View NVMe subsystem controllers

REST API reference

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View NVMe subsystem controllers

View NVMe subsystem controllers

Overview

Non-Volatile Memory Express (NVMe) subsystem controllers represent dynamic connections between hosts and a storage solution.

The NVMe subsystem controllers REST API provides information about connected hosts.

Examples

Retrieving the NVMe subsystem controllers for the entire system

```
# The API:
GET /api/protocols/nvme/subsystem-controllers

# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/nvme/subsystem-controllers'
-H 'Accept: application/hal+json'

# The response:
{
"records": [
  {
    "svm": {
      "uuid": "f0f5b928-2593-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_fcnvme_vserver_0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/f0f5b928-2593-11e9-94c4-00a0989a1c8e"
        }
      }
    },
    "subsystem": {
      "uuid": "14875240-2594-11e9-abde-00a098984313",
      "name": "symmcon_symmcon_fcnvme_vserver_0_subsystem_0",
      "_links": {
        "self": {
          "href": "/api/protocols/nvme/subsystems/14875240-2594-11e9-abde-
00a098984313"
        }
      }
    },
    "id": "0040h",
```

```
    "_links": {
      "self": {
        "href": "/api/protocols/nvme/subsystem-controllers/14875240-2594-
11e9-abde-00a098984313/0040h"
      }
    }
  },
  {
    "svm": {
      "uuid": "f0f5b928-2593-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_fcnvme_vserver_0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/f0f5b928-2593-11e9-94c4-00a0989a1c8e"
        }
      }
    },
    "subsystem": {
      "uuid": "14875240-2594-11e9-abde-00a098984313",
      "name": "symmcon_symmcon_fcnvme_vserver_0_subsystem_0",
      "_links": {
        "self": {
          "href": "/api/protocols/nvme/subsystems/14875240-2594-11e9-abde-
00a098984313"
        }
      }
    },
    "id": "0041h",
    "_links": {
      "self": {
        "href": "/api/protocols/nvme/subsystem-controllers/14875240-2594-
11e9-abde-00a098984313/0041h"
      }
    }
  },
  {
    "svm": {
      "uuid": "f0f5b928-2593-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_fcnvme_vserver_0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/f0f5b928-2593-11e9-94c4-00a0989a1c8e"
        }
      }
    },
    "subsystem": {
```

```
      "uuid": "1489d0d5-2594-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_symmcon_fcnvme_vserver_0_subsystem_1",
      "_links": {
        "self": {
          "href": "/api/protocols/nvme/subsystems/1489d0d5-2594-11e9-94c4-
00a0989a1c8e"
        }
      }
    },
    "id": "0040h",
    "_links": {
      "self": {
        "href": "/api/protocols/nvme/subsystem-controllers/1489d0d5-2594-
11e9-94c4-00a0989a1c8e/0040h"
      }
    }
  },
  {
    "svm": {
      "uuid": "f0f5b928-2593-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_fcnvme_vserver_0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/f0f5b928-2593-11e9-94c4-00a0989a1c8e"
        }
      }
    },
    "subsystem": {
      "uuid": "1489d0d5-2594-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_symmcon_fcnvme_vserver_0_subsystem_1",
      "_links": {
        "self": {
          "href": "/api/protocols/nvme/subsystems/1489d0d5-2594-11e9-94c4-
00a0989a1c8e"
        }
      }
    },
    "id": "0041h",
    "_links": {
      "self": {
        "href": "/api/protocols/nvme/subsystem-controllers/1489d0d5-2594-
11e9-94c4-00a0989a1c8e/0041h"
      }
    }
  }
],
```

```
"num_records": 4,
"_links": {
  "self": {
    "href": "/api/protocols/nvme/subsystem-controllers"
  }
}
}
```

