# View and manage MetroCluster configurations

## REST API reference

NetApp
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## Overview

You can use this API to create, perform operations, and retrieve relevant information pertaining to MetroCluster. The GET operation fetches MetroCluster status and configuration parameters for the local and partner cluster. The PATCH operation executes a switchover, heal or switchback operation. The POST request can be used to setup a MetroCluster.

### Creating a MetroCluster

A new MetroCluster can be set up by issuing a POST to /cluster/metrocluster. Parameters are provided in the body of the POST request.

#### Fields used for setting up a MetroCluster configuration

The fields used for MetroCluster APIs are either required or optional and are described as follows:

#### Required configuration fields

These fields are always required for any POST /cluster/metrocluster request.

- `partner_cluster.name` - Specifies the partner cluster name to which cluster peering has been established.
- `dr_pairs` - Specifies local and DR partner node pairs. Each pair uniquely identifies a DR group.

#### Optional configuration fields

This field is used to set up additional components in a MetroCluster configuration.

- `mediator.*` - Specifies mediator parameters. If Mediator Assisted Unplanned Switchover (MAUSO) functionality is required, then a mediator should be configured.
- `mccip_ports` - Specifies relevant layer 3 network configuration information for each port. These include port name, node name, IP address, gateway, and netmask. If mccip_ports is not provided, then the API automatically generates IP addresses for the ports and creates a layer 2 network configuration.

#### Polling the setup job

After a successful POST /cluster/metrocluster is issued, an HTTP status code of 202 (Accepted) is returned along with a job UUID and a link in the body of the response. The setup job continues asynchronously and can be monitored by using the job UUID and the /cluster/jobs API. The "message" field in the response of the GET /cluster/jobs/{uuid} request shows the current step in the job, and the "state" field shows the overall state of the job.

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### Examples

## Setting up a 4-node MetroCluster

```
This example shows the POST body when setting up a 4-node MetroCluster
along with a mediator. It is required that cluster peering be established
between two clusters, in this example, site "mcc_siteA" and "mcc_siteB"
before issuing the POST request. Nodes "node-a" and "node-b" are HA
partners and part of the local cluster "mcc_siteA", wheres nodes "node-c"
and "node-d" are HA partners in the partner cluster  "mcc_siteB".
Specifying a single DR pairing of "node-a" and "node-c" is sufficient to
identify a DR group -- "node-a" and "node-c" will be designated primary DR
partners ("node-b" and "node-d" too). "node-d" will then be designated
auxiliary partner of "node-a". Once the MetroCluster configuration has
been completed, and since mediator parameters have been provided, the
mediator will be setup and MAUSO enabled.

# API
/api/cluster/metrocluster
```

#### POST body included from file

```
mcc_post_body.txt:
{
"partner_cluster" : {
  "name": "mcc_siteB"
},
"dr_pairs" : [
  {
    "node" : {
      "name" : "node-a"
    },
    "partner" : {
      "name" : "node-c"
    }
  }
],
"mediator" :  {
  "ip_address" : "1.2.3.4",
  "user" : "mcc_mediator",
  "password" : "openMediator"
}
}
curl -X POST https://<mgmt-ip>/api/cluster/metrocluster -d
"@mcc_post_body.txt"
```

#### Inline POST body

```
curl -X POST https://<mgmt-ip>/api/cluster/metrocluster -d
'{"partner_cluster" : {"name": "mcc_siteB" }, "dr_pairs" : [{"node" :
{"name" : "node-a" }, "partner" : {"name" : "node-c" }}], "mediator" :
{"ip_address" : "1.2.3.4", "user" : "mcc_mediator" , "password" :
"openMediator" }}'
```

#### POST Response

```
HTTP/1.1 202 Accepted
Date: Thu, 09 Jan 2020 20:38:05 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Location: /api/cluster/metrocluster
Content-Length: 189
Content-Type: application/hal+json
{
"job": {
  "uuid": "f23abbdb-331f-11ea-acd3-005056a708b2",
  "_links": {
    "self": {
      "href": "/api/cluster/jobs/f23abbdb-331f-11ea-acd3-005056a708b2"
    }
  }
}
}
```

#### Monitoring the job progress

Use the link provided in the response to the POST request to fetch information for the setup job.

##### Request

```
curl -X GET https://<mgmt-ip>/api/cluster/jobs/f23abbdb-331f-11ea-acd3-
005056a708b2
```

##### Job status response

The following is an example of the job status response returned by the running MetroCluster setup job:

```
HTTP/1.1 200 OK
Date: Thu, 09 Jan 2020 20:40:20 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 373
Content-Type: application/hal+json
{
"uuid": "f23abbdb-331f-11ea-acd3-005056a708b2",
"description": "POST /api/cluster/metrocluster",
"state": "running",
"message": "Checking remote storage pool",
"code": 2432844,
"start_time": "2020-01-09T15:38:08-05:00",
"_links": {
  "self": {
    "href": "/api/cluster/jobs/f23abbdb-331f-11ea-acd3-005056a708b2"
  }
}
```

