Manage cluster nodes

ONTAP 9.6 REST API reference

NetApp
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Manage cluster nodes

Cluster nodes endpoint overview

Overview

This API is used to add nodes to a cluster, update node-specific configurations, and retrieve the current node configuration details.

Adding a node to a cluster

A node can be added to a cluster by issuing a POST /cluster/nodes request to a node currently in the cluster. All nodes must be at the same version to use this API. Mixed version joins are not supported in this release. Properties can be provided as fields in the body of the POST request to configure node-specific settings. On a successful request, POST /cluster/nodes returns a status code of 202 and job information in the body. The /cluster/jobs APIs can be used to track the status of the node add job.

Fields used for adding a node

Fields used for the /cluster/nodes APIs fall into the following categories

Required node fields

The following field is required for any POST /cluster/nodes request:

- cluster_interface.ip.address

Optional fields

All of the following fields are used to setup additional cluster-wide configuration:

- name
- location
- records

Network interface fields

Each node can have a node-specific configuration set in POST /cluster/nodes. If a field is provided in the body of a node, it must be provided for all nodes in the POST body. The node management interface can be provided for each node if all node management interfaces in the cluster use the same netmask. If the node management interfaces use different netmasks, then configuration of the node management interfaces should be done using the /network/ip/interfaces API.

The records field

Multiple nodes can be added to the cluster in one request by providing an array named "records" with multiple node entries. Each node entry in records must follow the required and optional fields listed previously. When only adding a single node, no records field is needed. See 'Example usecases' for an example of how to use the records field.

Modifying node configurations

The following fields can be used to modify a node configuration:

- name
- location

Examples

The following examples show how to shutdown/reboot a node and how to update a node configuration.

Adding a single node with a minimal configuration

```
# Body
body =
{
"cluster_interface": {
  "ip": {
    "address": "1.1.1.1"
  }
}
}

# Request
curl -X POST "https://<mgmt-ip>/api/cluster/nodes" -d body
```

Adding multiple nodes in the same request

```
# Body
body =
{
"records": [
    {
        "name": "node1",
        "cluster_interface": {
          "ip": {
            "address": "1.1.1.1"
          }
        }
    },
    {
        "name": "node2",
        "cluster_interface": {
          "ip": {
            "address": "2.2.2.2"
          }
        }
    },
]
}

# Request
curl -X POST "https://<mgmt-ip>/api/cluster/nodes" -d body
```

Modifying a cluster-wide configuration

```
# Body
body =
{
"name": "renamedNode",
"location": "newLocation"
}

# Request
curl -X PATCH "https://<mgmt-ip>/api/cluster/nodes" -d body
```

```
curl -X PATCH "https://<mgmt-ip>/api/cluster/nodes/{uuid}?action=shutdown"
```

Retrieve nodes in a cluster

GET `/cluster/nodes`

Retrieves the nodes in the cluster.

Learn more

- DOC /cluster/nodes

Parameters

Name	Type	In	Required	Description
ha.auto_giveback	boolean	query	False	Filter by ha.auto_giveback
ha.enabled	boolean	query	False	Filter by ha.enabled
ha.partners.name	string	query	False	Filter by ha.partners.name
ha.partners.uuid	string	query	False	Filter by ha.partners.uuid
uptime	integer	query	False	Filter by uptime
date	string	query	False	Filter by date
membership	string	query	False	Filter by membership
serial_number	string	query	False	Filter by serial_number
controller.over_temperature	string	query	False	Filter by controller.over_temperature

