Manage SAN igroups

REST API reference

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Manage SAN igroups

Protocols SAN igroups endpoint overview

Overview

An initiator group (igroup) is a collection of Fibre Channel (FC) world wide port names (WWPNs), and/or iSCSI Qualified Names (IQNs), and/or iSCSI EUIs (Extended Unique Identifiers) that identify host initiators.

Initiator groups are used to control which hosts can access specific LUNs. To grant access to a LUN from one or more hosts, create an initiator group containing the host initiator names, then create a LUN map that associates the initiator group with the LUN.

An initiator group may contain either initiators or other initiator groups, but not both simultaneously. When a parent initiator group is mapped, it inherits all of the initiators of any initiator groups nested below it. If any nested initiator group is modified to contain different initiators, the parent initiator groups inherit the change. A parent can have many nested initiator groups and an initiator group can be nested under multiple parents. Initiators can only be added or removed from the initiator group that directly contains them. The maximum supported depth of nesting is three layers.

Best practice when using nested initiator groups is to match host hierarchies. A single initiator group should correspond to a single host. If a LUN needs to be mapped to multiple hosts, the initiator groups representing those hosts should be aggregated into a parent initiator group and the LUN should be mapped to that initiator group. For multi-ported hosts, initiators have a comment property where the port corresponding to the initiator can be documented.

The initiator group REST API allows you to create, update, delete, and discover initiator groups, and to add and remove initiators that can access the target and associated LUNs.

An initiator can appear in multiple initiator groups. An initiator group can be mapped to multiple LUNs. A specific initiator can be mapped to a specific LUN only once. With the introduction of nestable initiator groups, best practice is to use the hierarchy such that an initiator is only a direct member of a single initiator group, and that initiator group can then be referenced by other initiator groups. This avoid needing to update multiple initiator groups when initiators change.

All initiators or nested initiator groups in an initiator group must be from the same operating system. The initiator group's operating system is specified when the initiator group is created.

When an initiator group is created, the `protocol` property is used to restrict member initiators to Fibre Channel (*fcp*), iSCSI (*iscsi*), or both (*mixed*). Initiator groups within a nested hierarchy may not have conflicting protocols.

Zero or more initiators or nested initiator groups can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. Initiator groups containing other initiator groups report the aggregated list of initiators from all nested initiator groups, but modifications of the initiator list must be performed on the initiator group that directly contains the initiators. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.

An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

Examples

Creating an initiator group with no initiators

The example initiator group used here is for Linux iSCSI initiators only. Note that the `return_records` query parameter is used to obtain the newly created initiator group in the response.

```
# The API:
POST /api/protocols/san/igroups

# The call:
curl -X POST 'https://<mgmt-
ip>/api/protocols/san/igroups?return_records=true' -H 'Accept:
application/hal+json' -d '{ "svm": { "name": "svm1" }, "name": "igroup1",
"os_type": "linux", "protocol": "iscsi" }'

# The response:
{
"num_records": 1,
"records": [
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "8f249e7d-ab9f-11e8-b8a3-005056bb7072",
    "name": "igroup1",
    "protocol": "iscsi",
    "os_type": "linux",
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/8f249e7d-ab9f-11e8-b8a3-
005056bb7072"
      }
    }
  }
]
}
```

Creating an initiator group with initiators

The example initiator group used here is for Windows. FC Protocol and iSCSI initiators are allowed. Note that the `return_records` query parameter is used to obtain the newly created initiator group in the response.

```
# The API:
POST /api/protocols/san/igroups

# The call:
curl -X POST 'https://<mgmt-
ip>/api/protocols/san/igroups?return_records=true' -H 'Accept:
application/hal+json' -d '{ "svm": { "name": "svm1" }, "name": "igroup2",
"os_type": "windows", "protocol": "mixed", "initiators": [ { "name":
"20:01:00:50:56:bb:70:72" }, { "name": "iqn.1991-05.com.ms:host1" } ] }'

# The response:
{
"num_records": 1,
"records": [
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
    "name": "igroup2",
    "protocol": "mixed",
    "os_type": "windows",
    "initiators": [
      {
        "name": "20:01:00:50:56:bb:70:72",
        "_links": {
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/20:01:00:50:56:bb:70:72"
          }
        }
      },
      {
        "name": "iqn.1991-05.com.ms:host1",
        "_links": {
```

```
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/iqn.1991-05.com.ms:host1"
          }
        }
      }
    ],
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072"
      }
    }
  }
]
}
```

Creating an initiator group with nested initiator groups

The example initiator group used here is for Windows. FC Protocol and iSCSI initiators are allowed. Note that the `return_records` query parameter is used to obtain the newly created initiator group in the response. The new initiator group is create so as to contain the initiator group created in the previous example. The initiators list reports all initiators nested below this initiator group, and note that the href link for the initiators refers to the initiator group that directly owns the initiator, not this initiator group.

```
# The API:
POST /api/protocols/san/igroups

# The call:
curl -X POST 'https://<mgmt-
ip>/api/protocols/san/igroups?return_records=true' -H 'Accept:
application/hal+json' -d '{ "svm": { "name": "svm1" }, "name": "igroup3",
"os_type": "windows", "protocol": "mixed", "igroups": [ { "name":
"igroup2" } ] }'

# The response:
{
"num_records": 1,
"records": [
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
```

```
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7073",
    "name": "igroup3",
    "protocol": "mixed",
    "os_type": "windows",
    "igroups": [
      {
        "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
        "name": "igroup2",
        "_links": { "self": { "href":
"/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-005056bb7072" } }
      }
    ],
    "initiators": [
      {
        "name": "20:01:00:50:56:bb:70:72",
        "igroup": {
          "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
          "name": "igroup2",
          "_links": { "self": { "href":
"/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-005056bb7072" } }
        },
        "_links": {
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/20:01:00:50:56:bb:70:72"
          }
        }
      },
      {
        "name": "iqn.1991-05.com.ms:host1",
        "igroup": {
          "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
          "name": "igroup2",
          "_links": { "self": { "href":
"/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-005056bb7072" } }
        },
        "_links": {
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/iqn.1991-05.com.ms:host1"
          }
        }
```

```
      }
    ],
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7073"
      }
    }
  }
]
}
```

Retrieving all initiator groups

```
# The API:
GET /api/protocols/san/igroups

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

# The response:
{
"records": [
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "8f249e7d-ab9f-11e8-b8a3-005056bb7072",
    "name": "igroup1",
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/8f249e7d-ab9f-11e8-b8a3-
005056bb7072"
      }
    }
  },
  {
```

```
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
    "name": "igroup2",
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072"
      }
    }
  },
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7073",
    "name": "igroup3",
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7073"
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/protocols/san/igroups"
  }
}
}
```