**Completion message**

This is the final update message from the setup job indicating completion.

```
{
"uuid": "f23abbdb-331f-11ea-acd3-005056a708b2",
"description": "POST /api/cluster/metrocluster",
"state": "running",
"message": "MetroCluster setup is complete",
"code": 2432849,
"start_time": "2020-01-09T15:38:08-05:00",
"_links": {
  "self": {
    "href": "/api/cluster/jobs/f23abbdb-331f-11ea-acd3-005056a708b2"
  }
}
}
```

**Final status of a successful MetroCluster setup workflow**

When the setup job completes, the 'end_time' field is populated, and the 'state' and 'message' fields report the final status.

```
HTTP/1.1 200 OK
Date: Thu, 09 Jan 2020 20:43:54 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 360
Content-Type: application/hal+json
{
"uuid": "f23abbdb-331f-11ea-acd3-005056a708b2",
"description": "POST /api/cluster/metrocluster",
"state": "success",
"message": "success",
"code": 0,
"start_time": "2020-01-09T15:38:08-05:00",
"end_time": "2020-01-09T15:43:50-05:00",
"_links": {
  "self": {
    "href": "/api/cluster/jobs/f23abbdb-331f-11ea-acd3-005056a708b2"
  }
}
}
```

### Retrieving the MetroCluster configuration after completion of the POST request

#### Request

```
curl -X GET https://<mgmt-ip>/api/cluster/metrocluster
```

#### Response

```
HTTP/1.1 200 OK
Date: Thu, 09 Jan 2020 20:49:40 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Length: 849
Content-Type: application/hal+json
{
"local": {
  "configuration_state": "configured",
  "periodic_check_enabled": true,
  "mode": "normal",
  "partner_cluster_reachable": true,
  "cluster": {
    "name": "mcc_siteA",
    "uuid": "4294c4f2-30e2-11ea-8cac-005056a708b2",
    "_links": {
      "self": {
        "href": "/api/cluster"
      }
    }
  }
},
"remote": {
  "configuration_state": "configured",
  "periodic_check_enabled": true,
  "mode": "normal",
  "cluster": {
    "name": "mcc_siteB",
    "uuid": "4207c6a5-30e2-11ea-be25-005056a7dc84",
    "_links": {
      "self": {
        "href": "/api/cluster/peers/4207c6a5-30e2-11ea-be25-
005056a7dc84/cluster"
      }
    }
  }
},
"configuration_type": "ip_fabric",
"_links": {
  "self": {
    "href": "/api/cluster/metrocluster"
  }
}
}
```

### Retrieving information about the nodes in a MetroCluster configuration

#### Request

```
curl -X GET https://<mgmt-ip>/api/cluster/metrocluster/nodes
```

#### Response

```
HTTP/1.1 200 OK
Date: Fri, 10 Jan 2020 02:26:20 GMT
Server: libzapid-httpd
X-Content-Type-Options: nosniff
Cache-Control: no-cache,no-store,must-revalidate
Content-Type: application/hal+json
Transfer-Encoding: chunked
{
"records": [
  {
    "dr_group_id": 1,
    "cluster": {
      "name": "mcc_siteA",
      "uuid": "4294c4f2-30e2-11ea-8cac-005056a708b2",
      "_links": {
        "self": {
          "href": "/api/cluster"
        }
      }
    },
    "node": {
      "name": "node-a",
      "uuid": "1e6b0137-30dd-11ea-82ba-005056a7c78a",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/1e6b0137-30dd-11ea-82ba-
005056a7c78a"
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/cluster/metrocluster/nodes/1e6b0137-30dd-11ea-82ba-
005056a7c78a"
      }
    }
  },
```

```
  {
    "dr_group_id": 1,
    "cluster": {
      "name": "mcc_siteA",
      "uuid": "4294c4f2-30e2-11ea-8cac-005056a708b2",
      "_links": {
        "self": {
          "href": "/api/cluster"
        }
      }
    },
    "node": {
      "name": "node-b",
      "uuid": "1e57ba22-30dd-11ea-8b19-005056a708b2",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/1e57ba22-30dd-11ea-8b19-
005056a708b2"
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/cluster/metrocluster/nodes/1e57ba22-30dd-11ea-8b19-
005056a708b2"
      }
    }
  },
  {
    "dr_group_id": 1,
    "cluster": {
      "name": "mcc_siteB",
      "uuid": "4207c6a5-30e2-11ea-be25-005056a7dc84",
      "_links": {
        "self": {
          "href": "/api/cluster/peers/4207c6a5-30e2-11ea-be25-
005056a7dc84/cluster"
        }
      }
    },
    "node": {
      "name": "node-c",
      "uuid": "1e563efc-30dd-11ea-a9d3-005056a71573",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/1e563efc-30dd-11ea-a9d3-
```

```
005056a71573"
        }
      }
    },
    "_links": {
      "self": {
        "href": "/api/cluster/metrocluster/nodes/1e563efc-30dd-11ea-a9d3-
005056a71573"
      }
    }
  },
  {
    "dr_group_id": 1,
    "cluster": {
      "name": "mcc_siteB",
      "uuid": "4207c6a5-30e2-11ea-be25-005056a7dc84",
      "_links": {
        "self": {
          "href": "/api/cluster/peers/4207c6a5-30e2-11ea-be25-
005056a7dc84/cluster"
        }
      }
    },
    "node": {
      "name": "node-d",
      "uuid": "1e400aa4-30dd-11ea-adec-005056a7dc84",
      "_links": {
        "self": {
          "href": "/api/cluster/nodes/1e400aa4-30dd-11ea-adec-
005056a7dc84"
        }
      }
    },
    "encryption_enabled": false,
    "_links": {
      "self": {
        "href": "/api/cluster/metrocluster/nodes/1e400aa4-30dd-11ea-adec-
005056a7dc84"
      }
    }
  }
],
"num_records": 4,
"_links": {
  "self": {
    "href": "/api/cluster/metrocluster/nodes"
```

```
  }
}
}
```