Name	Type	In	Required	Description
controller.flash_cache.serial_number	string	query	False	Filter by controller.flash_cache.serial_number
controller.flash_cache.hardware_revision	string	query	False	Filter by controller.flash_cache.hardware_revision
controller.flash_cache.capacity	integer	query	False	Filter by controller.flash_cache.capacity
controller.flash_cache.model	string	query	False	Filter by controller.flash_cache.model
controller.flash_cache.slot	string	query	False	Filter by controller.flash_cache.slot
controller.flash_cache.state	string	query	False	Filter by controller.flash_cache.state
controller.flash_cache.firmware_version	string	query	False	Filter by controller.flash_cache.firmware_version
controller.flash_cache.part_number	string	query	False	Filter by controller.flash_cache.part_number
controller.frus.id	integer	query	False	Filter by controller.frus.id
controller.frus.type	string	query	False	Filter by controller.frus.type
controller.frus.state	string	query	False	Filter by controller.frus.state
location	string	query	False	Filter by location
model	string	query	False	Filter by model

Name	Type	In	Required	Description
management_interfaces.ip.address	string	query	False	Filter by management_interfaces.ip.address
management_interfaces.uuid	string	query	False	Filter by management_interfaces.uuid
management_interfaces.name	string	query	False	Filter by management_interfaces.name
service_processor.link_status	string	query	False	Filter by service_processor.link_status
service_processor.state	string	query	False	Filter by service_processor.state
service_processor.firmware_version	string	query	False	Filter by service_processor.firmware_version
service_processor.dhcp_enabled	boolean	query	False	Filter by service_processor.dhcp_enabled
service_processor.ipv4_interface.address	string	query	False	Filter by service_processor.ipv4_interface.address
service_processor.ipv4_interface.netmask	string	query	False	Filter by service_processor.ipv4_interface.netmask
service_processor.ipv4_interface.gateway	string	query	False	Filter by service_processor.ipv4_interface.gateway
service_processor.mac_address	string	query	False	Filter by service_processor.mac_address

Name	Type	In	Required	Description
service_processor.ipv6_interface.address	string	query	False	Filter by service_processor.ipv6_interface.address
service_processor.ipv6_interface.netmask	string	query	False	Filter by service_processor.ipv6_interface.netmask
service_processor.ipv6_interface.gateway	string	query	False	Filter by service_processor.ipv6_interface.gateway
name	string	query	False	Filter by name
version.minor	integer	query	False	Filter by version.minor
version.full	string	query	False	Filter by version.full
version.major	integer	query	False	Filter by version.major
version.generation	integer	query	False	Filter by version.generation
cluster_interfaces.ip.address	string	query	False	Filter by cluster_interfaces.ip.address
cluster_interfaces.uuid	string	query	False	Filter by cluster_interfaces.uuid
cluster_interfaces.name	string	query	False	Filter by cluster_interfaces.name
uuid	string	query	False	Filter by uuid
fields	array[string]	query	False	Specify the fields to return.

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

Response

```
Status: 200, Ok
```

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

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "cluster_interface": {
      "ip": {
        "address": "10.10.10.7"
      }
    },
    "cluster_interfaces": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "ip": {
        "address": "10.10.10.7"
      },
      "name": "lif1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "controller": {
      "flash_cache": {
        "capacity": 1024000000000,
        "firmware_version": "NA05",
        "hardware_revision": "A1",
        "model": "X1970A",
        "part_number": "119-00207",
        "serial_number": "A22P5061550000187",
        "slot": "6-1",
        "state": "ok"
      },
      "frus": {
```

```
        "id": 0,
        "state": "ok",
        "type": "fan"
      },
      "over_temperature": "over"
    },
    "date": "2017-01-25 11:20:13 +0400",
    "ha": {
      "partners": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    },
    "location": "rack 2 row 5",
    "management_interface": {
      "ip": {
        "address": "10.10.10.7"
      }
    },
    "management_interfaces": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "ip": {
        "address": "10.10.10.7"
      },
      "name": "lif1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    },
    "membership": "available",
    "model": "FAS3070",
    "name": "node-01",
    "serial_number": "4048820-60-9",
    "service_processor": {
      "firmware_version": "string",
      "ipv4_interface": {
        "address": "10.10.10.7",
        "gateway": "10.1.1.1",
        "netmask": "24"
```