Retrieving all properties of all initiator groups

The `fields` query parameter is used to request all initiator group properties. Note that the nested and parent initiator groups are considered expensive properties and will only be returned if explicitly requested.

```
# The API:
GET /api/protocols/san/igroups

# The call:
curl -X GET 'https://<mgmt-
ip>/api/protocols/san/igroups?fields=*,igroups,parent_igroups' -H 'Accept:
application/hal+json'

# The response:
{
"records": [
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "8f249e7d-ab9f-11e8-b8a3-005056bb7072",
    "name": "igroup1",
    "protocol": "iscsi",
    "os_type": "linux",
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/8f249e7d-ab9f-11e8-b8a3-
005056bb7072"
      }
    }
  },
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
```

```
    },
    "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
    "name": "igroup2",
    "parent_igroups": [
      {
        "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7073",
        "name": "igroup3",
        "_links": {
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7073"
          }
        }
      }
    ],
    "protocol": "mixed",
    "os_type": "windows",
    "initiators": [
      {
        "name": "20:01:00:50:56:bb:70:72",
        "_links": {
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/20:01:00:50:56:bb:70:72"
          }
        }
      },
      {
        "name": "iqn.1991-05.com.ms:host1",
        "_links": {
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/iqn.1991-05.com.ms:host1"
          }
        }
      }
    ],
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072"
      }
    }
  },
  {
    "svm": {
```

```
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7073",
    "name": "igroup3",
    "protocol": "mixed",
    "os_type": "windows",
    "igroups": [
      {
        "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
        "name": "igroup2",
        "_links": { "self": { "href":
"/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-005056bb7072" } }
      }
    ],
    "initiators": [
      {
        "name": "20:01:00:50:56:bb:70:72",
        "igroup": {
          "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
          "name": "igroup2",
          "_links": { "self": { "href":
"/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-005056bb7072" } }
        },
        "_links": {
          "self": {
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/20:01:00:50:56:bb:70:72"
          }
        }
      },
      {
        "name": "iqn.1991-05.com.ms:host1",
        "igroup": {
          "uuid": "abf9c39d-ab9f-11e8-b8a3-005056bb7072",
          "name": "igroup2",
          "_links": { "self": { "href":
"/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-005056bb7072" } }
        },
        "_links": {
          "self": {
```

```
            "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7072/initiators/iqn.1991-05.com.ms:host1"
          }
        }
      }
    ],
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/abf9c39d-ab9f-11e8-b8a3-
005056bb7073"
      }
    }
  }
],
"num_records": 3,
"_links": {
  "self": {
    "href": "/api/protocols/san/igroups?fields=*"
  }
}
}
```

Retrieving all initiator groups for Linux

The `os_type` query parameter is used to perform the query.

```
# The API:
GET /api/protocols/san/igroups

# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/san/igroups?os_type=linux' -H
'Accept: application/hal+json'

# The response:
{
"records": [
  {
    "svm": {
      "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
      "name": "svm1",
      "_links": {
        "self": {
          "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
        }
      }
    },
    "uuid": "8f249e7d-ab9f-11e8-b8a3-005056bb7072",
    "name": "igroup1",
    "os_type": "linux",
    "_links": {
      "self": {
        "href": "/api/protocols/san/igroups/8f249e7d-ab9f-11e8-b8a3-
005056bb7072"
      }
    }
  }
],
"num_records": 1,
"_links": {
  "self": {
    "href": "/api/protocols/san/igroups?os_type=linux"
  }
}
}
```

Retrieving a specific initiator group

```
# The API:
GET /api/protocols/san/igroups/{uuid}

# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072' -H 'Accept: application/hal+json'

# The response:
{
"svm": {
  "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
  "name": "svm1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
    }
  }
},
"uuid": "8f249e7d-ab9f-11e8-b8a3-005056bb7072",
"name": "igroup1",
"protocol": "iscsi",
"os_type": "linux",
"_links": {
  "self": {
    "href": "/api/protocols/san/igroups/8f249e7d-ab9f-11e8-b8a3-
005056bb7072"
  }
}
}
```

Retrieving LUNs mapped to a specific initiator group

The `fields` parameter is used to specify the desired properties.

```
# The API:
GET /api/protocols/san/igroups

# The call:
curl -X GET 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072?fields=lun_maps' -H 'Accept: application/hal+json'

# The response:
{
```

```
"svm": {
  "uuid": "02b0dfff-aa28-11e8-a653-005056bb7072",
  "name": "svm1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/02b0dfff-aa28-11e8-a653-005056bb7072"
    }
  }
},
"uuid": "8f249e7d-ab9f-11e8-b8a3-005056bb7072",
"name": "igroup1",
"lun_maps": [
  {
    "logical_unit_number": 0,
    "lun": {
      "name": "/vol/vol1/lun1",
      "uuid": "4b33ba57-c4e0-4dbb-bc47-214800d18a71",
      "node": {
        "name": "node1",
        "uuid": "f17182af-223f-4d51-8197-2cb2146d5c4c",
        "_links": {
          "self": {
            "href": "/api/cluster/nodes/f17182af-223f-4d51-8197-
2cb2146d5c4c"
          }
        }
      },
      "_links": {
        "self": {
          "href": "/api/storage/luns/4b33ba57-c4e0-4dbb-bc47-214800d18a71"
        }
      }
    }
  }
],
"_links": {
  "self": {
    "href": "/api/protocols/san/igroups/8f249e7d-ab9f-11e8-b8a3-
005056bb7072"
  }
}
}
```

Renaming an initiator group

Note that renaming an initiator group must be done in a PATCH request separate from any other modifications.

```
# The API:
PATCH /api/protocols/san/igroups/{uuid}

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072' -H 'Accept: application/hal+json' -d '{ "name":
"igroup1_newName" }'
```

Changing the operating system type of an initiator group

```
# The API:
PATCH /api/protocols/san/igroups/{uuid}

# The call:
curl -X PATCH 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072' -H 'Accept: application/hal+json' -d '{ "os_type":
"aix" }'
```

Adding an initiator to an initiator group

```
# The API:
POST /api/protocols/san/igroups/{igroup.uuid}/initiators

# The call:
curl -X POST 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/initiators' -H 'Accept: application/hal+json' -d '{
"name": "iqn.1991-05.com.ms:host2" }'
```

Adding multiple initiators to an initiator group

Note the use of the `records` property to add multiple initiators to the initiator group in a single API call.

```
# The API:
POST /api/protocols/san/igroups/{igroup.uuid}/initiators

# The call:
curl -X POST 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/initiators' -H 'Accept: application/hal+json' -d '{
"records": [ { "name": "iqn.1991-05.com.ms:host3" }, { "name": "iqn.1991-
05.com.ms:host4" } ] }'
```

Removing an initiator from an initiator group

```
# The API:
DELETE /api/protocols/san/igroups/{igroup.uuid}/initiators/iqn.1991-
05.com.ms:host3

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/initiators/iqn.1991-05.com.ms:host3' -H 'Accept:
application/hal+json'
```

Removing an initiator from a mapped initiator group

Normally, removing an initiator from an initiator group that is mapped to a LUN is not allowed. The removal can be forced using the `allow_delete_while_mapped` query parameter.

```
# The API:
DELETE /api/protocols/san/igroups/{igroup.uuid}/initiators/iqn.1991-
05.com.ms:host4

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/initiators/iqn.1991-
05.com.ms:host4?allow_delete_while_mapped=true' -H 'Accept:
application/hal+json'
```

Adding a nested initiator group to an initiator group

```
# The API:
POST /api/protocols/san/igroups/{igroup.uuid}/igroups

# The call:
curl -X POST 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/igroups' -H 'Accept: application/hal+json' -d '{
"name": "host2_igroup" }'
```

Adding multiple nested initiator groups to an initiator group

Note the use of the `records` property to add multiple nested initiator groups to the initiator group in a single API call.

```
# The API:
POST /api/protocols/san/igroups/{igroup.uuid}/igroups

# The call:
curl -X POST 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/igroups' -H 'Accept: application/hal+json' -d '{
"records": [ { "name": "host3_igroup" }, { "uuid": "c439efc8-0a70-11eb-
adc1-0242ac120002" } ] }'
```

Removing a nested initiator group from an initiator group

```
# The API:
DELETE /api/protocols/san/igroups/{igroup.uuid}/igroups/{uuid}

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/igroups/c439efc8-0a70-11eb-adc1-0242ac120002' -H
'Accept: application/hal+json'
```