### Retrieving MetroCluster status and configuration information

```
GET https://<mgmt-ip>/api/cluster/metrocluster
{
  "local": {
      "configuration_state": "configured",
      "periodic_check_enabled": true,
      "mode": "normal",
      "cluster": {
          "name": "cluster1",
          "uuid": "bbc00ca3-8d81-11e9-b5a9-005056826931",
          "_links": {
              "self": {
                  "href": "/api/cluster"
              }
          }
      }
  },
  "remote": {
      "configuration_state": "configured",
      "periodic_check_enabled": true,
      "mode": "normal",
      "cluster": {
          "name": "cluster3",
          "uuid": "ce2cf803-8d81-11e9-87db-00505682cecf",
          "_links": {
              "self": {
                  "href": "/api/cluster/peers/ce2cf803-8d81-11e9-87db-
00505682cecf/cluster"
              }
          }
      }
  },
  "_links": {
      "self": {
          "href": "/api/cluster/metrocluster"
      }
  }
}
```

### Initiating a switchover, heal or switchback command using PATCH

PATCH is used to initiate a variety of operations by specifying one of the following values in the "action" parameter:

- `switchover` - Initiates an Unplanned Switchover (USO).
- `negotiated_switchover` - Indicates that an Negotiated switchover (NSO) is to be performed.
- `negotiated_switchover_simulate` - Provides validation in preparation for NSO but does not perform the operation.
- `switchback` - Indicates that a switchback is to be performed.
- `switchback_simulate` - Provides validation for switchback but does not commit the operation.
- `heal_aggregates` - Indicates that the aggregates phase of the heal operation is to be performed.
- `heal_root_aggregates` - Indicates that the root aggregates phase of the heal operation is to be performed.

#### PATCH Switchover example

```
PATCH https://<mgmt-ip>/api/cluster/metrocluster?action=switchover
{
  "job": {
      "uuid": "70e54274-57ee-11e9-aa33-005056820b99",
      "_links": {
          "self": {
              "href": "/api/cluster/jobs/70e54274-57ee-11e9-aa33-
005056820b99"
          }
      }
  }
}
```

This returns a job UUID. A subsequent GET for this job should return the following:

```
GET https://<mgmt-ip>/api/cluster/jobs/70e54274-57ee-11e9-aa33-
005056820b99
{
  "uuid": "70e54274-57ee-11e9-aa33-005056820b99",
  "description": "MetroCluster Switchover Job",
  "state": "success",
  "message": "Complete: Switchover is successful.",
  "code": 0,
  "start_time": "2019-04-05T15:02:02-07:00",
  "end_time": "2019-04-05T15:02:30-07:00",
  "_links": {
      "self": {
          "href": "/api/cluster/jobs/70e54274-57ee-11e9-aa33-005056820b99"
      }
  }
}
```

**PATCH Switchback example:**

```
PATCH https://<mgmt-ip>/api/cluster/metrocluster?action=switchback
{
  "job": {
      "uuid": "a62714cc-57ec-11e9-aa33-005056820b99",
      "_links": {
          "self": {
              "href": "/api/cluster/jobs/a62714cc-57ec-11e9-aa33-
005056820b99"
          }
      }
  }
}
```

This returns a job UUID with a link to the job. A subsequent GET for this job UUID can be used to retrieve the completion status of the operation:

```
GET https://<mgmt-ip>/api/cluster/jobs/a62714cc-57ec-11e9-aa33-
005056820b99
{
  "uuid": "a62714cc-57ec-11e9-aa33-005056820b99",
  "description": "MetroCluster Switchback Job",
  "state": "success",
  "message": "Complete: Switchback is successful.",
  "code": 0,
  "start_time": "2019-04-05T14:49:12-07:00",
  "end_time": "2019-04-05T14:50:12-07:00",
  "_links": {
      "self": {
          "href": "/api/cluster/jobs/a62714cc-57ec-11e9-aa33-005056820b99"
      }
  }
}
```

# Retrieve MetroCluster status and configuration details

GET `/cluster/metrocluster`

**Introduced In:** 9.8

Retrieves MetroCluster status and configuration details.