```
      },
      "ipv6_interface": {
        "address": "10.10.10.7",
        "gateway": "10.1.1.1",
        "netmask": "24"
      },
      "link_status": "up",
      "mac_address": "string",
      "state": "online"
    },
    "uptime": 300536,
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412",
    "version": {
      "full": "NetApp Release 9.4.0: Sun Nov 05 18:20:57 UTC 2017",
      "generation": 9,
      "major": 4,
      "minor": 0
    }
  }
}
```


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	

node_setup_ip

The IP configuration for cluster setup.

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interface

The cluster network IP address of the node to be added.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

ip

IP information

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interfaces

Network interface

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface.
uuid	string	The UUID that uniquely identifies the interface.

flash_cache

Name	Type	Description
capacity	integer	Size in bytes
firmware_version	string	
hardware_revision	string	
model	string	
part_number	string	
serial_number	string	
slot	string	
state	string	

frus

Name	Type	Description
id	integer	
state	string	
type	string	

controller

Controller information

Name	Type	Description
flash_cache	array[flash_cache]	A list of Flash-Cache devices. Only returned when requested by name.
frus	array[frus]	A list of frus in the node. Only returned when requested by name.

Name	Type	Description
over_temperature	string	Specifies whether the hardware is currently operating outside of its recommended temperature range. The hardware shuts down if the temperature exceeds critical thresholds.

partners

Name	Type	Description
_links	_links	
name	string	
uuid	string	

ha

Name	Type	Description
auto_giveback	boolean	Specifies whether giveback is automatically initiated when the node that owns the storage is ready.
enabled	boolean	Specifies whether or not storage failover is enabled.
partners	array[partners]	The nodes in this node's High Availability (HA) group.

management_interface

The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

management_interfaces

Network interface

Name	Type	Description
_links	_links	

Name	Type	Description
ip	ip	IP information
name	string	The name of the interface.
uuid	string	The UUID that uniquely identifies the interface.

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, you must set the netmask length. The default value is 64. Output is always netmask length.

ipv6_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, you must set the netmask length. The default value is 64. Output is always netmask length.

service_processor

Name	Type	Description
dhcp_enabled	boolean	Set to true to use DHCP to configure an IPv4 interface.

Name	Type	Description
firmware_version	string	The version of firmware installed.
ipv4_interface	ipv4_interface	Object to setup an interface along with its default router.
ipv6_interface	ipv6_interface	Object to setup an interface along with its default router.
link_status	string	
mac_address	string	
state	string	

version

This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

Name	Type	Description
full	string	The full cluster version string.
generation	integer	The generation portion of the version.
major	integer	The major portion of the version.
minor	integer	The minor portion of the version.

records

Complete node information

Name	Type	Description
_links	_links	
cluster_interface	cluster_interface	The cluster network IP address of the node to be added.
cluster_interfaces	array[cluster_interfaces]	
controller	controller	Controller information
date	string	Specifies the ISO-8601 format date and time on the node.
ha	ha	

Name	Type	Description
location	string	
management_interface	management_interface	The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.
management_interfaces	array[management_interfaces]	
membership	string	Possible values: • *available* - If a node is available, this means it is detected on the internal cluster network and can be added to the cluster. Nodes that have a membership of "available" are not returned when a GET request is called when the cluster exists. A query on the "membership" property for *available* must be provided to scan for nodes on the cluster network. Nodes that have a membership of "available" are returned automatically before a cluster is created. • *joining* - Joining nodes are in the process of being added to the cluster. The node may be progressing through the steps to become a member or might have failed. The job to add the node or create the cluster provides details on the current progress of the node. • *member* - Nodes that are members have successfully joined the cluster.
model	string	
name	string	
serial_number	string	
service_processor	service_processor	

Name	Type	Description
uptime	integer	The total time, in seconds, that the node has been up.
uuid	string	
version	version	This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

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.

Add a node or nodes to a cluster

POST `/cluster/nodes`

Adds a node or nodes to the cluster

Required properties

- `cluster_interface.ip.address`

Learn more

- DOC /cluster/nodes

Request Body

Name	Type	Description
_links	_links	
cluster_interface	cluster_interface	The cluster network IP address of the node to be added.
cluster_interfaces	array[cluster_interfaces]	
controller	controller	Controller information
date	string	Specifies the ISO-8601 format date and time on the node.
ha	ha	
location	string	
management_interface	management_interface	The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.
management_interfaces	array[management_interfaces]	

Name	Type	Description