Removing a nested initiator group from a mapped initiator group

Normally, removing a nested initiator group from an initiator group that is mapped to a LUN is not allowed. The removal can be forced using the `allow_delete_while_mapped` query parameter.

```
# The API:
DELETE /api/protocols/san/igroups/{igroup.uuid}/igroups/{uuid}

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/protocols/san/igroups/8f249e7d-ab9f-
11e8-b8a3-005056bb7072/igroups/c439efc8-0a70-11eb-adc1-
0242ac120002?allow_delete_while_mapped=true' -H 'Accept:
application/hal+json'
```

Deleting an initiator group

```
# The API:
DELETE /api/protocols/san/igroups/{uuid}

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/protocols/san/igroups/abf9c39d-ab9f-
11e8-b8a3-005056bb7072' -H 'Accept: application/hal+json'
```

Deleting a mapped initiator group

Normally, deleting an initiator group that is mapped to a LUN is not allowed. The deletion can be forced using the `allow_delete_while_mapped` query parameter.

```
# The API:
DELETE /api/protocols/san/igroups/{uuid}

# The call:
curl -X DELETE 'https://<mgmt-ip>/api/protocols/san/igroups/abf9c39d-ab9f-
11e8-b8a3-005056bb7072?allow_delete_while_mapped=true' -H 'Accept:
application/hal+json'
```

Retrieve initiator groups

GET `/protocols/san/igroups`

Introduced In: 9.6

Retrieves initiator groups.

Expensive properties

There is an added computational cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `connectivity_tracking.*`
- `igroups.*`
- `lun_maps.*`
- `parent_igroups.*`
- `target.*`

Related ONTAP commands

- `lun igroup show`
- `lun mapping show`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
name	string	query	False	Filter by name • maxLength: 96 • minLength: 1
lun_maps.lun.uuid	string	query	False	Filter by lun_maps.lun.uuid
lun_maps.lun.name	string	query	False	Filter by lun_maps.lun.name
lun_maps.lun.node.uuid	string	query	False	Filter by lun_maps.lun.node.uuid
lun_maps.lun.node.name	string	query	False	Filter by lun_maps.lun.node.name
lun_maps.logical_unit_number	integer	query	False	Filter by lun_maps.logical_unit_number

Name	Type	In	Required	Description
supports_igroups	boolean	query	False	Filter by supports_igroups • Introduced in: 9.9
target.vendor_id	string	query	False	Filter by target.vendor_id • Introduced in: 9.11
target.firmware_revision	string	query	False	Filter by target.firmware_revision • Introduced in: 9.11
target.product_id	string	query	False	Filter by target.product_id • Introduced in: 9.11
initiators.name	string	query	False	Filter by initiators.name • maxLength: 96 • minLength: 1
initiators.connectivity_tracking.connection_state	string	query	False	Filter by initiators.connectivity_tracking.connection_state • Introduced in: 9.11
initiators.comment	string	query	False	Filter by initiators.comment • maxLength: 254 • minLength: 0 • Introduced in: 9.9

Name	Type	In	Required	Description
initiators.igroup.name	string	query	False	Filter by initiators.igroup.name • maxLength: 96 • minLength: 1 • Introduced in: 9.9
initiators.igroup.uuid	string	query	False	Filter by initiators.igroup.uuid
portset.uuid	string	query	False	Filter by portset.uuid • Introduced in: 9.9
portset.name	string	query	False	Filter by portset.name • maxLength: 96 • minLength: 1 • Introduced in: 9.9
parent_igroups.name	string	query	False	Filter by parent_igroups.name • maxLength: 96 • minLength: 1 • Introduced in: 9.9
parent_igroups.uuid	string	query	False	Filter by parent_igroups.uuid • Introduced in: 9.9

Name	Type	In	Required	Description
parent_igroups.comment	string	query	False	Filter by parent_igroups.comment • maxLength: 254 • minLength: 0 • Introduced in: 9.9
comment	string	query	False	Filter by comment • maxLength: 254 • minLength: 0 • Introduced in: 9.9
svm.uuid	string	query	False	Filter by svm.uuid
svm.name	string	query	False	Filter by svm.name
protocol	string	query	False	Filter by protocol
connectivity_tracking.connection_state	string	query	False	Filter by connectivity_tracking.connection_state • Introduced in: 9.11
connectivity_tracking.required_nodes.uuid	string	query	False	Filter by connectivity_tracking.required_nodes.uuid • Introduced in: 9.11
connectivity_tracking.required_nodes.name	string	query	False	Filter by connectivity_tracking.required_nodes.name • Introduced in: 9.11

Name	Type	In	Required	Description
connectivity_tracking.alerts.summary.target	string	query	False	Filter by connectivity_tracking.alerts.summary.target • Introduced in: 9.11
connectivity_tracking.alerts.summary.arguments.message	string	query	False	Filter by connectivity_tracking.alerts.summary.arguments.message • Introduced in: 9.11
connectivity_tracking.alerts.summary.arguments.code	string	query	False	Filter by connectivity_tracking.alerts.summary.arguments.code • Introduced in: 9.11
connectivity_tracking.alerts.summary.code	string	query	False	Filter by connectivity_tracking.alerts.summary.code • Introduced in: 9.11
connectivity_tracking.alerts.summary.message	string	query	False	Filter by connectivity_tracking.alerts.summary.message • Introduced in: 9.11
delete_on_unmap	boolean	query	False	Filter by delete_on_unmap
os_type	string	query	False	Filter by os_type

Name	Type	In	Required	Description
igroups.comment	string	query	False	Filter by igroups.comment • maxLength: 254 • minLength: 0 • Introduced in: 9.9
igroups.uuid	string	query	False	Filter by igroups.uuid • Introduced in: 9.9
igroups.name	string	query	False	Filter by igroups.name • maxLength: 96 • minLength: 1 • Introduced in: 9.9
uuid	string	query	False	Filter by uuid
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: 1 • Max value: 120 • Min value: 0
order_by	array[string]	query	False	Order results by specified fields and optional [asc

Response

```
Status: 200, Ok
```

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

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
      "connectivity_tracking": {
        "alerts": [
          {
            "summary": {
              "arguments": [
                {
                  "code": "string",
                  "message": "string"
                }
              ],
              "code": "4",
              "message": "entry doesn't exist",
              "target": "uuid"
            }
          }
        ],
        "connection_state": "string",
        "required_nodes": [
          {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "node1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
```

```
        }
      ]
    },
    "igroups": [
      {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "comment": "string",
        "igroups": null,
        "name": "igroup1",
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      }
    ],
    "initiators": [
      {
        "_links": {
          "connectivity_tracking": {
            "href": "/api/resourcelink"
          },
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "comment": "string",
        "connectivity_tracking": {
          "connection_state": "string"
        },
        "igroup": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "igroup1",
          "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
        },
        "name": "iqn.1998-01.com.corp.iscsi:name1"
      }
    ],
    "lun_maps": [
      {
        "_links": {
          "self": {
```

```
            "href": "/api/resourcelink"
          }
        },
        "logical_unit_number": 0,
        "lun": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "lun1",
          "node": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "node1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          },
          "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
        }
      }
    ],
    "name": "igroup1",
    "os_type": "string",
    "parent_igroups": [
      {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "comment": "string",
        "name": "igroup1",
        "parent_igroups": null,
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      }
    ],
    "portset": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "portset1",
```

```
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "protocol": "string",
      "svm": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "target": {
        "firmware_revision": "9111",
        "product_id": "LUN C-Mode",
        "vendor_id": "NETAPP"
      },
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}
```


Error