Retrieving the NVMe subsystem controllers for a specific subsystem

```
# The API:
GET /api/protocols/nvme/subsystem-controllers

# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/nvme/subsystem-
controllers?subsystem.uuid=14875240-2594-11e9-abde-00a098984313' -H
'Accept: application/hal+json'

# The response:
{
"records": [
  {
    "svm": {
      "uuid": "f0f5b928-2593-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_fcnvme_vserver_0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/f0f5b928-2593-11e9-94c4-00a0989a1c8e"
        }
      }
    },
    "subsystem": {
      "uuid": "14875240-2594-11e9-abde-00a098984313",
      "name": "symmcon_symmcon_fcnvme_vserver_0_subsystem_0",
      "_links": {
        "self": {
          "href": "/api/protocols/nvme/subsystems/14875240-2594-11e9-abde-
00a098984313"
        }
      }
    },
    "id": "0040h",
    "_links": {
      "self": {
```

```
        "href": "/api/protocols/nvme/subsystem-controllers/14875240-2594-
11e9-abde-00a098984313/0040h"
      }
    }
  },
  {
    "svm": {
      "uuid": "f0f5b928-2593-11e9-94c4-00a0989a1c8e",
      "name": "symmcon_fcnvme_vserver_0",
      "_links": {
        "self": {
          "href": "/api/svm/svms/f0f5b928-2593-11e9-94c4-00a0989a1c8e"
        }
      }
    },
    "subsystem": {
      "uuid": "14875240-2594-11e9-abde-00a098984313",
      "name": "symmcon_symmcon_fcnvme_vserver_0_subsystem_0",
      "_links": {
        "self": {
          "href": "/api/protocols/nvme/subsystems/14875240-2594-11e9-abde-
00a098984313"
        }
      }
    },
    "id": "0041h",
    "_links": {
      "self": {
        "href": "/api/protocols/nvme/subsystem-controllers/14875240-2594-
11e9-abde-00a098984313/0041h"
      }
    }
  }
],
"num_records": 2,
"_links": {
  "self": {
    "href": "/api/protocols/nvme/subsystem-controllers/14875240-2594-11e9-
abde-00a098984313"
  }
}
}
```

Retrieving a specific NVMe subsystem controller

```
# The API:
GET /api/protocols/nvme/subsystem-controllers/{subsystem.uuid}/{id}

# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/nvme/subsystem-
controllers/14875240-2594-11e9-abde-00a098984313/0040h' -H 'Accept:
application/hal+json'

# The response:
{
"svm": {
  "uuid": "f0f5b928-2593-11e9-94c4-00a0989a1c8e",
  "name": "symmcon_fcnvme_vserver_0",
  "_links": {
    "self": {
      "href": "/api/svm/svms/f0f5b928-2593-11e9-94c4-00a0989a1c8e"
    }
  }
},
"subsystem": {
  "uuid": "14875240-2594-11e9-abde-00a098984313",
  "name": "symmcon_symmcon_fcnvme_vserver_0_subsystem_0",
  "_links": {
    "self": {
      "href": "/api/protocols/nvme/subsystems/14875240-2594-11e9-abde-
00a098984313"
    }
  }
},
"id": "0040h",
"interface": {
  "name": "symmcon_lif_fcnvme_symmcon_fcnvme_vserver_0_3a_0",
  "uuid": "fa1c5941-2593-11e9-94c4-00a0989a1c8e",
  "transport_address": "nn-0x200400a0989a1c8d:pn-0x200500a0989a1c8d",
  "_links": {
    "self": {
      "href": "/api/protocols/nvme/interfaces/fa1c5941-2593-11e9-94c4-
00a0989a1c8e"
    }
  }
},
"node": {
  "name": "ssan-8040-94a",
  "uuid": "ebf66f05-2590-11e9-abde-00a098984313",
```

```
  "_links": {
    "self": {
      "href": "/api/cluster/nodes/ebf66f05-2590-11e9-abde-00a098984313"
    }
  }
},
"host": {
  "transport_address": "nn-0x20000090fae00806:pn-0x10000090fae00806",
  "nqn": "nqn.2014-08.org.nvmexpress:uuid:c2846cb1-89d2-4020-a3b0-
71ce907b4eef",
  "id": "b8546ca6097349e5b1558dc154fc073b"
},
"io_queue": {
  "count": 4,
  "depth": [
    32,
    32,
    32,
    32
  ]
},
"admin_queue": {
  "depth": 32
},
"dh_hmac_chap": {
  "mode": "none"
},
"keep_alive_timeout": 4000,
"digest.header": true,
"digest.data": false,
"tls": {
  "key_type": "configured",
  "psk_identity": "NVMe1R01 nqn.2014-08.org.nvmexpress:uuid:c2846cb1-89d2-
4020-a3b0-71ce907b4eef nqn.1992-
08.com.netapp:sn.ca3cae02070811ef9a53005056bb9001:subsystem.ss1
c9X3RurQxGiGa76Tpk2tirifrUhHmVp035MOrtHXnAU=",
  "cipher": "tls_aes_128_gcm_sha256"
},
"_links": {
  "self": {
    "href": "/api/protocols/nvme/subsystem-controllers/14875240-2594-11e9-
abde-00a098984313/0040h"
  }
}
}
```

Retrieve NVMe subsystem controllers

GET `/protocols/nvme/subsystem-controllers`

Introduced In: 9.6

Retrieves NVMe subsystem controllers.