membership	string	Possible values: • *available* - If a node is available, this means it is detected on the internal cluster network and can be added to the cluster. Nodes that have a membership of "available" are not returned when a GET request is called when the cluster exists. A query on the "membership" property for *available* must be provided to scan for nodes on the cluster network. Nodes that have a membership of "available" are returned automatically before a cluster is created. • *joining* - Joining nodes are in the process of being added to the cluster. The node may be progressing through the steps to become a member or might have failed. The job to add the node or create the cluster provides details on the current progress of the node. • *member* - Nodes that are members have successfully joined the cluster.
model	string	
name	string	
serial_number	string	
service_processor	service_processor	
uptime	integer	The total time, in seconds, that the node has been up.
uuid	string	
version	version	This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "cluster_interface": {
    "ip": {
      "address": "10.10.10.7"
    }
  },
  "cluster_interfaces": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "ip": {
      "address": "10.10.10.7"
    },
    "name": "lif1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "controller": {
    "flash_cache": {
      "capacity": 1024000000000,
      "firmware_version": "NA05",
      "hardware_revision": "A1",
      "model": "X1970A",
      "part_number": "119-00207",
      "serial_number": "A22P5061550000187",
      "slot": "6-1",
      "state": "ok"
    },
    "frus": {
      "id": 0,
      "state": "ok",
      "type": "fan"
    },
    "over_temperature": "over"
  },
  "date": "2017-01-25 11:20:13 +0400",
  "ha": {
    "partners": {
```

```
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "location": "rack 2 row 5",
  "management_interface": {
    "ip": {
      "address": "10.10.10.7"
    }
  },
  "management_interfaces": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "ip": {
      "address": "10.10.10.7"
    },
    "name": "lif1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "membership": "available",
  "model": "FAS3070",
  "name": "node-01",
  "serial_number": "4048820-60-9",
  "service_processor": {
    "firmware_version": "string",
    "ipv4_interface": {
      "address": "10.10.10.7",
      "gateway": "10.1.1.1",
      "netmask": "24"
    },
    "ipv6_interface": {
      "address": "10.10.10.7",
      "gateway": "10.1.1.1",
      "netmask": "24"
    },
    "link_status": "up",
    "mac_address": "string",
    "state": "online"
```

```
  },
  "uptime": 300536,
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412",
  "version": {
    "full": "NetApp Release 9.4.0: Sun Nov 05 18:20:57 UTC 2017",
    "generation": 9,
    "major": 4,
    "minor": 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
131727360	A node cannot be added to the cluster. This is a generic code, see response message for details.

Error Code	Description
262245	The value provided was invalid.
1179817	The IP address, netmask, and gateway must all be provided for cluster manangement interface.
1179813	Fields set for one node must be set for all nodes.
1179818	The IP address and gateway must be of the same family.
1179821	An IP address and netmask conflicts with an existing entry.
1179795	A node being added is already in the cluster.

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	

node_setup_ip

The IP configuration for cluster setup.

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interface

The cluster network IP address of the node to be added.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

ip

IP information

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interfaces

Network interface

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface.

Name	Type	Description
uuid	string	The UUID that uniquely identifies the interface.

flash_cache

Name	Type	Description
capacity	integer	Size in bytes
firmware_version	string	
hardware_revision	string	
model	string	
part_number	string	
serial_number	string	
slot	string	
state	string	

frus

Name	Type	Description
id	integer	
state	string	
type	string	

controller

Controller information

Name	Type	Description
flash_cache	array[flash_cache]	A list of Flash-Cache devices. Only returned when requested by name.
frus	array[frus]	A list of frus in the node. Only returned when requested by name.
over_temperature	string	Specifies whether the hardware is currently operating outside of its recommended temperature range. The hardware shuts down if the temperature exceeds critical thresholds.

partners

Name	Type	Description
_links	_links	
name	string	
uuid	string	

ha

Name	Type	Description
auto_giveback	boolean	Specifies whether giveback is automatically initiated when the node that owns the storage is ready.
enabled	boolean	Specifies whether or not storage failover is enabled.
partners	array[partners]	The nodes in this node's High Availability (HA) group.

management_interface

The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

management_interfaces

Network interface

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface.
uuid	string	The UUID that uniquely identifies the interface.

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, you must set the netmask length. The default value is 64. Output is always netmask length.

ipv6_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, you must set the netmask length. The default value is 64. Output is always netmask length.

service_processor

Name	Type	Description
dhcp_enabled	boolean	Set to true to use DHCP to configure an IPv4 interface.
firmware_version	string	The version of firmware installed.