```
Status: Default, Error
```

Name	Type	Description
error	error	

Example error


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


Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

Name	Type	Description
next	href	
self	href	

_links

Name	Type	Description
self	href	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state of the initiator group.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state of the initiator group.

required_nodes

Name	Type	Description
_links	_links	
name	string	
uuid	string	

connectivity_tracking

An overview of the connections to ONTAP by the initiators in this group.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
required_nodes	array[required_nodes]	Nodes to which the initiators in this group should be connected to ensure reliable service. This is the collection of any node hosting a LUN mapped to this igroup as well as the HA partners of those nodes.

igroup_child

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator.
igroups	array[]	Further nested initiator groups.
name	string	The name of the initiator group.
uuid	string	The unique identifier of the initiator group.

connectivity_tracking

A link to the initiator with connectivity information relevant to its membership of this initiator group.

Name	Type	Description
href	string	

self

A link to the initiator where mutations can be made. If the initiator is inherited from a nested initiator group, the link refers to the initiator in the nested initiator group. In this case, mutations of the initiator will be applied to all initiator groups referencing the same nested initiator group.

Name	Type	Description
href	string	

_links

Name	Type	Description
connectivity_tracking	connectivity_tracking	A link to the initiator with connectivity information relevant to its membership of this initiator group.
self	self	A link to the initiator where mutations can be made. If the initiator is inherited from a nested initiator group, the link refers to the initiator in the nested initiator group. In this case, mutations of the initiator will be applied to all initiator groups referencing the same nested initiator group.

connectivity_tracking

Overview of the initiator's connections to ONTAP.

Name	Type	Description
connection_state	string	Connection state.

igroup

The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.

Name	Type	Description
_links	_links	

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

initiators

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

lun

The LUN to which the initiator group is mapped.

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

lun_maps

A LUN map with which the initiator group is associated.

Name	Type	Description
_links	_links	
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.
lun	lun	The LUN to which the initiator group is mapped.

igroup_parent

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator.
name	string	The name of the initiator group.
parent_igroups	array[]	The initiator groups that contain this initiator group as as member.

Name	Type	Description
uuid	string	The unique identifier of the initiator group.

portset

The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset.

Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.

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

svm

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

target

Properties of the SCSI target to which the initiator group provides access.

Name	Type	Description
firmware_revision	string	The firmware revision of the SCSI target specific to the OS type of the initiator group.
product_id	string	The product ID of the SCSI target.
vendor_id	string	The vendor ID of the SCSI target.

igroup

An initiator group (igroup) is a collection of Fibre Channel (FC) world wide port names (WWPNs), and/or

iSCSI Qualified Names (IQNs), and/or iSCSI EUIs (Extended Unique Identifiers) that identify host initiators.

Initiator groups are used to control which hosts can access specific LUNs. To grant access to a LUN from one or more hosts, create an initiator group containing the host initiator names, then create a LUN map that associates the initiator group with the LUN.

An initiator group may contain either initiators or other initiator groups, but not both simultaneously. When a parent initiator group is mapped, it inherits all of the initiators of any initiator groups nested below it. If any nested initiator group is modified to contain different initiators, the parent initiator groups inherit the change. A parent can have many nested initiator groups and an initiator group can be nested under multiple parents. Initiators can only be added or removed from the initiator group that directly contains them. The maximum supported depth of nesting is three layers.

Best practice when using nested initiator groups is to match host hierarchies. A single initiator group should correspond to a single host. If a LUN needs to be mapped to multiple hosts, the initiator groups representing those hosts should be aggregated into a parent initiator group and the LUN should be mapped to that initiator group. For multi-ported hosts, initiators have a comment property where the port corresponding to the initiator can be documented.

An initiator can appear in multiple initiator groups. An initiator group can be mapped to multiple LUNs. A specific initiator can be mapped to a specific LUN only once. With the introduction of nestable initiator groups, best practice is to use the hierarchy such that an initiator is only a direct member of a single initiator group, and that initiator group can then be referenced by other initiator groups.

All initiators or nested initiator groups in an initiator group must be from the same operating system. The initiator group's operating system is specified when the initiator group is created.

When an initiator group is created, the `protocol` property is used to restrict member initiators to Fibre Channel (*fcp*), iSCSI (*iscsi*), or both (*mixed*). Initiator groups within a nested hierarchy may not have conflicting protocols.

Zero or more initiators or nested initiator groups can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. Initiator groups containing other initiator groups report the aggregated list of initiators from all nested initiator groups, but modifications of the initiator list must be performed on the initiator group that directly contains the initiators. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	An overview of the connections to ONTAP by the initiators in this group. • readOnly: 1 • Introduced in: 9.11

Name	Type	Description
delete_on_unmap	boolean	An option that causes the initiator group to be deleted when the last LUN map associated with it is deleted. Optional in POST and PATCH. This property defaults to *false* when the initiator group is created.
igroups	array[igroup_child]	The initiator groups that are members of the group. Optional in POST. This property is mutually exclusive with the *initiators* property during POST. This array contains only the direct children of the initiator group. If the member initiator groups have further nested initiator groups, those are reported in the `igroups` property of the child initiator group. Zero or more nested initiator groups can be supplied when the initiator group is created. The initiator group will act as if it contains the aggregatation of all initiators in any nested initiator groups. After creation, nested initiator groups can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/igroups` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/igroups/{uuid} for more details.

Name	Type	Description
initiators	array[initiators]	The initiators that are members of the group or any group nested below this group. Optional in POST. This property is mutually exclusive with the *igroups* property during POST. During GET, this array contains initiators that are members of this group or any nested initiator groups below this group. When initiators of nested groups are returned, they include links to the initiator group that directly contains the initiator. Zero or more initiators can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.
lun_maps	array[lun_maps]	All LUN maps with which the initiator is associated. If the requested igroup is part of a remote, non-local, MetroCluster SVM, the LUN maps are not retrieved. There is an added computational cost to retrieving property values for `lun_maps`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

Name	Type	Description
name	string	The name of the initiator group. Required in POST; optional in PATCH.
os_type	string	The host operating system of the initiator group. All initiators in the group should be hosts of the same operating system. Required in POST; optional in PATCH.
parent_igroups	array[igroup_parent]	The initiator groups that contain this initiator group as as member.
portset	portset	The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset. Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.
protocol	string	The protocols supported by the initiator group. This restricts the type of initiators that can be added to the initiator group. Optional in POST; if not supplied, this defaults to *mixed*. The protocol of an initiator group cannot be changed after creation of the group.
supports_igroups	boolean	An initiator group may contain either initiators or other initiator groups, but not both simultaneously. This property is *true* when initiator groups can be added to this initiator group. The `initiators.name` property cannot be used to determine this via a query because it reports initiators inherited from nested igroups.
svm	svm	

Name	Type	Description
target	target	Properties of the SCSI target to which the initiator group provides access.
uuid	string	The unique identifier of the initiator group.

error

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

Create an initiator group

POST `/protocols/san/igroups`

Introduced In: 9.6

Creates an initiator group.

Required properties

- `svm.uuid` or `svm.name` - Existing SVM in which to create the initiator group.
- `name` - Name of the initiator group.
- `os_type` - Operating system of the initiator group's initiators.

Recommended optional properties

- `initiators.name` - Name(s) of initiator group's initiators. This property can be used to create the initiator group and populate it with initiators in a single request.

Default property values

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

- `protocol` - *mixed* - Data protocol of the initiator group's initiators.

Related ONTAP commands

- `lun igroup create`

Learn more

- DOC /protocols/san/igroups

Parameters

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

Request Body

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	An overview of the connections to ONTAP by the initiators in this group. • readOnly: 1 • Introduced in: 9.11
delete_on_unmap	boolean	An option that causes the initiator group to be deleted when the last LUN map associated with it is deleted. Optional in POST and PATCH. This property defaults to *false* when the initiator group is created.

Name	Type	Description
igroups	array[igroup_child]	The initiator groups that are members of the group. Optional in POST. This property is mutually exclusive with the *initiators* property during POST. This array contains only the direct children of the initiator group. If the member initiator groups have further nested initiator groups, those are reported in the `igroups` property of the child initiator group. Zero or more nested initiator groups can be supplied when the initiator group is created. The initiator group will act as if it contains the aggregatation of all initiators in any nested initiator groups. After creation, nested initiator groups can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/igroups` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/igroups/{uuid} for more details.

Name	Type	Description
initiators	array[initiators]	The initiators that are members of the group or any group nested below this group. Optional in POST. This property is mutually exclusive with the *igroups* property during POST. During GET, this array contains initiators that are members of this group or any nested initiator groups below this group. When initiators of nested groups are returned, they include links to the initiator group that directly contains the initiator. Zero or more initiators can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.
lun_maps	array[lun_maps]	All LUN maps with which the initiator is associated. If the requested igroup is part of a remote, non-local, MetroCluster SVM, the LUN maps are not retrieved. There is an added computational cost to retrieving property values for `lun_maps`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.
name	string	The name of the initiator group. Required in POST; optional in PATCH.

Name	Type	Description
os_type	string	The host operating system of the initiator group. All initiators in the group should be hosts of the same operating system. Required in POST; optional in PATCH.
parent_igroups	array[igroup_parent]	The initiator groups that contain this initiator group as as member.
portset	portset	The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset. Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.
protocol	string	The protocols supported by the initiator group. This restricts the type of initiators that can be added to the initiator group. Optional in POST; if not supplied, this defaults to *mixed*. The protocol of an initiator group cannot be changed after creation of the group.
supports_igroups	boolean	An initiator group may contain either initiators or other initiator groups, but not both simultaneously. This property is *true* when initiator groups can be added to this initiator group. The `initiators.name` property cannot be used to determine this via a query because it reports initiators inherited from nested igroups.
svm	svm	
target	target	Properties of the SCSI target to which the initiator group provides access.

Name	Type	Description
uuid	string	The unique identifier of the initiator group.

Example request