## Related ONTAP commands

- `metrocluster show`
- `metrocluster node show`

## Parameters

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| fields | array[string] | query | False | Specify the fields to return. |

## Response

```
Status: 200, Ok
```

| Name | Type | Description |
|---|---|---|
| _links | self_link | |

| Name | Type | Description |
| --- | --- | --- |
| configuration_type | string | Displays the MetroCluster configuration type. |
| encryption_enabled | boolean | Indicates if the encryption for NVLog and storage traffic is enabled. |
| local | local | |
| remote | remote | |

**Example response**


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "configuration_type": "string",
  "local": {
    "automatic_uso_failure_domain": "string",
    "cluster": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "cluster1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "configuration_state": "string",
    "mode": "string"
  },
  "remote": {
    "automatic_uso_failure_domain": "string",
    "cluster": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "cluster1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "configuration_state": "string",
    "mode": "string"
  }
}
```


## Error

```
Status: Default
```

ONTAP Error Response Codes

| Error Code | Description |
| --- | --- |
| 2425734 | An internal error occurred. Wait a few minutes, and try the operation again. For further assistance, contact technical support. |

Also see the table of common errors in the Response body overview section of this documentation.

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

self_link

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

_links

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

node

Local node of the DR Group.

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| name | string | |
| uuid | string | |

partner

Partner node of the DR Group.

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| name | string | |
| uuid | string | |

dr_pairs

| Name | Type | Description |
|---|---|---|
| node | node | Local node of the DR Group. |
| partner | partner | Partner node of the DR Group. |

cluster

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| name | string | |
| uuid | string | |

local

| Name | Type | Description |
|---|---|---|
| automatic_uso_failure_domain | string | This parameter specifies the configuration of automatic switchover. The valid values for the parameter are ':' cluster':' triggers an unplanned switchover if all nodes in a DR cluster are down. dr_group':' triggers an unplanned switchover if both nodes of a DR group are down. disabled':' automatic switchover is disabled. If the cluster is not reachable due to errors, the parameter value will be set to not_reachable. This value is read only. If the cluster configuration is unknown, the parameter value will be set to unknown and the value is read only. |
| cluster | cluster | |
| configuration_state | string | Indicates the state of the local cluster configuration. |
| mode | string | Specifies the mode of operation of the local cluster. |
| partner_cluster_reachable | boolean | Specifies whether the partner cluster is reachable from the local cluster. |
| periodic_check_enabled | boolean | Indicates whether or not a periodic check is enabled on the local cluster. |

ipv4_interface

Object to setup an interface along with its default router.

| Name | Type | Description |
|---|---|---|
| address | string | IPv4 or IPv6 address |
| gateway | string | The IPv4 or IPv6 address of the default router. |
| netmask | string | Input as netmask length (16) or IPv4 mask (255.255.0.0). For IPv6, the default value is 64 with a valid range of 1 to 127. Output is always the netmask length. |

l3_config

| Name | Type | Description |
|---|---|---|
| ipv4_interface | ipv4_interface | Object to setup an interface along with its default router. |

node

Node information

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| name | string | |
| uuid | string | |

mccip_ports

Port configuration specification. l3_config information is only needed when configuring a MetroCluster IP for use in a layer 3 network.

| Name | Type | Description |
|---|---|---|
| l3_config | l3_config | |
| name | string | Port name |
| node | node | Node information |
| uuid | string | Port UUID |
| vlan_id | integer | VLAN ID |

dr_group

DR group reference.

| Name | Type | Description |
|---|---|---|
| id | integer | DR Group ID |

peer_cluster

The peer cluster that the mediator service is used for.

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| name | string | |
| uuid | string | |

mediator

Mediator information

| Name | Type | Description |
|---|---|---|
| dr_group | dr_group | DR group reference. |
| ip_address | string | The IP address of the mediator. |
| local_mediator_connectivity | string | Indicates the mediator connectivity status of the local cluster. Possible values are connected, unreachable, unusable and down-high-latency. This field is only applicable to the mediators in SnapMirror active sync configuration. |
| peer_cluster | peer_cluster | The peer cluster that the mediator service is used for. |
| peer_mediator_connectivity | string | Indicates the mediator connectivity status of the peer cluster. Possible values are connected, unreachable, unknown and down-high-latency. |
| port | integer | The REST server's port number on the mediator. |
| reachable | boolean | Indicates the connectivity status of the mediator. |

| Name | Type | Description |
|---|---|---|
| strict_cert_validation | boolean | Indicates if strict validation of certificates is performed while making REST API calls to the mediator. This field is only applicable to the ONTAP Cloud Mediator.<br>• Default value:<br>• example: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| type | string | Mediator type. This field is only applicable to the mediators in SnapMirror active sync configuration. |
| use_http_proxy_local | boolean | Indicates if the local cluster should use an http-proxy server while making REST API calls to the mediator. This field is only applicable to the ONTAP cloud mediator.<br>• Default value:<br>• example: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| uuid | string | The unique identifier for the mediator service. |

partner_cluster

Partner cluster information.

| Name | Type | Description |
|---|---|---|
| _links | _links | |
| name | string | |
| uuid | string | |

remote

| Name | Type | Description |
| --- | --- | --- |
| automatic_uso_failure_domain | string | This parameter specifies the configuration of automatic switchover. The valid values for the parameter are ':' cluster':' triggers an unplanned switchover if all nodes in a DR cluster are down. dr_group':' triggers an unplanned switchover if both nodes of a DR group are down. disabled':' automatic switchover is disabled. If the cluster is not reachable due to errors, the parameter value will be set to not_reachable. This value is read only. If the cluster configuration is unknown, the parameter value will be set to unknown and the value is read only. |
| cluster | cluster | |
| configuration_state | string | Indicates the state of the remote cluster configuration. |
| mode | string | Specifies the mode of operation of the remote cluster. |
| periodic_check_enabled | boolean | Indicates whether or not a periodic check is enabled on the remote cluster. |

error_arguments

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

returned_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. |

# Initiate a switchover, heal, or switchback operation

PATCH `/cluster/metrocluster`

**Introduced In:** 9.8

Initiates a switchover, heal or switchback operation.

## Related ONTAP commands

- `metrocluster switchover`
- `metrocluster switchback`
- `metrocluster heal`
- `metrocluster modify`

## Parameters

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| action | string | query | False | Action to perform on the MetroCluster.<br>• enum: ["switchover", "negotiated_switchover", "negotiated_switchover_simulate", "switchback", "switchback_simulate", "heal_aggregates", "heal_root_aggregates"] |
| encryption_enabled | boolean | query | False | Specifies if encryption for NVLog and storage traffic is enabled.<br>• Introduced in: 9.16 |

| Name | Type | In | Required | Description |
|---|---|---|---|---|
| dr_group_id | integer | query | False | DR group ID.<br>• Introduced in: 9.16 |
| 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.<br>• Default value: 0<br>• Max value: 120<br>• Min value: 0 |

## Request Body

| Name | Type | Description |
|---|---|---|
| configuration_type | string | Displays the MetroCluster configuration type. |
| encryption_enabled | boolean | Indicates if the encryption for NVLog and storage traffic is enabled. |

| Name | Type | Description |
|---|---|---|
| local | local | |
| remote | remote | |

**Example request**