ipv4_interface	ipv4_interface	Object to setup an interface along with its default router.
ipv6_interface	ipv6_interface	Object to setup an interface along with its default router.
link_status	string	
mac_address	string	

Name	Type	Description
state	string	

version

This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

Name	Type	Description
full	string	The full cluster version string.
generation	integer	The generation portion of the version.
major	integer	The major portion of the version.
minor	integer	The minor portion of the version.

node

Complete node information

Name	Type	Description
_links	_links	
cluster_interface	cluster_interface	The cluster network IP address of the node to be added.
cluster_interfaces	array[cluster_interfaces]	
controller	controller	Controller information
date	string	Specifies the ISO-8601 format date and time on the node.
ha	ha	
location	string	
management_interface	management_interface	The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.
management_interfaces	array[management_interfaces]	

Name	Type	Description
membership	string	Possible values: • *available* - If a node is available, this means it is detected on the internal cluster network and can be added to the cluster. Nodes that have a membership of "available" are not returned when a GET request is called when the cluster exists. A query on the "membership" property for *available* must be provided to scan for nodes on the cluster network. Nodes that have a membership of "available" are returned automatically before a cluster is created. • *joining* - Joining nodes are in the process of being added to the cluster. The node may be progressing through the steps to become a member or might have failed. The job to add the node or create the cluster provides details on the current progress of the node. • *member* - Nodes that are members have successfully joined the cluster.
model	string	
name	string	
serial_number	string	
service_processor	service_processor	
uptime	integer	The total time, in seconds, that the node has been up.
uuid	string	
version	version	This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

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 node information

GET `/cluster/nodes/{uuid}`

Retrieves information for the node.

Learn more

- DOC /cluster/nodes

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	• format: uuid

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

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
cluster_interface	cluster_interface	The cluster network IP address of the node to be added.
cluster_interfaces	array[cluster_interfaces]	
controller	controller	Controller information
date	string	Specifies the ISO-8601 format date and time on the node.
ha	ha	
location	string	
management_interface	management_interface	The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.
management_interfaces	array[management_interfaces]	

Name	Type	Description
membership	string	Possible values: • *available* - If a node is available, this means it is detected on the internal cluster network and can be added to the cluster. Nodes that have a membership of "available" are not returned when a GET request is called when the cluster exists. A query on the "membership" property for *available* must be provided to scan for nodes on the cluster network. Nodes that have a membership of "available" are returned automatically before a cluster is created. • *joining* - Joining nodes are in the process of being added to the cluster. The node may be progressing through the steps to become a member or might have failed. The job to add the node or create the cluster provides details on the current progress of the node. • *member* - Nodes that are members have successfully joined the cluster.
model	string	
name	string	
serial_number	string	
service_processor	service_processor	
uptime	integer	The total time, in seconds, that the node has been up.
uuid	string	
version	version	This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "cluster_interface": {
    "ip": {
      "address": "10.10.10.7"
    }
  },
  "cluster_interfaces": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "ip": {
      "address": "10.10.10.7"
    },
    "name": "lif1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "controller": {
    "flash_cache": {
      "capacity": 1024000000000,
      "firmware_version": "NA05",
      "hardware_revision": "A1",
      "model": "X1970A",
      "part_number": "119-00207",
      "serial_number": "A22P5061550000187",
      "slot": "6-1",
      "state": "ok"
    },
    "frus": {
      "id": 0,
      "state": "ok",
      "type": "fan"
    },
    "over_temperature": "over"
  },
  "date": "2017-01-25 11:20:13 +0400",
  "ha": {
    "partners": {
```

```
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "location": "rack 2 row 5",
  "management_interface": {
    "ip": {
      "address": "10.10.10.7"
    }
  },
  "management_interfaces": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "ip": {
      "address": "10.10.10.7"
    },
    "name": "lif1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "membership": "available",
  "model": "FAS3070",
  "name": "node-01",
  "serial_number": "4048820-60-9",
  "service_processor": {
    "firmware_version": "string",
    "ipv4_interface": {
      "address": "10.10.10.7",
      "gateway": "10.1.1.1",
      "netmask": "24"
    },
    "ipv6_interface": {
      "address": "10.10.10.7",
      "gateway": "10.1.1.1",
      "netmask": "24"
    },
    "link_status": "up",
    "mac_address": "string",
    "state": "online"
```

```
  },
  "uptime": 300536,
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412",
  "version": {
    "full": "NetApp Release 9.4.0: Sun Nov 05 18:20:57 UTC 2017",
    "generation": 9,
    "major": 4,
    "minor": 0
  }
}
```