Related ONTAP commands

- `vserver nvme subsystem controller show`

Learn more

- DOC /protocols/nvme/subsystem-controllers

Parameters

Name	Type	In	Required	Description
svm.name	string	query	False	Filter by svm.name
svm.uuid	string	query	False	Filter by svm.uuid
subsystem.uuid	string	query	False	Filter by subsystem.uuid
subsystem.name	string	query	False	Filter by subsystem.name • maxLength: 64 • minLength: 1
interface.transport_address	string	query	False	Filter by interface.transport_address
interface.uuid	string	query	False	Filter by interface.uuid
interface.name	string	query	False	Filter by interface.name
dh_hmac_chap.group_size	string	query	False	Filter by dh_hmac_chap.group_size • Introduced in: 9.12

Name	Type	In	Required	Description
dh_hmac_chap.hash_function	string	query	False	Filter by dh_hmac_chap.hash_function • Introduced in: 9.12
dh_hmac_chap.mode	string	query	False	Filter by dh_hmac_chap.mode • Introduced in: 9.12
digest.header	boolean	query	False	Filter by digest.header • Introduced in: 9.15
digest.data	boolean	query	False	Filter by digest.data • Introduced in: 9.15
id	string	query	False	Filter by id
node.name	string	query	False	Filter by node.name
node.uuid	string	query	False	Filter by node.uuid
io_queue.count	integer	query	False	Filter by io_queue.count
io_queue.depth	integer	query	False	Filter by io_queue.depth
keep_alive_timeout	integer	query	False	Filter by keep_alive_timeout • Introduced in: 9.14
tls.key_type	string	query	False	Filter by tls.key_type • Introduced in: 9.16

Name	Type	In	Required	Description
tls.cipher	string	query	False	Filter by tls.cipher • Introduced in: 9.16
tls.psk_identity	string	query	False	Filter by tls.psk_identity • Introduced in: 9.16
host.id	string	query	False	Filter by host.id
host.transport_address	string	query	False	Filter by host.transport_address
host.nqn	string	query	False	Filter by host.nqn • maxLength: 223 • minLength: 1
admin_queue.depth	integer	query	False	Filter by admin_queue.depth
transport_protocol	string	query	False	Filter by transport_protocol • Introduced in: 9.16
fields	array[string]	query	False	Specify the fields to return.
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. • Default value: 1

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

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	The number of records in the response.
records	array[nvme_subsystem_controller]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "admin_queue": {
        "depth": 0
      },
      "dh_hmac_chap": {
        "group_size": "string",
        "hash_function": "string",
        "mode": "bidirectional"
      },
      "host": {
        "id": "b8546ca6097349e5b1558dc154fc073b",
        "nqn": "nqn.2014-08.org.nvmexpress:uuid:c2846cb1-89d2-4020-
a3b0-71ce907b4eef",
        "transport_address": "nn-0x20000090fae00806:pn-
0x10000090fae00806"
      },
      "id": "0040h",
      "interface": {
        "name": "lif1",
        "transport_address": "nn-0x200400a0989a1c8d:pn-
0x200500a0989a1c8d",
        "uuid": "fa1c5941-2593-11e9-94c4-00a0989a1c8e"
      },
      "io_queue": {
        "count": 0,
        "depth": [
          "integer"
        ]
```

```
      },
      "keep_alive_timeout": 1500,
      "node": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "subsystem": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "subsystem1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      },
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "tls": {
        "cipher": "tls_aes_128_gcm_sha256",
        "key_type": "configured",
        "psk_identity": "NVMe1R01 nqn.2014-
08.org.nvmexpress:uuid:713b3816-f9bf-ba43-b95a-5e4bf8c726e9 nqn.1992-
08.com.netapp:sn.76f9d9bfb96511eea95e005056bb72b2:subsystem.ss1
mS1A7nrooevA9ZqAM09fQzWQlB2UZRt0BE1X4vINjY0=:"
      },
      "transport_protocol": "string"
    }
  ]
}
```


Error

