-0050568e4115" }, "cluster": { "name": "node2", "uuid": "50733f81-0e90-11e9-b391-0050568e4115" } }], "_links": { "self": { "href": "/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" } } }

```
### Deleting a FlexCache
The DELETE request is used to delete a FlexCache.
```

The API:

/api/storage/flexcache/flexcaches

The call:

curl -X DELETE "https://<mgmt-ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" -H "accept: application/json"</mgmt-ip>

The response:

{ "job": { "uuid": "e17994f2-0f3e-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e17994f2-0f3e-11e9-8b2b-0050568e0b79" } } } }

```
### Modifying a FlexCache volume
Use the PATCH request to update a FlexCache volume.
```

the API:

/api/storage/flexcache/flexcaches/{uuid}

The call:

curl -X PATCH "https://<mgmt-ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"prepopulate\": { \"dir_paths\": [\"/dir1\"] } }"</mgmt-ip>

The response:

{ "job": { "uuid": "e751dd5d-0f3c-11e9-8b2b-0050568e0b79", "_links": { "self": { "href": "/api/cluster/jobs/e751dd5d-0f3c-11e9-8b2b-0050568e0b79" } } } }

```
# The call
curl -X PATCH "https://<mgmt-
ip>/api/storage/flexcache/flexcaches/ec774932-0f3c-11e9-8b2b-0050568e0b79"
-H  "accept: application/json" -H  "Content-Type: application/json" -d "{
\"prepopulate\": { \"dir_paths\": [ \"/dir1\" ], \"exclude_dir_paths\": [
\"/dir1/dir11\" ] } }"

# The response:
{
"job": {
  "uuid": "b574c48c-1da7-11eb-b006-005056ac6a93",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/b574c48c-1da7-11eb-b006-005056ac6a93"
    }
  }
}
}
```

The call

curl -X PATCH "https://<mgmt-ip>/api/storage/flexcache/flexcaches/28f9734a-2fc2-11ed-a5d5-005056bb2b7" -H "accept: application/json" -H "Content-Type: application/json" -d "{ \"writeback\" : { \"enabled\": true, \"per_inode_dirty_limit\": 4500, \"transfer_limit\": 160, \"scrub_threshold\" : 25004 } }"</mgmt-ip>

The response:

{ "job": { "uuid": "c521a541-3046-11ed-a5d5-005056bbb2b7", "_links": { "self": { "href": "/api/cluster/jobs/c521a541-3046-11ed-a5d5-005056bbb2b7" } } } }

```
# The call
curl -X PATCH
"https://10.63.0.52/api/storage/flexcache/flexcaches/28f9734a-2fc2-11ed-
a5d5-005056bb2b7" -H "accept: application/json" -H "Content-Type:
application/json" -d '{ \"writeback\" : { \"enabled\": false } }'

# The response:
{
"job": {
  "uuid": "17e193f3-304b-11ed-a5d5-005056bbb2b7",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/17e193f3-304b-11ed-a5d5-005056bbb2b7"
    }
  }
}
}
```

Retrieve a FlexCache volume in the cluster

GET `/storage/flexcache/flexcaches`

Introduced In: 9.6

Retrieves FlexCache in the cluster.

Expensive properties

There is an added computational 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.

- `origins.ip_address` - IP address of origin.
- `origins.size` - Physical size of origin.
- `origins.state` - State of origin.
- `size` - Physical size of FlexCache.
- `guarantee.type` - Space guarantee style of FlexCache.
- `aggregates.name` or `aggregates.uuid` - Name or UUID of aggregrate of FlexCache volume.
- `path` - Fully-qualified path of the owning SVM's namespace where the FlexCache is mounted.