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	

node_setup_ip

The IP configuration for cluster setup.

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interface

The cluster network IP address of the node to be added.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

ip

IP information

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interfaces

Network interface

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface.

Name	Type	Description
uuid	string	The UUID that uniquely identifies the interface.

flash_cache

Name	Type	Description
capacity	integer	Size in bytes
firmware_version	string	
hardware_revision	string	
model	string	
part_number	string	
serial_number	string	
slot	string	
state	string	

frus

Name	Type	Description
id	integer	
state	string	
type	string	

controller

Controller information

Name	Type	Description
flash_cache	array[flash_cache]	A list of Flash-Cache devices. Only returned when requested by name.
frus	array[frus]	A list of frus in the node. Only returned when requested by name.
over_temperature	string	Specifies whether the hardware is currently operating outside of its recommended temperature range. The hardware shuts down if the temperature exceeds critical thresholds.

partners

Name	Type	Description
_links	_links	
name	string	
uuid	string	

ha

Name	Type	Description
auto_giveback	boolean	Specifies whether giveback is automatically initiated when the node that owns the storage is ready.
enabled	boolean	Specifies whether or not storage failover is enabled.
partners	array[partners]	The nodes in this node's High Availability (HA) group.

management_interface

The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

management_interfaces

Network interface

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface.
uuid	string	The UUID that uniquely identifies the interface.

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, you must set the netmask length. The default value is 64. Output is always netmask length.

ipv6_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, you must set the netmask length. The default value is 64. Output is always netmask length.

service_processor

Name	Type	Description
dhcp_enabled	boolean	Set to true to use DHCP to configure an IPv4 interface.
firmware_version	string	The version of firmware installed.
ipv4_interface	ipv4_interface	Object to setup an interface along with its default router.
ipv6_interface	ipv6_interface	Object to setup an interface along with its default router.
link_status	string	
mac_address	string	

Name	Type	Description
state	string	

version

This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

Name	Type	Description
full	string	The full cluster version string.
generation	integer	The generation portion of the version.
major	integer	The major portion of the version.
minor	integer	The minor portion of the version.