```
{
  "comment": "string",
  "connectivity_tracking": {
    "alerts": [
      {
        "summary": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        }
      }
    ],
    "connection_state": "string",
    "required_nodes": [
      {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    ]
  },
  "igroups": [
    {
      "comment": "string",
      "igroups": null,
      "name": "igroup1",
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "initiators": [
    {
      "comment": "string",
      "connectivity_tracking": {
        "connection_state": "string"
      },
      "igroup": {
        "name": "igroup1",
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
```

```
      "name": "iqn.1998-01.com.corp.iscsi:name1"
    }
  ],
  "lun_maps": [
    {
      "logical_unit_number": 0,
      "lun": {
        "name": "lun1",
        "node": {
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "name": "igroup1",
  "os_type": "string",
  "parent_igroups": [
    {
      "comment": "string",
      "name": "igroup1",
      "parent_igroups": null,
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "portset": {
    "name": "portset1",
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "protocol": "string",
  "svm": {
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "target": {
    "firmware_revision": "9111",
    "product_id": "LUN C-Mode",
    "vendor_id": "NETAPP"
  },
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 201, Created
```

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

Example response


```
{
  "num_records": 1,
  "records": [
    {
      "comment": "string",
      "connectivity_tracking": {
        "alerts": [
          {
            "summary": {
              "arguments": [
                {
                  "code": "string",
                  "message": "string"
                }
              ],
              "code": "4",
              "message": "entry doesn't exist",
              "target": "uuid"
            }
          }
        ],
        "connection_state": "string",
        "required_nodes": [
          {
            "name": "node1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          }
        ]
      },
      "igroups": [
        {
          "comment": "string",
          "igroups": null,
          "name": "igroup1",
          "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
        }
      ],
      "initiators": [
        {
          "comment": "string",
          "connectivity_tracking": {
            "connection_state": "string"
          },
          "igroup": {
```

```
            "name": "igroup1",
            "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
          },
          "name": "iqn.1998-01.com.corp.iscsi:name1"
        }
      ],
      "lun_maps": [
        {
          "logical_unit_number": 0,
          "lun": {
            "name": "lun1",
            "node": {
              "name": "node1",
              "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
            },
            "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
          }
        }
      ],
      "name": "igroup1",
      "os_type": "string",
      "parent_igroups": [
        {
          "comment": "string",
          "name": "igroup1",
          "parent_igroups": null,
          "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
        }
      ],
      "portset": {
        "name": "portset1",
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "protocol": "string",
      "svm": {
        "name": "svm1",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "target": {
        "firmware_revision": "9111",
        "product_id": "LUN C-Mode",
        "vendor_id": "NETAPP"
      },
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ]
```