```
Status: Default, Error
```

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	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

admin_queue

Name	Type	Description
depth	integer	The depth of the admin queue for the controller.

dh_hmac_chap

A container for properties of the NVMe in-band authentication DH-HMAC-CHAP protocol used by the the host connection to the controller.

Name	Type	Description
group_size	string	The Diffie-Hellman group size used for NVMe in-band authentication. This property is populated only when NVMe in-band authentication was performed for the NVMe-oF transport connection.
hash_function	string	The hash function used for NVMe in-band authentication. This property is populated only when NVMe in-band authentication was performed for the NVMe-oF transport connection.

Name	Type	Description
mode	string	The NVMe in-band authentication mode used for the host connection. When set to: • none: Neither the host nor controller was authenticated. • unidirectional: The controller authenticated the host. • bidirectional: The controller authenticated the host and the host authenticated the controller.

digest

Digests are properties of NVMe controllers created over the NVMe/TCP transport protocol. The usage of digests is negotiated between the host and the controller during connection setup. ONTAP enables digests only if the host requests them. The header digest is the crc32 checksum of the header portion of the NVMe/TCP PDU. The data digest is the crc32 checksum of the data portion of the NVMe/TCP PDU.

If a digest is enabled, upon receiving an NVMe/TCP PDU, ONTAP calculates the crc32 checksum of the associated portion of the PDU and compares it with the digest value present in the transmitted PDU. If there is a mismatch, ONTAP returns an error and destroys the controller.

Name	Type	Description
data	boolean	Reports if digests are enabled for the data portion of the PDU.
header	boolean	Reports if digests are enabled for the header portion of the PDU.

host

Properties of the connected host.

Name	Type	Description
id	string	The host identifier registered with the controller.
nqn	string	The NVMe qualified name of the host.
transport_address	string	The transport address of the host.

interface

The logical interface through which the host is connected.

Name	Type	Description
name	string	The name of the logical interface.
transport_address	string	The transport address of the logical interface.
uuid	string	The unique identifier of the logical interface.

io_queue

Properties of the I/O queues available to the controller.

Name	Type	Description
count	integer	The number of I/O queues available to the controller.
depth	array[integer]	The depths of the I/O queues.

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

subsystem

An NVMe subsystem maintains configuration state and NVMe namespace access control for a set of NVMe-connected hosts.

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

svm

SVM, applies only to SVM-scoped objects.

Name	Type	Description
_links	_links	
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

tls

A container for properties that describe the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem.

Name	Type	Description
cipher	string	The cipher suite used for the transport by the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem. This property is populated only when encryption is in use for the transport connection.
key_type	string	The method by which the TLS pre-shared key (PSK) was obtained when establishing the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem. Possible values: • `none` - TLS encryption is not configured for the host connection. • `configured` - A user supplied PSK was used for the encrypted NVMe/TCP-TLS transport connection between the host and the NVMe subsystem.

Name	Type	Description
psk_identity	string	The TLS PSK identity supplied by the host when establishing the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem. This property is populated only when encryption is in use for the transport connection.

nvme_subsystem_controller

A Non-Volatile Memory Express (NVMe) subsystem controller represents a connection between a host and a storage solution.

An NVMe subsystem controller is identified by the NVMe subsystem UUID and the controller ID.

Name	Type	Description
_links	_links	
admin_queue	admin_queue	
dh_hmac_chap	dh_hmac_chap	A container for properties of the NVMe in-band authentication DH-HMAC-CHAP protocol used by the the host connection to the controller.

Name	Type	Description
digest	digest	Digests are properties of NVMe controllers created over the NVMe/TCP transport protocol. The usage of digests is negotiated between the host and the controller during connection setup. ONTAP enables digests only if the host requests them. The header digest is the crc32 checksum of the header portion of the NVMe/TCP PDU. The data digest is the crc32 checksum of the data portion of the NVMe/TCP PDU. If a digest is enabled, upon receiving an NVMe/TCP PDU, ONTAP calculates the crc32 checksum of the associated portion of the PDU and compares it with the digest value present in the transmitted PDU. If there is a mismatch, ONTAP returns an error and destroys the controller. • readOnly: 1 • Introduced in: 9.15