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.

Update node information

PATCH `/cluster/nodes/{uuid}`

Updates the node information or performs shutdown/reboot actions on a node.

Learn more

- DOC /cluster/nodes

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	• format: uuid
action	string	query	False	The shutdown action shuts the node down and transfers storage control to its HA group if storage failover is enabled. The reboot action reboots the node and transfers storage control to its HA group if storage failover is enabled. • enum: ["shutdown", "reboot"]
shutdown_reboot_reason	string	query	False	Indicates the reason for the reboot or shutdown. This only applies when an action of reboot or shutdown is provided.
allow_data_outage	boolean	query	False	This only applies when an action of reboot or shutdown is provided. It allows storage failover to be bypassed along with any failures related to mainintaing quorum in the cluster. • Default value:

Request Body

Name	Type	Description
_links	_links	
cluster_interface	cluster_interface	The cluster network IP address of the node to be added.
cluster_interfaces	array[cluster_interfaces]	
controller	controller	Controller information
date	string	Specifies the ISO-8601 format date and time on the node.
ha	ha	
location	string	
management_interface	management_interface	The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.
management_interfaces	array[management_interfaces]	

Name	Type	Description
membership	string	Possible values: • *available* - If a node is available, this means it is detected on the internal cluster network and can be added to the cluster. Nodes that have a membership of "available" are not returned when a GET request is called when the cluster exists. A query on the "membership" property for *available* must be provided to scan for nodes on the cluster network. Nodes that have a membership of "available" are returned automatically before a cluster is created. • *joining* - Joining nodes are in the process of being added to the cluster. The node may be progressing through the steps to become a member or might have failed. The job to add the node or create the cluster provides details on the current progress of the node. • *member* - Nodes that are members have successfully joined the cluster.
model	string	
name	string	
serial_number	string	
service_processor	service_processor	
uptime	integer	The total time, in seconds, that the node has been up.
uuid	string	
version	version	This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

Example request


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "cluster_interface": {
    "ip": {
      "address": "10.10.10.7"
    }
  },
  "cluster_interfaces": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "ip": {
      "address": "10.10.10.7"
    },
    "name": "lif1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "controller": {
    "flash_cache": {
      "capacity": 1024000000000,
      "firmware_version": "NA05",
      "hardware_revision": "A1",
      "model": "X1970A",
      "part_number": "119-00207",
      "serial_number": "A22P5061550000187",
      "slot": "6-1",
      "state": "ok"
    },
    "frus": {
      "id": 0,
      "state": "ok",
      "type": "fan"
    },
    "over_temperature": "over"
  },
  "date": "2017-01-25 11:20:13 +0400",
  "ha": {
    "partners": {
```

```
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "node1",
      "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
    }
  },
  "location": "rack 2 row 5",
  "management_interface": {
    "ip": {
      "address": "10.10.10.7"
    }
  },
  "management_interfaces": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "ip": {
      "address": "10.10.10.7"
    },
    "name": "lif1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "membership": "available",
  "model": "FAS3070",
  "name": "node-01",
  "serial_number": "4048820-60-9",
  "service_processor": {
    "firmware_version": "string",
    "ipv4_interface": {
      "address": "10.10.10.7",
      "gateway": "10.1.1.1",
      "netmask": "24"
    },
    "ipv6_interface": {
      "address": "10.10.10.7",
      "gateway": "10.1.1.1",
      "netmask": "24"
    },
    "link_status": "up",
    "mac_address": "string",
    "state": "online"
```

```
  },
  "uptime": 300536,
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412",
  "version": {
    "full": "NetApp Release 9.4.0: Sun Nov 05 18:20:57 UTC 2017",
    "generation": 9,
    "major": 4,
    "minor": 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
852046	HA partner node

Error Code	Description
65562	Internal RPC error
852115	The reboot/shutdown is prevented because LIFs cannot be moved away from the node
9240606	The reboot/shutdown is prevented due to quorum warnings.