```
}
```

Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
2621462	The supplied SVM does not exist.
2621706	The specified `svm.uuid` and `svm.name` do not refer to the same SVM.
2621707	No SVM was specified. Either `svm.name` or `svm.uuid` must be supplied.
5373958	An invalid initiator group name was supplied.
5373966	An initiator group cannot be created in an SVM that is configured for NVMe.
5373969	A supplied initiator name looks like an iSCSI IQN initiator, but the portions after the prefix are missing.
5373971	A supplied initiator name looks like an iSCSI IQN initiator, but the date portion is invalid.
5373972	A supplied initiator name looks like an iSCSI IQN initiator, but the naming authority portion is invalid.
5373977	A supplied initiator name looks like an iSCSI EUI initiator, but the length is invalid.
5373978	A supplied initiator name looks like an iSCSI EUI initiator, but the format is invalid.
5373992	A supplied initiator name was too long to be valid.
5373993	A supplied initiator name did not match any valid format.
5374023	An initiator group with the same name already exists.
5374027	An attempt was made to bind a portset with no member network interfaces to the initiator group.

Error Code	Description
5374028	An attempt was made to bind a portset with an incompatible protocol to the initiator group.
5374038	An invalid Fibre Channel WWPN was supplied.
5374039	An invalid iSCSI initiator name was supplied.
5374040	Initiators and child initiator groups were both supplied, but only one option is allowed.
5374732	An initiator is already in another initiator group with a conflicting operating system type.
5374735	An attempt was made to add a child igroup that would exceed the maximum allowable depth.
5374737	A supplied child initiator group already exists in another initiator group's hierarchy.
5374739	A supplied child initiator group has an operating system type that differs from the parent initiator group.
5374740	A supplied child initiator group has an protocol that differs from the parent initiator group.
5374741	A supplied child initiator group is already owned by a different child in the initiator group's hierarchy.
5374742	A supplied child initiator group contains an initiator that is already owned by another initiator group in the hierarchy.
5374746	The cluster is currently running in a mixed version and nested initiator groups cannot be created until the effective cluster version reaches 9.9.1.
5374747	The cluster is currently running in a mixed version and initiator group comments cannot be created until the effective cluster version reaches 9.9.1.
5374917	Multiple matching initiators have been supplied with conflicting comments.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state of the initiator group.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state of the initiator group.

required_nodes

Name	Type	Description
name	string	
uuid	string	

connectivity_tracking

An overview of the connections to ONTAP by the initiators in this group.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
required_nodes	array[required_nodes]	Nodes to which the initiators in this group should be connected to ensure reliable service. This is the collection of any node hosting a LUN mapped to this igroup as well as the HA partners of those nodes.

igroup_child

Name	Type	Description
comment	string	A comment available for use by the administrator.
igroups	array[]	Further nested initiator groups.
name	string	The name of the initiator group.
uuid	string	The unique identifier of the initiator group.

connectivity_tracking

A link to the initiator with connectivity information relevant to its membership of this initiator group.

Name	Type	Description
href	string	

self

A link to the initiator where mutations can be made. If the initiator is inherited from a nested initiator group, the link refers to the initiator in the nested initiator group. In this case, mutations of the initiator will be applied to all initiator groups referencing the same nested initiator group.

Name	Type	Description
href	string	

connectivity_tracking

Overview of the initiator’s connections to ONTAP.

Name	Type	Description
connection_state	string	Connection state.

igroup

The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.

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

initiators

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.

Name	Type	Description
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

node

Name	Type	Description
name	string	
uuid	string	

lun

The LUN to which the initiator group is mapped.

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

lun_maps

A LUN map with which the initiator group is associated.

Name	Type	Description
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.
lun	lun	The LUN to which the initiator group is mapped.

igroup_parent

Name	Type	Description
comment	string	A comment available for use by the administrator.
name	string	The name of the initiator group.
parent_igroups	array[]	The initiator groups that contain this initiator group as as member.
uuid	string	The unique identifier of the initiator group.

portset

The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset.

Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.

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

svm

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

target

Properties of the SCSI target to which the initiator group provides access.

Name	Type	Description
firmware_revision	string	The firmware revision of the SCSI target specific to the OS type of the initiator group.
product_id	string	The product ID of the SCSI target.

Name	Type	Description
vendor_id	string	The vendor ID of the SCSI target.

igroup

An initiator group (igroup) is a collection of Fibre Channel (FC) world wide port names (WWPNs), and/or iSCSI Qualified Names (IQNs), and/or iSCSI EUIs (Extended Unique Identifiers) that identify host initiators.

Initiator groups are used to control which hosts can access specific LUNs. To grant access to a LUN from one or more hosts, create an initiator group containing the host initiator names, then create a LUN map that associates the initiator group with the LUN.

An initiator group may contain either initiators or other initiator groups, but not both simultaneously. When a parent initiator group is mapped, it inherits all of the initiators of any initiator groups nested below it. If any nested initiator group is modified to contain different initiators, the parent initiator groups inherit the change. A parent can have many nested initiator groups and an initiator group can be nested under multiple parents. Initiators can only be added or removed from the initiator group that directly contains them. The maximum supported depth of nesting is three layers.

Best practice when using nested initiator groups is to match host hierarchies. A single initiator group should correspond to a single host. If a LUN needs to be mapped to multiple hosts, the initiator groups representing those hosts should be aggregated into a parent initiator group and the LUN should be mapped to that initiator group. For multi-ported hosts, initiators have a comment property where the port corresponding to the initiator can be documented.

An initiator can appear in multiple initiator groups. An initiator group can be mapped to multiple LUNs. A specific initiator can be mapped to a specific LUN only once. With the introduction of nestable initiator groups, best practice is to use the hierarchy such that an initiator is only a direct member of a single initiator group, and that initiator group can then be referenced by other initiator groups.

All initiators or nested initiator groups in an initiator group must be from the same operating system. The initiator group's operating system is specified when the initiator group is created.

When an initiator group is created, the `protocol` property is used to restrict member initiators to Fibre Channel (*fcp*), iSCSI (*iscsi*), or both (*mixed*). Initiator groups within a nested hierarchy may not have conflicting protocols.

Zero or more initiators or nested initiator groups can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. Initiator groups containing other initiator groups report the aggregated list of initiators from all nested initiator groups, but modifications of the initiator list must be performed on the initiator group that directly contains the initiators. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.

Name	Type	Description
connectivity_tracking	connectivity_tracking	An overview of the connections to ONTAP by the initiators in this group. • readOnly: 1 • Introduced in: 9.11
delete_on_unmap	boolean	An option that causes the initiator group to be deleted when the last LUN map associated with it is deleted. Optional in POST and PATCH. This property defaults to *false* when the initiator group is created.
igroups	array[igroup_child]	The initiator groups that are members of the group. Optional in POST. This property is mutually exclusive with the *initiators* property during POST. This array contains only the direct children of the initiator group. If the member initiator groups have further nested initiator groups, those are reported in the `igroups` property of the child initiator group. Zero or more nested initiator groups can be supplied when the initiator group is created. The initiator group will act as if it contains the aggregation of all initiators in any nested initiator groups. After creation, nested initiator groups can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/igroups` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/igroups/{uuid} for more details.

Name	Type	Description
initiators	array[initiators]	The initiators that are members of the group or any group nested below this group. Optional in POST. This property is mutually exclusive with the *igroups* property during POST. During GET, this array contains initiators that are members of this group or any nested initiator groups below this group. When initiators of nested groups are returned, they include links to the initiator group that directly contains the initiator. Zero or more initiators can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.
lun_maps	array[lun_maps]	All LUN maps with which the initiator is associated. If the requested igroup is part of a remote, non-local, MetroCluster SVM, the LUN maps are not retrieved. There is an added computational cost to retrieving property values for `lun_maps`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

Name	Type	Description
name	string	The name of the initiator group. Required in POST; optional in PATCH.
os_type	string	The host operating system of the initiator group. All initiators in the group should be hosts of the same operating system. Required in POST; optional in PATCH.
parent_igroups	array[igroup_parent]	The initiator groups that contain this initiator group as as member.
portset	portset	The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset. Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.
protocol	string	The protocols supported by the initiator group. This restricts the type of initiators that can be added to the initiator group. Optional in POST; if not supplied, this defaults to *mixed*. The protocol of an initiator group cannot be changed after creation of the group.
supports_igroups	boolean	An initiator group may contain either initiators or other initiator groups, but not both simultaneously. This property is *true* when initiator groups can be added to this initiator group. The `initiators.name` property cannot be used to determine this via a query because it reports initiators inherited from nested igroups.
svm	svm	

Name	Type	Description
target	target	Properties of the SCSI target to which the initiator group provides access.
uuid	string	The unique identifier of the initiator group.

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 nested initiator groups of an initiator group

GET `/protocols/san/igroups/{igroup.uuid}/igroups`

Introduced In: 9.9

Retrieves nested initiator groups of an initiator group. This API only reports the nested initiator groups that are direct children of the initiator group. Further nested initiator groups are reported by their direct parent initiator group.

Related ONTAP commands

- `lun igroup show`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the parent initiator group.

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

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
num_records	integer	The number of records in the response.

Name	Type	Description
records	array[igroup_nested]	

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "igroup": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "name": "igroup1",
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5374852	The initiator group specified in the URI does not exist.

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	

igroup

Name	Type	Description
_links	_links	
uuid	string	The unique identifier of the parent initiator group.

records

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

igroup_nested

Name	Type	Description
_links	_links	
igroup	igroup	
name	string	The name of the initiator group.

Name	Type	Description
uuid	string	The unique identifier of the initiator group.

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 nested initiator groups to an initiator group

POST `/protocols/san/igroups/{igroup.uuid}/igroups`

Introduced In: 9.9

Adds one or more nested initiator groups to an initiator group. A single nested initiator group can be added by directly specifying the name or UUID. Multiple nested initiator groups can be added by specifying the names or UUIDs in the records array. Nested initiator groups cannot be added to an initiator group that already directly contains initiators.

Required properties

- `name` and/or `uuid` or `records` - Nested initiator groups to add to the initiator group.

Related ONTAP commands

- `lun igroup add`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the parent initiator group.
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
igroup	igroup	
name	string	The name of the initiator group.
records	array[records]	An array of initiator groups specified to add multiple nested initiator groups to an initiator group in a single API call. Not allowed when the `name` property is used.
uuid	string	The unique identifier of the initiator group.

Example request

```
{
  "igroup": {
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "name": "igroup1",
  "records": [
    {
      "name": "igroup1",
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
}
```

Response