host	host	Properties of the connected host.
id	string	The identifier of the subsystem controller. This field consists of 4 zero-filled hexadecimal digits followed by an 'h'.
interface	interface	The logical interface through which the host is connected.
io_queue	io_queue	Properties of the I/O queues available to the controller.

Name	Type	Description
keep_alive_timeout	integer	The keep-alive timeout value for the controller and all of its host connections, in milliseconds. If the NVMe controller does not receive a keep-alive request or an I/O request within the timeout window, the NVMe controller terminates its admin queue and I/O queue connections leading to NVMe controller teardown. If the NVMe host does not receive a response to a keep-alive request or an I/O request within the timeout window, the NVMe host initiates a connection disconnect.
node	node	
subsystem	subsystem	An NVMe subsystem maintains configuration state and NVMe namespace access control for a set of NVMe-connected hosts.
svm	svm	SVM, applies only to SVM-scoped objects.
tls	tls	A container for properties that describe the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem.
transport_protocol	string	Transport Protocol

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

returned_error

Name	Type	Description
arguments	array[error_arguments]	Message arguments

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

Retrieve an NVMe subsystem controller

GET `/protocols/nvme/subsystem-controllers/{subsystem.uuid}/{id}`

Introduced In: 9.6

Retrieves an NVMe subsystem controller.

Related ONTAP commands

- `vserver nvme subsystem controller show`

Learn more

- DOC /protocols/nvme/subsystem-controllers

Parameters

Name	Type	In	Required	Description
subsystem.uuid	string	path	True	The unique identifier of the NVMe subsystem.
id	string	path	True	The unique identifier of the NVMe subsystem controller.
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
admin_queue	admin_queue	
dh_hmac_chap	dh_hmac_chap	A container for properties of the NVMe in-band authentication DH-HMAC-CHAP protocol used by the the host connection to the controller.
digest	digest	Digests are properties of NVMe controllers created over the NVMe/TCP transport protocol. The usage of digests is negotiated between the host and the controller during connection setup. ONTAP enables digests only if the host requests them. The header digest is the crc32 checksum of the header portion of the NVMe/TCP PDU. The data digest is the crc32 checksum of the data portion of the NVMe/TCP PDU. If a digest is enabled, upon receiving an NVMe/TCP PDU, ONTAP calculates the crc32 checksum of the associated portion of the PDU and compares it with the digest value present in the transmitted PDU. If there is a mismatch, ONTAP returns an error and destroys the controller. • readOnly: 1 • Introduced in: 9.15
host	host	Properties of the connected host.
id	string	The identifier of the subsystem controller. This field consists of 4 zero-filled hexadecimal digits followed by an 'h'.
interface	interface	The logical interface through which the host is connected.
io_queue	io_queue	Properties of the I/O queues available to the controller.

Name	Type	Description
keep_alive_timeout	integer	The keep-alive timeout value for the controller and all of its host connections, in milliseconds. If the NVMe controller does not receive a keep-alive request or an I/O request within the timeout window, the NVMe controller terminates its admin queue and I/O queue connections leading to NVMe controller teardown. If the NVMe host does not receive a response to a keep-alive request or an I/O request within the timeout window, the NVMe host initiates a connection disconnect.
node	node	
subsystem	subsystem	An NVMe subsystem maintains configuration state and NVMe namespace access control for a set of NVMe-connected hosts.
svm	svm	SVM, applies only to SVM-scoped objects.
tls	tls	A container for properties that describe the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem.
transport_protocol	string	Transport Protocol

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "admin_queue": {
    "depth": 0
  },
  "dh_hmac_chap": {
    "group_size": "string",
    "hash_function": "string",
    "mode": "bidirectional"
  },
  "host": {
    "id": "b8546ca6097349e5b1558dc154fc073b",
    "nqn": "nqn.2014-08.org.nvmexpress:uuid:c2846cb1-89d2-4020-a3b0-
71ce907b4eef",
    "transport_address": "nn-0x20000090fae00806:pn-0x10000090fae00806"
  },
  "id": "0040h",
  "interface": {
    "name": "lif1",
    "transport_address": "nn-0x200400a0989a1c8d:pn-0x200500a0989a1c8d",
    "uuid": "fa1c5941-2593-11e9-94c4-00a0989a1c8e"
  },
  "io_queue": {
    "count": 0,
    "depth": [
      "integer"
    ]
  },
  "keep_alive_timeout": 1500,