Related ONTAP commands

- `volume flexcache show`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
origins.create_time	string	query	False	Filter by origins.create_time
origins.state	string	query	False	Filter by origins.state
origins.size	integer	query	False	Filter by origins.size
origins.cluster.name	string	query	False	Filter by origins.cluster.name
origins.cluster.uuid	string	query	False	Filter by origins.cluster.uuid
origins.ip_address	string	query	False	Filter by origins.ip_address
origins.volume.uuid	string	query	False	Filter by origins.volume.uuid
origins.volume.name	string	query	False	Filter by origins.volume.name
origins.svm.uuid	string	query	False	Filter by origins.svm.uuid
origins.svm.name	string	query	False	Filter by origins.svm.name
uuid	string	query	False	Filter by uuid
guarantee.type	string	query	False	Filter by guarantee.type • Introduced in: 9.7
path	string	query	False	Filter by path

Name	Type	In	Required	Description
constituents_per_aggregate	integer	query	False	Filter by constituents_per_aggregate
size	integer	query	False	Filter by size
global_file_locking_enabled	boolean	query	False	Filter by global_file_locking_enabled • Introduced in: 9.9
writeback.enabled	boolean	query	False	Filter by writeback.enabled • Introduced in: 9.12
writeback.transfer_limit	integer	query	False	Filter by writeback.transfer_limit • Introduced in: 9.12
writeback.scrub_threshold	integer	query	False	Filter by writeback.scrub_threshold • Introduced in: 9.12
writeback.per_inode_dirty_limit	integer	query	False	Filter by writeback.per_inode_dirty_limit • Introduced in: 9.12
name	string	query	False	Filter by name • maxLength: 203 • minLength: 1
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name

Name	Type	In	Required	Description
dr_cache	boolean	query	False	Filter by dr_cache • Introduced in: 9.9
aggregates.name	string	query	False	Filter by aggregates.name
aggregates.uuid	string	query	False	Filter by aggregates.uuid
use_tiered_aggregate	boolean	query	False	Filter by use_tiered_aggregate • Introduced in: 9.8
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When iterating over a collection, the default is 15 seconds. ONTAP returns earlier if either max records or the end of the collection is reached. • Default value: 1 • Max value: 120 • Min value: 0
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Name	Type	In	Required	Description
desc] direction. Default direction is 'asc' for ascending.	return_records	boolean	query	False

Response

```
Status: 200, Ok
```

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

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "aggregates": [
        {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "aggr1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        }
      ],
      "guarantee": {
        "type": "string"
      },
      "name": "vol1",
      "origins": [
        {
          "cluster": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "cluster1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          },
          "create_time": "2018-06-04T19:00:00Z",
```

```
          "ip_address": "10.10.10.7",
          "size": 0,
          "state": "string",
          "svm": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "svm1",
            "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
          },
          "volume": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "volume1",
            "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
          }
        }
      ],
      "path": "/user/my_fc",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


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


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

aggregates

Name	Type	Description
_links	_links	
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

Name	Type	Description
_links	_links	

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

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

prepopulate

FlexCache prepopulate

svm

FlexCache SVM

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

writeback

FlexCache Writeback

Name	Type	Description
enabled	boolean	Indicates whether or not writeback is enabled for the FlexCache volume. Writeback is a storage method where data is first written to the FlexCache volume and then written to the origin of a FlexCache volume.
per_inode_dirty_limit	integer	Specifies the amount of data in 4KB blocks that the system can write per inode in a FlexCache volume before a writeback is initiated for that inode. This property is only relevant to a FlexCache Volume with the writeback property enabled.
scrub_threshold	integer	Specifies the threshold value in 4KB data blocks which when hit will trigger a scrub that will initiate writeback for all dirty inodes on the FlexCache volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.
transfer_limit	integer	Specifies the maximum number of 4KB data blocks the system can transfer, at one time, from the cache to the origin. This process will keep on recurring until all the dirty blocks for the inode are transferred to the origin volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.

flexcache

Defines the cache endpoint of FlexCache.

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM’s namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM’s namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM

Name	Type	Description
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.
writeback	writeback	FlexCache Writeback

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Create a FlexCache volume in the cluster

POST `/storage/flexcache/flexcaches`

Introduced In: 9.6

Creates a FlexCache in the cluster.