```
Status: 201, Created
```

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

Example response


```
{
  "num_records": 1,
  "records": [
    {
      "igroup": {
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "name": "igroup1",
      "records": [
        {
          "name": "igroup1",
          "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
        }
      ],
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ]
}
```


Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5374735	An attempt was made to add a child igroup that would exceed the maximum allowable depth.
5374736	A supplied child initiator group already exists in the parent initiator group's hierarchy.
5374737	A supplied child initiator group already exists in another initiator group's hierarchy.
5374739	A supplied child initiator group has an operating system type that differs from the parent initiator group.

Error Code	Description
5374740	A supplied child initiator group has an protocol that differs from the parent initiator group.
5374741	A supplied child initiator group is already owned by a different child in the initiator group's hierarchy.
5374742	A supplied child initiator group contains an initiator that is already owned by another initiator group in the hierarchy.
5374852	The initiator group specified in the URI does not exist.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

igroup

Name	Type	Description
uuid	string	The unique identifier of the parent initiator group.

records

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

igroup_nested

Name	Type	Description
igroup	igroup	
name	string	The name of the initiator group.
records	array[records]	An array of initiator groups specified to add multiple nested initiator groups to an initiator group in a single API call. Not allowed when the `name` property is used.
uuid	string	The unique identifier of the initiator group.

error_arguments

Name	Type	Description
code	string	Argument code

Name	Type	Description
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.

Remove a nested initiator group from an initiator group

DELETE `/protocols/san/igroups/{igroup.uuid}/igroups/{uuid}`

Introduced In: 9.9

Removes a nested initiator group from an initiator group. This API does not delete the nested initiator group itself. It removes the relationship between a parent and child initiator group. This API only supports removal of initiator groups owned directly by the initiator group. Further nested initiator groups must be removed from the direct parent initiator group.

Related ONTAP commands

- `lun igroup remove`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the parent initiator group.
uuid	string	path	True	The unique identifier of the nested initiator group.

Name	Type	In	Required	Description
allow_delete_while_mapped	boolean	query	False	Allows the deletion of a nested initiator group from of a mapped initiator group. Deleting a nested initiator group from a mapped initiator group means that the LUNs, to which the initiator group is mapped, are no longer available to the initiators nested below the initiator group being removed. This might cause a disruption in the availability of data. **This parameter should be used with caution.** • Default value:

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1254213	The initiator group is mapped to one or more LUNs and `allow_delete_while_mapped` has not been specified.
5374738	The child initiator group is not owned by the parent initiator group.
5374852	The initiator group specified in the URI does not exist.

Name	Type	Description
error	error	

Example error

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

Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Retrieve a nested initiator group of an initiator group

GET `/protocols/san/igroups/{igroup.uuid}/igroups/{uuid}`

Introduced In: 9.9

Retrieves a nested initiator group of an initiator group. This API only reports the nested initiator groups that are direct children of the initiator group. Further nested initiator groups are reported by their direct parent initiator group.

Related ONTAP commands

- `lun igroup show`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the parent initiator group.
uuid	string	path	True	The unique identifier of the nested initiator group.
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
igroup	igroup	
name	string	The name of the initiator group.
uuid	string	The unique identifier of the initiator group.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "igroup": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "name": "igroup1",
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
4	The nested initiator group is not a member of the initiator group.
5374852	The parent initiator group specified in the URI does not exist.

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	

igroup

Name	Type	Description
_links	_links	
uuid	string	The unique identifier of the parent initiator group.

records

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

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

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

Retrieve initiators of an initiator group

GET `/protocols/san/igroups/{igroup.uuid}/initiators`

Introduced In: 9.6

Retrieves initiators of an initiator group. This API only reports initiators owned directly by the initiator group. Initiators of nested initiator groups are not included in this collection.

Expensive properties

There is an added computational cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `connectivity_tracking.*`

Related ONTAP commands

- `lun igroup show`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the initiator group.
fields	array[string]	query	False	Specify the fields to return.
max_records	integer	query	False	Limit the number of records returned.

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

Response

```
Status: 200, Ok
```

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

Example response


```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "num_records": 1,
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
      "connectivity_tracking": {
        "alerts": [
          {
            "summary": {
              "arguments": [
                {
                  "code": "string",
                  "message": "string"
                }
              ],
              "code": "4",
              "message": "entry doesn't exist",
              "target": "uuid"
            }
          }
        ],
        "connection_state": "string",
        "connections": [
          {
            "logins": [
              {
                "interface": {
                  "fc": {
                    "_links": {
                      "self": {
                        "href": "/api/resourcelink"
```

```
                    }
                  },
                  "name": "fc_lif1",
                  "uuid": "3a09ab42-4da1-32cf-9d35-3385a6101a0b",
                  "wwpn": "20:00:00:50:56:b4:13:a8"
                },
                "ip": {
                  "_links": {
                    "self": {
                      "href": "/api/resourcelink"
                    }
                  },
                  "ip": {
                    "address": "10.10.10.7"
                  },
                  "name": "lif1",
                  "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
                }
              },
              "last_seen_time": "2021-03-14T05:19:00Z"
            }
          ],
          "node": {
            "_links": {
              "self": {
                "href": "/api/resourcelink"
              }
            },
            "name": "node1",
            "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
          }
        }
      ]
    },
    "igroup": {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "igroup1",
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    },
    "name": "iqn.1998-01.com.corp.iscsi:name1"
  }
]
```

```
}
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5374852	The initiator group specified in the URI does not exist.

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	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state.

fc

An FC interface.

Name	Type	Description
_links	_links	
name	string	The name of the FC interface.
uuid	string	The unique identifier of the FC interface.
wwpn	string	The WWPN of the FC interface.

ip

IP information

Name	Type	Description
address	string	IPv4 or IPv6 address

ip

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface. If only the name is provided, the SVM scope must be provided by the object this object is embedded in.
uuid	string	The UUID that uniquely identifies the interface.

interface

Name	Type	Description
fc	fc	An FC interface.

Name	Type	Description
ip	ip	

logins

Name	Type	Description
connected	boolean	True if the initiator is currently logged in to this connection's interface.
interface	interface	
last_seen_time	string	The last time this initiator logged in. Logins not seen for 48 hours are cleared and not reported.

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

connections

Name	Type	Description
logins	array[logins]	
node	node	

connectivity_tracking

Overview of the initiator's connections to ONTAP.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
connections	array[connections]	

igroup

The initiator group in which the initiator is found.

Note that this does not mean that the initiator cannot also be found in other initiator groups.

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

records

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

igroup_initiator

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11

Name	Type	Description
igroup	igroup	The initiator group in which the initiator is found. Note that this does not mean that the initiator cannot also be found in other initiator groups.
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

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 initiators to an initiator group

POST `/protocols/san/igroups/{igroup.uuid}/initiators`

Introduced In: 9.6

Adds one or more initiators to an initiator group. This API does not support adding initiators to an initiator group that already contains nested initiator groups.

Required properties

- `name` or `records.name` - Initiator name(s) to add to the initiator group.

Related ONTAP commands

- `lun igroup add`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the initiator group.
return_records	boolean	query	False	The default is false. If set to true, the records are returned. • Default value:

Request Body

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group in which the initiator is found. Note that this does not mean that the initiator cannot also be found in other initiator groups.

Name	Type	Description
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.
records	array[records]	An array of initiators specified to add multiple initiators to an initiator group in a single API call. Not allowed when the `name` property is used.