  "node": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "node1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "subsystem": {
    "_links": {
```

```
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "subsystem1",
    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
  },
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "tls": {
    "cipher": "tls_aes_128_gcm_sha256",
    "key_type": "configured",
    "psk_identity": "NVMe1R01 nqn.2014-08.org.nvmexpress:uuid:713b3816-
f9bf-ba43-b95a-5e4bf8c726e9 nqn.1992-
08.com.netapp:sn.76f9d9bfb96511eea95e005056bb72b2:subsystem.ss1
mS1A7nrooevA9ZqAM09fQzWQlB2UZRt0BE1X4vINjY0=:"
  },
  "transport_protocol": "string"
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
72090001	The supplied subsystem identifier does not exist.

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	

_links

Name	Type	Description
self	href	

admin_queue

Name	Type	Description
depth	integer	The depth of the admin queue for the controller.

dh_hmac_chap

A container for properties of the NVMe in-band authentication DH-HMAC-CHAP protocol used by the the host connection to the controller.

Name	Type	Description
group_size	string	The Diffie-Hellman group size used for NVMe in-band authentication. This property is populated only when NVMe in-band authentication was performed for the NVMe-oF transport connection.
hash_function	string	The hash function used for NVMe in-band authentication. This property is populated only when NVMe in-band authentication was performed for the NVMe-oF transport connection.

Name	Type	Description
mode	string	The NVMe in-band authentication mode used for the host connection. When set to: • none: Neither the host nor controller was authenticated. • unidirectional: The controller authenticated the host. • bidirectional: The controller authenticated the host and the host authenticated the controller.

digest

Digests are properties of NVMe controllers created over the NVMe/TCP transport protocol. The usage of digests is negotiated between the host and the controller during connection setup. ONTAP enables digests only if the host requests them. The header digest is the crc32 checksum of the header portion of the NVMe/TCP PDU. The data digest is the crc32 checksum of the data portion of the NVMe/TCP PDU.

If a digest is enabled, upon receiving an NVMe/TCP PDU, ONTAP calculates the crc32 checksum of the associated portion of the PDU and compares it with the digest value present in the transmitted PDU. If there is a mismatch, ONTAP returns an error and destroys the controller.

Name	Type	Description
data	boolean	Reports if digests are enabled for the data portion of the PDU.
header	boolean	Reports if digests are enabled for the header portion of the PDU.

host

Properties of the connected host.

Name	Type	Description
id	string	The host identifier registered with the controller.
nqn	string	The NVMe qualified name of the host.
transport_address	string	The transport address of the host.

interface

The logical interface through which the host is connected.

Name	Type	Description
name	string	The name of the logical interface.
transport_address	string	The transport address of the logical interface.
uuid	string	The unique identifier of the logical interface.

io_queue

Properties of the I/O queues available to the controller.

Name	Type	Description
count	integer	The number of I/O queues available to the controller.
depth	array[integer]	The depths of the I/O queues.

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

subsystem

An NVMe subsystem maintains configuration state and NVMe namespace access control for a set of NVMe-connected hosts.

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

svm

SVM, applies only to SVM-scoped objects.

Name	Type	Description
_links	_links	
name	string	The name of the SVM. This field cannot be specified in a PATCH method.
uuid	string	The unique identifier of the SVM. This field cannot be specified in a PATCH method.

tls

A container for properties that describe the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem.

Name	Type	Description
cipher	string	The cipher suite used for the transport by the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem. This property is populated only when encryption is in use for the transport connection.
key_type	string	The method by which the TLS pre-shared key (PSK) was obtained when establishing the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem. Possible values: • `none` - TLS encryption is not configured for the host connection. • `configured` - A user supplied PSK was used for the encrypted NVMe/TCP-TLS transport connection between the host and the NVMe subsystem.

Name	Type	Description
psk_identity	string	The TLS PSK identity supplied by the host when establishing the encrypted NVMe/TCP transport connection between the host and the NVMe subsystem. This property is populated only when encryption is in use for the transport connection.

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.

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