Required properties

- `name` - Name of FlexCache volume.

- `origins.volume.name` or `origins.volume.uuid` - Name or UUID of origin volume.
- `origins.svm.name` - Name of origin Vserver.
- `svm.name` or `svm.uuid` - Name or UUID of Vserver where FlexCache will be created.

Recommended optional properties

- `path` - Path to mount the FlexCache volume
- `prepopulate.dir_paths` - List of directory-paths to be prepopulated for the FlexCache volume.
- `prepopulate.exclude_dir_paths` - List of directory-paths to be excluded from prepopulation for he FlexCache volume.

Default property values

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

- `size` - 10% of origin volume size or 1GB per constituent, whichever is greater.
- `guarantee.type` - none. FlexCache is thin provisioned by default.
- `constituents_per_aggregate` - 4 if aggregates.name or aggregates.uuid is used.
- `use_tiered_aggregate` - false if aggr-list is not used. This property is only used when auto-provisioning a FlexCache volume.
- `is_disconnected_mode_off_for_locks` - false. This property specifies if the origin will honor the cache side locks when doing the lock checks in the disconnected mode.
- `dr_cache` - false if FlexCache is not a DR cache. This property is used to create a DR FlexCache.
- `global_file_locking_enabled` - false. This property specifies whether global file locking is enabled on the FlexCache volume.
- `writeback.enabled` - false. This property specifies whether writeback is enabled for the FlexCache volume.
- `writeback.per_inode_dirty_limit` - 2500. This property specifies the amount of data in 4KB blocks that the system can write per inode in a FlexCache volume before a writeback is initiated for that inode.
- `writeback.transfer_limit` - 200. This property specifies the maximum number of 4KB data blocks the system can transfer, at one time, from the cache to the origin. This process will keep on recurring until all the dirty blocks for the inode are transferred to the origin volume.
- `writeback.scrub_threshold` - 2000000. This property specifies the threshold value in 4KB data blocks which when hit will trigger a scrub that will initiate writeback for all dirty inodes on the FlexCache volume.

Related ONTAP commands

- `volume flexcache create`
- `volume flexcache prepopulate start`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
aggregates	array[aggregates]	

Name	Type	Description
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM’s namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM’s namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM

Name	Type	Description
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.
writeback	writeback	FlexCache Writeback

Example request


```
{
  "aggregates": [
    {
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "guarantee": {
    "type": "string"
  },
  "name": "vol1",
  "origins": [
    {
      "cluster": {
        "name": "cluster1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "create_time": "2018-06-04T19:00:00Z",
      "ip_address": "10.10.10.7",
      "size": 0,
      "state": "string",
      "svm": {
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "volume": {
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ],
  "path": "/user/my_fc",
  "prepopulate": {
    "dir_paths": [
      "/dir1"
    ],
    "exclude_dir_paths": [
      "/dir1/dir2"
    ]
  },
  "svm": {
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
```

```
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "uuid": "string"
  }
}
```

Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
66846870	Either the SVM name or origin volume name is missing
66846871	Constituents per aggregate are specified but aggregate name is missing
66846872	More than one origin volume is specified
66846873	The specified SVM UUID is incorrect for the specified SVM name

Error Code	Description
66846874	The specified aggregate UUID is incorrect for the specified aggregate name
66846875	The specified aggregate name does not exist
66846876	The specified SVM does not exist or is not peered
66846877	The specified origin SVM name is of zero length
66846878	The specified SVM UUID is invalid
66846730	Failed to create a FlexCache volume
66846760	The specified SVM is not a data Vserver
66846787	The specified aggregate is a SnapLock aggregate
66846812	The specified aggregate is a Composite aggregate
66846812	The specified junction path is under a FlexCache volume
66846834	FlexCache encryption requires a cluster version of 9.6 or higher
66846835	A volume encryption license is not found

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

aggregates

Name	Type	Description
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
name	string	
uuid	string	

svm

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

volume

Name	Type	Description
name	string	The name of the volume.