```
{
  "configuration_type": "string",
  "local": {
    "automatic_uso_failure_domain": "string",
    "cluster": {
      "name": "cluster1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "configuration_state": "string",
    "mode": "string"
  },
  "remote": {
    "automatic_uso_failure_domain": "string",
    "cluster": {
      "name": "cluster1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "configuration_state": "string",
    "mode": "string"
  }
}
```

## Response

```
Status: 200, Ok
```

| Name | Type | Description |
|---|---|---|
| job | job_link | |

**Example response**


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


## Response

```
Status: 202, Accepted
```

## Error

```
Status: Default
```

ONTAP Error Response Codes

| Error Code | Description |
|---|---|
| 2424873 | Failed to validate the node and cluster components before the "action" operation. |
| 2425138 | Switchover cannot be performed in the current DR mode. Run "metrocluster show" to view the DR mode of the local cluster, and run "switchover" only in one of the following situations: 1. The DR mode of the local cluster is "normal". 2. The DR mode of the local cluster is "partial-switchover". |
| 2425333 | Heal DR data aggregates cannot be performed in the current DR mode. Run "metrocluster show" and "metrocluster node show" to view the DR mode of the local cluster and the DR mode of the local nodes respectively, and run "heal aggregates" only in one of the following situations: 1. The DR mode of the local cluster is "switchover", and the DR mode of all local nodes is "switchover completed". 2. The DR mode of at least one local node is "heal aggrs failed". |
| 2425335 | Heal DR root aggregates cannot be performed in the current DR mode. Run "metrocluster node show" to view the DR mode of the local nodes, and run "heal root-aggregates" only in one of the following situations: 1. The DR mode of all local nodes is "heal aggrs completed". 2. The DR mode of at least one local node is "heal roots failed". |

| Error Code | Description |
| --- | --- |
| 2425734 | An internal error occurred. Wait a few minutes, and try the operation again. For further assistance, contact technical support. |
| 2427558 | This MetroCluster operation cannot be run because another "action" operation is currently in progress. Run "metrocluster operation history show -job-id id -instance" to view the status of the currently running operation. |

Also see the table of common errors in the Response body overview section of this documentation.

## Definitions

**See Definitions**

href

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

self_link

_links

node

Local node of the DR Group.

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

partner

Partner node of the DR Group.

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

dr_pairs

| Name | Type | Description |
|---|---|---|
| node | node | Local node of the DR Group. |
| partner | partner | Partner node of the DR Group. |

cluster

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

local

| Name | Type | Description |
| --- | --- | --- |
| automatic_uso_failure_domain | string | This parameter specifies the configuration of automatic switchover. The valid values for the parameter are ':' cluster':' triggers an unplanned switchover if all nodes in a DR cluster are down. dr_group':' triggers an unplanned switchover if both nodes of a DR group are down. disabled':' automatic switchover is disabled. If the cluster is not reachable due to errors, the parameter value will be set to not_reachable. This value is read only. If the cluster configuration is unknown, the parameter value will be set to unknown and the value is read only. |
| cluster | cluster | |
| configuration_state | string | Indicates the state of the local cluster configuration. |
| mode | string | Specifies the mode of operation of the local cluster. |
| partner_cluster_reachable | boolean | Specifies whether the partner cluster is reachable from the local cluster. |
| periodic_check_enabled | boolean | Indicates whether or not a periodic check is enabled on the local cluster. |

ipv4_interface

Object to setup an interface along with its default router.

| Name | Type | Description |
| --- | --- | --- |
| address | string | IPv4 or IPv6 address |
| gateway | string | The IPv4 or IPv6 address of the default router. |

| Name | Type | Description |
| --- | --- | --- |
| netmask | string | Input as netmask length (16) or IPv4 mask (255.255.0.0). For IPv6, the default value is 64 with a valid range of 1 to 127. Output is always the netmask length. |

l3_config

| Name | Type | Description |
| --- | --- | --- |
| ipv4_interface | ipv4_interface | Object to setup an interface along with its default router. |

node

Node information

| Name | Type | Description |
| --- | --- | --- |
| name | string | |
| uuid | string | |

mccip_ports

Port configuration specification. l3_config information is only needed when configuring a MetroCluster IP for use in a layer 3 network.

| Name | Type | Description |
| --- | --- | --- |