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	

node_setup_ip

The IP configuration for cluster setup.

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interface

The cluster network IP address of the node to be added.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

ip

IP information

Name	Type	Description
address	string	IPv4 or IPv6 address

cluster_interfaces

Network interface

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface.

Name	Type	Description
uuid	string	The UUID that uniquely identifies the interface.

flash_cache

Name	Type	Description
capacity	integer	Size in bytes
firmware_version	string	
hardware_revision	string	
model	string	
part_number	string	
serial_number	string	
slot	string	
state	string	

frus

Name	Type	Description
id	integer	
state	string	
type	string	

controller

Controller information

Name	Type	Description
flash_cache	array[flash_cache]	A list of Flash-Cache devices. Only returned when requested by name.
frus	array[frus]	A list of frus in the node. Only returned when requested by name.
over_temperature	string	Specifies whether the hardware is currently operating outside of its recommended temperature range. The hardware shuts down if the temperature exceeds critical thresholds.

partners

Name	Type	Description
_links	_links	
name	string	
uuid	string	

ha

Name	Type	Description
auto_giveback	boolean	Specifies whether giveback is automatically initiated when the node that owns the storage is ready.
enabled	boolean	Specifies whether or not storage failover is enabled.
partners	array[partners]	The nodes in this node's High Availability (HA) group.

management_interface

The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.

Name	Type	Description
ip	node_setup_ip	The IP configuration for cluster setup.

management_interfaces

Network interface

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface.
uuid	string	The UUID that uniquely identifies the interface.

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, you must set the netmask length. The default value is 64. Output is always netmask length.

ipv6_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, you must set the netmask length. The default value is 64. Output is always netmask length.

service_processor

Name	Type	Description
dhcp_enabled	boolean	Set to true to use DHCP to configure an IPv4 interface.
firmware_version	string	The version of firmware installed.
ipv4_interface	ipv4_interface	Object to setup an interface along with its default router.
ipv6_interface	ipv6_interface	Object to setup an interface along with its default router.
link_status	string	
mac_address	string	

Name	Type	Description
state	string	

version

This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

Name	Type	Description
full	string	The full cluster version string.
generation	integer	The generation portion of the version.
major	integer	The major portion of the version.
minor	integer	The minor portion of the version.

node

Complete node information

Name	Type	Description
_links	_links	
cluster_interface	cluster_interface	The cluster network IP address of the node to be added.
cluster_interfaces	array[cluster_interfaces]	
controller	controller	Controller information
date	string	Specifies the ISO-8601 format date and time on the node.
ha	ha	
location	string	
management_interface	management_interface	The management interface of the node to be added. The netmask is set based on the management interface of the cluster or the managment interfaces of other nodes.
management_interfaces	array[management_interfaces]	

Name	Type	Description
membership	string	Possible values: • *available* - If a node is available, this means it is detected on the internal cluster network and can be added to the cluster. Nodes that have a membership of "available" are not returned when a GET request is called when the cluster exists. A query on the "membership" property for *available* must be provided to scan for nodes on the cluster network. Nodes that have a membership of "available" are returned automatically before a cluster is created. • *joining* - Joining nodes are in the process of being added to the cluster. The node may be progressing through the steps to become a member or might have failed. The job to add the node or create the cluster provides details on the current progress of the node. • *member* - Nodes that are members have successfully joined the cluster.
model	string	
name	string	
serial_number	string	
service_processor	service_processor	
uptime	integer	The total time, in seconds, that the node has been up.
uuid	string	
version	version	This returns the cluster version information. When the cluster has more than one node, the cluster version is equivalent to the lowest of generation, major, and minor versions on all nodes.

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.

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