Name	Type	Description
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

prepopulate

FlexCache prepopulate

Name	Type	Description
dir_paths	array[string]	
exclude_dir_paths	array[string]	
recurse	boolean	Specifies whether or not the prepopulate action should search through the `dir_paths` recursively. If not set, the default value *true* is used.

svm

FlexCache SVM

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

writeback

FlexCache Writeback

Name	Type	Description
enabled	boolean	Indicates whether or not writeback is enabled for the FlexCache volume. Writeback is a storage method where data is first written to the FlexCache volume and then written to the origin of a FlexCache volume.
per_inode_dirty_limit	integer	Specifies the amount of data in 4KB blocks that the system can write per inode in a FlexCache volume before a writeback is initiated for that inode. This property is only relevant to a FlexCache Volume with the writeback property enabled.
scrub_threshold	integer	Specifies the threshold value in 4KB data blocks which when hit will trigger a scrub that will initiate writeback for all dirty inodes on the FlexCache volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.
transfer_limit	integer	Specifies the maximum number of 4KB data blocks the system can transfer, at one time, from the cache to the origin. This process will keep on recurring until all the dirty blocks for the inode are transferred to the origin volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.

flexcache

Defines the cache endpoint of FlexCache.

Name	Type	Description
aggregates	array[aggregates]	
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM’s namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM’s namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
prepopulate	prepopulate	FlexCache prepopulate
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM

Name	Type	Description
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.
writeback	writeback	FlexCache Writeback

job_link

Name	Type	Description
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

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 FlexCache volume

DELETE `/storage/flexcache/flexcaches/{uuid}`

Introduced In: 9.6

Deletes a FlexCache. If a FlexCache volume is online, it is offlined before deletion.

Related ONTAP commands

- `volume flexcache delete`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Unique identifier of the FlexCache.