| l3_config | l3_config | |
| name | string | Port name |
| node | node | Node information |
| uuid | string | Port UUID |
| vlan_id | integer | VLAN ID |

dr_group

DR group reference.

| Name | Type | Description |
| --- | --- | --- |
| id | integer | DR Group ID |

peer_cluster

The peer cluster that the mediator service is used for.

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

mediator

Mediator information

| Name | Type | Description |
|---|---|---|
| dr_group | dr_group | DR group reference. |
| local_mediator_connectivity | string | Indicates the mediator connectivity status of the local cluster. Possible values are connected, unreachable, unusable and down-high-latency. This field is only applicable to the mediators in SnapMirror active sync configuration. |
| peer_mediator_connectivity | string | Indicates the mediator connectivity status of the peer cluster. Possible values are connected, unreachable, unknown and down-high-latency. |
| reachable | boolean | Indicates the connectivity status of the mediator. |
| strict_cert_validation | boolean | Indicates if strict validation of certificates is performed while making REST API calls to the mediator. This field is only applicable to the ONTAP Cloud Mediator.<br>• Default value: 1<br>• example: true<br>• Introduced in: 9.17<br>• x-nullable: true |

| Name | Type | Description |
| --- | --- | --- |
| use_http_proxy_local | boolean | Indicates if the local cluster should use an http-proxy server while making REST API calls to the mediator. This field is only applicable to the ONTAP cloud mediator.<br>• Default value: 1<br>• example: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| use_http_proxy_remote | boolean | Indicates if the remote cluster should use an http-proxy server while making REST API calls to the mediator. This field is only applicable to the ONTAP cloud mediator.<br>• Default value: 1<br>• example: true<br>• Introduced in: 9.17<br>• writeOnly: 1<br>• x-nullable: true |
| uuid | string | The unique identifier for the mediator service. |

partner_cluster

Partner cluster information.

| Name | Type | Description |
| --- | --- | --- |
| name | string | |
| uuid | string | |

remote

| Name | Type | Description |
| --- | --- | --- |
| automatic_uso_failure_domain | string | This parameter specifies the configuration of automatic switchover. The valid values for the parameter are ':' cluster':' triggers an unplanned switchover if all nodes in a DR cluster are down. dr_group':' triggers an unplanned switchover if both nodes of a DR group are down. disabled':' automatic switchover is disabled. If the cluster is not reachable due to errors, the parameter value will be set to not_reachable. This value is read only. If the cluster configuration is unknown, the parameter value will be set to unknown and the value is read only. |
| cluster | cluster | |
| configuration_state | string | Indicates the state of the remote cluster configuration. |
| mode | string | Specifies the mode of operation of the remote cluster. |
| periodic_check_enabled | boolean | Indicates whether or not a periodic check is enabled on the remote cluster. |

metrocluster

Holds MetroCluster status and configuration parameters for the local and remote clusters. REST: /api/cluster/metrocluster

| Name | Type | Description |
| --- | --- | --- |
| configuration_type | string | Displays the MetroCluster configuration type. |
| encryption_enabled | boolean | Indicates if the encryption for NVLog and storage traffic is enabled. |
| local | local | |
| remote | remote | |

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 |

returned_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. |

# Set up a MetroCluster configuration

POST `/cluster/metrocluster`

**Introduced In:** 9.8

Sets up a MetroCluster.

## Required properties

- `partner_cluster.name`
- `dr_pairs`

## Recommended optional properties

- `mediator.*`
- `mccip_ports`

## Learn more

- DOC /cluster/metrocluster

## Related ONTAP commands

- `metrocluster configuration-settings dr-group create`
- `metrocluster configuration-settings interface create`
- `metrocluster configuration-settings connection connect`
- `metrocluster configuration-settings mediator add`
- `storage aggregate create`
- `storage aggregate mirror`
- `metrocluster configure`

## 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.<br>• Default value: 0<br>• Max value: 120<br>• Min value: 0 |

## Request Body

| Name | Type | Description |
|---|---|---|
| configuration_type | string | Displays the MetroCluster configuration type. |
| dr_pairs | array[dr_pairs] | DR Pairs to create as part of a MetroCluster configure. |
| encryption_enabled | boolean | Indicates if the encryption for NVLog and storage traffic is enabled. |
| local | local | |

| Name | Type | Description |
| --- | --- | --- |
| mccip_ports | array[mccip_ports] | List of Port specifications. |
| mediator | mediator | Mediator information |
| partner_cluster | partner_cluster | Partner cluster information. |
| remote | remote | |

**Example request**


```
{
  "configuration_type": "string",
  "dr_pairs": [
    {
      "node": {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "partner": {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "local": {
    "automatic_uso_failure_domain": "string",
    "cluster": {
      "name": "cluster1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "configuration_state": "string",
    "mode": "string"
  },
  "mccip_ports": [
    {
      "l3_config": {
        "ipv4_interface": {
          "address": "10.10.10.7",
          "gateway": "10.1.1.1",
          "netmask": "24"
        }
      },
      "name": "e1b",
      "node": {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "uuid": "string",
      "vlan_id": 200
    }
  ],
  "mediator": {
    "bluexp_account_token": "string",
    "bluexp_org_id": "string",
```

```
    "ca_certificate": "string",
    "dr_group": {
      "id": 0
    },
    "ip_address": "10.10.10.7",
    "local_mediator_connectivity": "connected",
    "password": "mypassword",
    "peer_cluster": {
      "name": "cluster2",
      "uuid": "ebe27c49-1adf-4496-8335-ab862aebebf2"
    },
    "peer_mediator_connectivity": "connected",
    "port": 31784,
    "reachable": 1,
    "service_account_client_id": "string",
    "service_account_client_secret": "string",
    "strict_cert_validation": 1,
    "type": "string",
    "use_http_proxy_local": 1,
    "use_http_proxy_remote": 1,
    "user": "myusername",
    "uuid": "string"
  },
  "partner_cluster": {
    "name": "cluster1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "remote": {
    "automatic_uso_failure_domain": "string",
    "cluster": {
      "name": "cluster1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "configuration_state": "string",
    "mode": "string"
  }
}
```


## 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 |

## Response