Name	Type	In	Required	Description
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response


```
{
  "job": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "string"
  }
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
66846879	The specified volume UUID is not a FlexCache volume
66846731	Failed to delete the FlexCache volume
524546	Failed to delete the FlexCache volume because the FlexCache volume is not unmounted

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	

job_link

Name	Type	Description
_links	_links	
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

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 attributes of the FlexCache volume in the cluster

GET `/storage/flexcache/flexcaches/{uuid}`

Introduced In: 9.6

Retrieves attributes of the FlexCache in the cluster.

Expensive properties

There is an added computational cost to retrieving values for these properties. They are included by default in GET. The recommended method to use this API is to filter and retrieve only the required fields. See Requesting specific fields to learn more.

- `origins.ip_address` - IP address of origin.
- `origins.size` - Physical size of origin.
- `origins.state` - State of origin.
- `size` - Physical size of FlexCache.
- `guarantee.type` - Space guarantee style of FlexCache.
- `aggregates.name` or `aggregates.uuid` - Name or UUID of aggregrate of FlexCache volume.
- `path` - Fully-qualified path of the owning SVM's namespace where the FlexCache is mounted.

Related ONTAP commands

- `volume flexcache show`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

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

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
aggregates	array[aggregates]	

Name	Type	Description
constituents_per_aggregate	integer	Number of FlexCache constituents per aggregate when the 'aggregates' field is mentioned.
dr_cache	boolean	If set to true, a DR cache is created.
global_file_locking_enabled	boolean	Specifies whether or not a FlexCache volume has global file locking mode enabled. Global file locking mode is a mode where protocol read locking semantics are enforced across all FlexCaches and origins of a FlexCache volume. When global file locking mode is enabled, the "is_disconnected_mode_off_for_locks" flag is always set to "true".
guarantee	guarantee	
name	string	FlexCache name
origins	array[flexcache_relationship]	
path	string	The fully-qualified path in the owning SVM’s namespace at which the FlexCache is mounted. The path is case insensitive and must be unique within a SVM’s namespace. Path must begin with '/' and must not end with '/'. Only one FlexCache be mounted at any given junction path.
size	integer	Physical size of the FlexCache. The recommended size for a FlexCache is 10% of the origin volume. The minimum FlexCache constituent size is 1GB.
svm	svm	FlexCache SVM
use_tiered_aggregate	boolean	Specifies whether or not a Fabricpool-enabled aggregate can be used in FlexCache creation. The use_tiered_aggregate is only used when auto-provisioning a FlexCache volume.

Name	Type	Description
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.
writeback	writeback	FlexCache Writeback

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "aggregates": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "aggr1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "guarantee": {
    "type": "string"
  },
  "name": "vol1",
  "origins": [
    {
      "cluster": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "cluster1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "create_time": "2018-06-04T19:00:00Z",
      "ip_address": "10.10.10.7",
      "size": 0,
      "state": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
```

```
      },
      "volume": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "volume1",
        "uuid": "028baa66-41bd-11e9-81d5-00a0986138f7"
      }
    }
  ],
  "path": "/user/my_fc",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


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


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
self	href	

aggregates

Name	Type	Description
_links	_links	
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
_links	_links	
name	string	
uuid	string	

svm

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

volume

Name	Type	Description
_links	_links	
name	string	The name of the volume.
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
svm	svm	
volume	volume	

prepopulate

FlexCache prepopulate

svm

FlexCache SVM

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

writeback

FlexCache Writeback

Name	Type	Description
enabled	boolean	Indicates whether or not writeback is enabled for the FlexCache volume. Writeback is a storage method where data is first written to the FlexCache volume and then written to the origin of a FlexCache volume.
per_inode_dirty_limit	integer	Specifies the amount of data in 4KB blocks that the system can write per inode in a FlexCache volume before a writeback is initiated for that inode. This property is only relevant to a FlexCache Volume with the writeback property enabled.
scrub_threshold	integer	Specifies the threshold value in 4KB data blocks which when hit will trigger a scrub that will initiate writeback for all dirty inodes on the FlexCache volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.
transfer_limit	integer	Specifies the maximum number of 4KB data blocks the system can transfer, at one time, from the cache to the origin. This process will keep on recurring until all the dirty blocks for the inode are transferred to the origin volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Pre-populate a FlexCache volume in the cluster

PATCH `/storage/flexcache/flexcaches/{uuid}`

Introduced In: 9.8

Prepopulates a FlexCache volume in the cluster.

Required properties

- `uuid` - FlexCache volume UUID.
- `prepopulate.dir_paths` - List of directory-paths to be prepopulated for the FlexCache volume.

Recommended optional properties

- `prepopulate.exclude_dir_paths` - List of directory-paths to be excluded from prepopulation for the FlexCache volume.

Default property values

If not specified in PATCH, the following default property value is assigned:

- `prepopulate.recurse` - Default value is "true".

Related ONTAP commands

- `volume flexcache prepopulate start`

Learn more

- DOC /storage/flexcache/flexcaches

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	Unique identifier of the FlexCache volume.
return_timeout	integer	query	False	The number of seconds to allow the call to execute before returning. When doing a POST, PATCH, or DELETE operation on a single record, the default is 0 seconds. This means that if an asynchronous operation is started, the server immediately returns HTTP code 202 (Accepted) along with a link to the job. If a non-zero value is specified for POST, PATCH, or DELETE operations, ONTAP waits that length of time to see if the job completes so it can return something other than 202. • Default value: 1 • Max value: 120 • Min value: 0

Request Body

Name	Type	Description
prepopulate	prepopulate	FlexCache prepopulate
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.
writeback	writeback	FlexCache Writeback

Example request

```
{
  "dr_cache": null,
  "global_file_locking_enabled": null,
  "prepopulate": {
    "dir_paths": [
      "/dir1"
    ],
    "exclude_dir_paths": [
      "/dir1/dir2"
    ]
  },
  "use_tiered_aggregate": null,
  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 202, Accepted
```

Name	Type	Description
job	job_link	

Example response