```
Status: 201, Created
```

## Error

```
Status: Default
```

ONTAP Error Response Codes

| Error Code | Description |
|---|---|
| 2425734 | An internal error occurred. Wait a few minutes, and try the operation again. For further assistance, contact technical support. |
| 2432832 | Required environment variables are not set. |
| 2432833 | Operation is already running. |
| 2432834 | MetroCluster is already configured. |
| 2432835 | Operation not supported. |
| 2432836 | There are not enough disks in Pool1. Wait a few minutes, and try the operation again. For further assistance, contact technical support. |
| 2432839 | Required parameters not set. |

| Error Code | Description |
| --- | --- |
| 2432840 | Configuring DR Groups |
| 2432841 | Generating IP addresses |
| 2432843 | Running Aggregate Recommender |
| 2432844 | Checking remote storage pool |
| 2432845 | Mirroring aggregates |
| 2432846 | Configuring MetroCluster and DR mirroring |
| 2432848 | Setting up MetroCluster |
| 2432849 | MetroCluster setup is complete |
| 2432851 | Minimum number of required data aggregates for MetroCluster configuration are still not mirrored. Wait a few minutes, and try the operation again. For further assistance, contact technical support. |

Also see the table of common errors in the Response body overview section of this documentation.

## Definitions

**See Definitions**

href

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

self_link

_links

node

Local node of the DR Group.

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

partner

Partner node of the DR Group.

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

dr_pairs

| Name | Type | Description |
|---|---|---|
| node | node | Local node of the DR Group. |
| partner | partner | Partner node of the DR Group. |

cluster

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

local

| Name | Type | Description |
| --- | --- | --- |
| automatic_uso_failure_domain | string | This parameter specifies the configuration of automatic switchover. The valid values for the parameter are ':' cluster':' triggers an unplanned switchover if all nodes in a DR cluster are down. dr_group':' triggers an unplanned switchover if both nodes of a DR group are down. disabled':' automatic switchover is disabled. If the cluster is not reachable due to errors, the parameter value will be set to not_reachable. This value is read only. If the cluster configuration is unknown, the parameter value will be set to unknown and the value is read only. |
| cluster | cluster | |
| configuration_state | string | Indicates the state of the local cluster configuration. |
| mode | string | Specifies the mode of operation of the local cluster. |
| partner_cluster_reachable | boolean | Specifies whether the partner cluster is reachable from the local cluster. |
| periodic_check_enabled | boolean | Indicates whether or not a periodic check is enabled on the local cluster. |

ipv4_interface

Object to setup an interface along with its default router.

| Name | Type | Description |
| --- | --- | --- |
| address | string | IPv4 or IPv6 address |
| gateway | string | The IPv4 or IPv6 address of the default router. |

| Name | Type | Description |
| --- | --- | --- |
| netmask | string | Input as netmask length (16) or IPv4 mask (255.255.0.0). For IPv6, the default value is 64 with a valid range of 1 to 127. Output is always the netmask length. |

l3_config

| Name | Type | Description |
| --- | --- | --- |
| ipv4_interface | ipv4_interface | Object to setup an interface along with its default router. |

node

Node information

| Name | Type | Description |
| --- | --- | --- |
| name | string | |
| uuid | string | |

mccip_ports

Port configuration specification. l3_config information is only needed when configuring a MetroCluster IP for use in a layer 3 network.

| Name | Type | Description |
| --- | --- | --- |
| l3_config | l3_config | |
| name | string | Port name |
| node | node | Node information |
| uuid | string | Port UUID |
| vlan_id | integer | VLAN ID |

dr_group

DR group reference.

| Name | Type | Description |
| --- | --- | --- |
| id | integer | DR Group ID |

peer_cluster

The peer cluster that the mediator service is used for.

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

mediator

Mediator information

| Name | Type | Description |
|---|---|---|
| bluexp_account_token | string | BlueXP account token. This field is only applicable to the ONTAP cloud mediator.<br>• x-ntap-createOnly: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| bluexp_org_id | string | BlueXP organization ID. This field is only applicable to the ONTAP cloud mediator.<br>• x-ntap-createOnly: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| ca_certificate | string | CA certificate for ONTAP Mediator. This is optional if the certificate is already installed.<br>• x-ntap-createOnly: true<br>• Introduced in: 9.8<br>• x-nullable: true |
| dr_group | dr_group | DR group reference. |
| ip_address | string | The IP address of the mediator. |

| Name | Type | Description |
| --- | --- | --- |
| local_mediator_connectivity | string | Indicates the mediator connectivity status of the local cluster. Possible values are connected, unreachable, unusable and down-high-latency. This field is only applicable to the mediators in SnapMirror active sync configuration. |
| password | string | The password used to connect to the REST server on the mediator. |
| peer_cluster | peer_cluster | The peer cluster that the mediator service is used for. |
| peer_mediator_connectivity | string | Indicates the mediator connectivity status of the peer cluster. Possible values are connected, unreachable, unknown and down-high-latency. |
| port | integer | The REST server's port number on the mediator. |
| reachable | boolean | Indicates the connectivity status of the mediator. |
| service_account_client_id | string | Client ID of the BlueXP service account. This field is only applicable to the ONTAP cloud mediator.<br>• x-ntap-createOnly: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| service_account_client_secret | string | Client secret token of the BlueXP service account. This field is only applicable to the ONTAP cloud mediator.<br>• x-ntap-createOnly: true<br>• Introduced in: 9.17<br>• x-nullable: true |

| Name | Type | Description |
| --- | --- | --- |
| strict_cert_validation | boolean | Indicates if strict validation of certificates is performed while making REST API calls to the mediator. This field is only applicable to the ONTAP Cloud Mediator.<br>• Default value: 1<br>• example: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| type | string | Mediator type. This field is only applicable to the mediators in SnapMirror active sync configuration. |
| use_http_proxy_local | boolean | Indicates if the local cluster should use an http-proxy server while making REST API calls to the mediator. This field is only applicable to the ONTAP cloud mediator.<br>• Default value: 1<br>• example: true<br>• Introduced in: 9.17<br>• x-nullable: true |
| use_http_proxy_remote | boolean | Indicates if the remote cluster should use an http-proxy server while making REST API calls to the mediator. This field is only applicable to the ONTAP cloud mediator.<br>• Default value: 1<br>• example: true<br>• Introduced in: 9.17<br>• writeOnly: 1<br>• x-nullable: true |
| user | string | The username used to connect to the REST server on the mediator. |

| Name | Type | Description |
|---|---|---|
| uuid | string | The unique identifier for the mediator service. |

partner_cluster

Partner cluster information.

| Name | Type | Description |
|---|---|---|
| name | string | |
| uuid | string | |

remote

| Name | Type | Description |
|---|---|---|
| automatic_uso_failure_domain | string | This parameter specifies the configuration of automatic switchover. The valid values for the parameter are ':' cluster':' triggers an unplanned switchover if all nodes in a DR cluster are down. dr_group':' triggers an unplanned switchover if both nodes of a DR group are down. disabled':' automatic switchover is disabled. If the cluster is not reachable due to errors, the parameter value will be set to not_reachable. This value is read only. If the cluster configuration is unknown, the parameter value will be set to unknown and the value is read only. |
| cluster | cluster | |
| configuration_state | string | Indicates the state of the remote cluster configuration. |
| mode | string | Specifies the mode of operation of the remote cluster. |
| periodic_check_enabled | boolean | Indicates whether or not a periodic check is enabled on the remote cluster. |

metrocluster

Holds MetroCluster status and configuration parameters for the local and remote clusters. REST: /api/cluster/metrocluster

| Name | Type | Description |
|---|---|---|
| configuration_type | string | Displays the MetroCluster configuration type. |
| dr_pairs | array[dr_pairs] | DR Pairs to create as part of a MetroCluster configure. |
| encryption_enabled | boolean | Indicates if the encryption for NVLog and storage traffic is enabled. |
| local | local | |
| mccip_ports | array[mccip_ports] | List of Port specifications. |
| mediator | mediator | Mediator information |
| partner_cluster | partner_cluster | Partner cluster information. |
| remote | remote | |

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 |

returned_error

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

| Name | Type | Description |
| --- | --- | --- |
| message | string | Error message |
| target | string | The target parameter that caused the error. |

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