```
{
  "job": {
    "uuid": "string"
  }
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
66846922	FlexCache volume does not exist in the SVM
66846923	Failed to prepopulate FlexCache volume because the origin volume is not reachable
66846924	FlexCache volume is offline
66846925	FlexCache volume is not mounted or the junction-path is not active
66846926	The junction-path of FlexCache volume is not active
66846927	FlexCache volume does not have an origin volume
66846928	FlexCache volume does not exist
66846929	Using FlexCache prepopulate requires an effective cluster version of 9.8.0 or later
66846930	Using FlexCache prepopulate in a MetroCluster configuration requires an effective cluster version of 9.8.0 or later on both the local and remote clusters
66846931	Internal Error. FlexCache prepopulate job queue failed. Wait a few minutes, and then try the operation again
66846936	Failed to lookup root file handle for origin of FlexCache volume. Wait a few minutes, and then try the operation again
66846937	Internal error. Failed to initialize thread
66846939	Internal error. Failed to get the MSID of the origin volume for FlexCache volume
66846943	Failed to prepopulate because dir_path does not exist
66846944	Failed to get root constituent for FlexCache volume
66846945	Origin of FlexCache volume is not mounted or the junction-path is not active
66846946	The junction-path of origin of FlexCache volume is not active
66846947	FlexCache prepopulate job for FlexCache volume already exists
66846948	FlexCache prepopulate job for FlexCache volume could not be queued because the node is offline

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

aggregates

Name	Type	Description
name	string	
uuid	string	

guarantee

Name	Type	Description
type	string	The type of space guarantee of this volume in the aggregate.

cluster

Name	Type	Description
name	string	
uuid	string	

svm

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

volume

Name	Type	Description
name	string	The name of the volume.

Name	Type	Description
uuid	string	Unique identifier for the volume. This corresponds to the instance-uuid that is exposed in the CLI and ONTAPI. It does not change due to a volume move. • example: 028baa66-41bd-11e9-81d5-00a0986138f7 • Introduced in: 9.6

flexcache_relationship

Name	Type	Description
cluster	cluster	
create_time	string	Creation time of the relationship.
ip_address	string	Cluster managerment IP of the remote cluster.
size	integer	Size of the remote volume.
state	string	Volume state
volume	volume	

prepopulate

FlexCache prepopulate

Name	Type	Description
dir_paths	array[string]	
exclude_dir_paths	array[string]	
recurse	boolean	Specifies whether or not the prepopulate action should search through the `dir_paths` recursively. If not set, the default value *true* is used.

svm

FlexCache SVM

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

writeback

FlexCache Writeback

Name	Type	Description
enabled	boolean	Indicates whether or not writeback is enabled for the FlexCache volume. Writeback is a storage method where data is first written to the FlexCache volume and then written to the origin of a FlexCache volume.
per_inode_dirty_limit	integer	Specifies the amount of data in 4KB blocks that the system can write per inode in a FlexCache volume before a writeback is initiated for that inode. This property is only relevant to a FlexCache Volume with the writeback property enabled.
scrub_threshold	integer	Specifies the threshold value in 4KB data blocks which when hit will trigger a scrub that will initiate writeback for all dirty inodes on the FlexCache volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.
transfer_limit	integer	Specifies the maximum number of 4KB data blocks the system can transfer, at one time, from the cache to the origin. This process will keep on recurring until all the dirty blocks for the inode are transferred to the origin volume. This property is only relevant to a FlexCache Volume with the writeback property enabled.

flexcache

Defines the cache endpoint of FlexCache.

Name	Type	Description
prepopulate	prepopulate	FlexCache prepopulate
uuid	string	FlexCache UUID. Unique identifier for the FlexCache.
writeback	writeback	FlexCache Writeback

job_link

Name	Type	Description
uuid	string	The UUID of the asynchronous job that is triggered by a POST, PATCH, or DELETE operation.

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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