Example request


```
{
  "comment": "string",
  "connectivity_tracking": {
    "alerts": [
      {
        "summary": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        }
      }
    ],
    "connection_state": "string",
    "connections": [
      {
        "logins": [
          {
            "interface": {
              "fc": {
                "name": "fc_lif1",
                "uuid": "3a09ab42-4da1-32cf-9d35-3385a6101a0b",
                "wwpn": "20:00:00:50:56:b4:13:a8"
              },
              "ip": {
                "name": "lif1",
                "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
              }
            },
            "last_seen_time": "2021-03-14T05:19:00Z"
          }
        ],
        "node": {
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        }
      }
    ]
  },
```

```
  "igroup": {
    "name": "igroup1",
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "name": "iqn.1998-01.com.corp.iscsi:name1",
  "records": [
    {
      "comment": "string",
      "name": "iqn.1998-01.com.corp.iscsi:name1"
    }
  ]
}
```

Response

```
Status: 201, Created
```

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

Example response


```
{
  "num_records": 1,
  "records": [
    {
      "comment": "string",
      "connectivity_tracking": {
        "alerts": [
          {
            "summary": {
              "arguments": [
                {
                  "code": "string",
                  "message": "string"
                }
              ],
              "code": "4",
              "message": "entry doesn't exist",
              "target": "uuid"
            }
          }
        ],
        "connection_state": "string",
        "connections": [
          {
            "logins": [
              {
                "interface": {
                  "fc": {
                    "name": "fc_lif1",
                    "uuid": "3a09ab42-4da1-32cf-9d35-3385a6101a0b",
                    "wwpn": "20:00:00:50:56:b4:13:a8"
                  },
                  "ip": {
                    "name": "lif1",
                    "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
                  }
                },
                "last_seen_time": "2021-03-14T05:19:00Z"
              }
            ],
            "node": {
              "name": "node1",
              "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
            }
```

```
          }
        ]
      },
      "igroup": {
        "name": "igroup1",
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "name": "iqn.1998-01.com.corp.iscsi:name1",
      "records": [
        {
          "comment": "string",
          "name": "iqn.1998-01.com.corp.iscsi:name1"
        }
      ]
    }
  ]
}
```


Headers

Name	Description	Type
Location	Useful for tracking the resource location	string

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1254193	Adding an initiator would cause the initiator to be mapped to the same LUN more than once.
1254324	Adding an initiator would cause the initiator to have the same logical unit identifier for multiple LUN maps.
5373969	A supplied initiator name looks like an iSCSI IQN initiator, but the portions after the prefix are missing.
5373971	A supplied initiator name looks like an iSCSI IQN initiator, but the date portion is invalid.
5373972	A supplied initiator name looks like an iSCSI IQN initiator, but the naming authority portion is invalid.

Error Code	Description
5373977	A supplied initiator name looks like an iSCSI EUI initiator, but the length is invalid.
5373978	A supplied initiator name looks like an iSCSI EUI initiator, but the format is invalid.
5373992	A supplied initiator name was too long to be valid.
5373993	A supplied initiator name did not match any valid format.
5374033	Initiators must be supplied.
5374035	A supplied initiator is already in the initiator group.
5374038	An invalid Fibre Channel WWPN was supplied.
5374039	An invalid iSCSI initiator name was supplied.
5374734	An initiator is already in another initiator group with a conflicting operating system type.
5374852	The initiator group specified in the URI does not exist.
5374917	Multiple matching initiators have been supplied with conflicting comments.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state.

fc

An FC interface.

Name	Type	Description
name	string	The name of the FC interface.

Name	Type	Description
uuid	string	The unique identifier of the FC interface.
wwpn	string	The WWPN of the FC interface.

ip

IP information

ip

Name	Type	Description
ip	ip	IP information
name	string	The name of the interface. If only the name is provided, the SVM scope must be provided by the object this object is embedded in.
uuid	string	The UUID that uniquely identifies the interface.

interface

Name	Type	Description
fc	fc	An FC interface.
ip	ip	

logins

Name	Type	Description
connected	boolean	True if the initiator is currently logged in to this connection's interface.
interface	interface	
last_seen_time	string	The last time this initiator logged in. Logins not seen for 48 hours are cleared and not reported.

node

Name	Type	Description
name	string	
uuid	string	

connections

Name	Type	Description
logins	array[logins]	
node	node	

connectivity_tracking

Overview of the initiator's connections to ONTAP.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
connections	array[connections]	

igroup

The initiator group in which the initiator is found.

Note that this does not mean that the initiator cannot also be found in other initiator groups.

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

records

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.

Name	Type	Description
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

igroup_initiator

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group in which the initiator is found. Note that this does not mean that the initiator cannot also be found in other initiator groups.

Name	Type	Description
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.
records	array[records]	An array of initiators specified to add multiple initiators to an initiator group in a single API call. Not allowed when the `name` property is used.

error

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

Delete an initiator from an initiator group

DELETE `/protocols/san/igroups/{igroup.uuid}/initiators/{name}`

Introduced In: 9.6

Deletes an initiator from an initiator group. This API only supports removal of initiators owned directly by the initiator group. Initiators of nested initiator groups must be removed on the initiator group that directly owns the initiator.

Related ONTAP commands

- `lun igroup remove`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the initiator group.
name	string	path	True	The name of the initiator to delete.
allow_delete_while_mapped	boolean	query	False	Allows the deletion of an initiator from of a mapped initiator group. Deleting an initiator from a mapped initiator group makes the LUNs to which the initiator group is mapped no longer available to the initiator. This might cause a disruption in the availability of data. **This parameter should be used with caution.** • Default value:

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1254213	The initiator group is mapped to one or more LUNs and `allow_delete_while_mapped` has not been specified.
5374034	An initiator is not a member of the initiator group.
5374041	The initiator is not owned by the supplied initiator group.
5374852	The initiator group specified in the URI does not exist.

Name	Type	Description
error	error	

Example error

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

Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Retrieve an initiator

GET `/protocols/san/igroups/{igroup.uuid}/initiators/{name}`

Introduced In: 9.6

Retrieves an initiator of an initiator group. This API only reports initiators owned directly by the initiator group. Initiators of nested initiator groups are not part of this collection.

Expensive properties

There is an added computational cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `connectivity_tracking.*`

Related ONTAP commands

- `lun igroup show`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the initiator group.
name	string	path	True	Initiator name
fields	array[string]	query	False	Specify the fields to return.

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group in which the initiator is found. Note that this does not mean that the initiator cannot also be found in other initiator groups.

Name	Type	Description
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "connectivity_tracking": {
    "alerts": [
      {
        "summary": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        }
      }
    ],
    "connection_state": "string",
    "connections": [
      {
        "logins": [
          {
            "interface": {
              "fc": {
                "_links": {
                  "self": {
                    "href": "/api/resourcelink"
                  }
                },
                "name": "fc_lif1",
                "uuid": "3a09ab42-4da1-32cf-9d35-3385a6101a0b",
                "wwpn": "20:00:00:50:56:b4:13:a8"
              },
              "ip": {
                "_links": {
                  "self": {
                    "href": "/api/resourcelink"
                  }
```

```
                },
                "ip": {
                  "address": "10.10.10.7"
                },
                "name": "lif1",
                "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
              }
            },
            "last_seen_time": "2021-03-14T05:19:00Z"
          }
        ],
        "node": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        }
      }
    ]
  },
  "igroup": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "igroup1",
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "name": "iqn.1998-01.com.corp.iscsi:name1"
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
4	The initiator is not a member of the initiator group.

Error Code	Description
5374852	The initiator group specified in the URI does not exist.

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	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state.

fc

An FC interface.

Name	Type	Description
_links	_links	
name	string	The name of the FC interface.
uuid	string	The unique identifier of the FC interface.
wwpn	string	The WWPN of the FC interface.

ip

IP information

Name	Type	Description
address	string	IPv4 or IPv6 address

ip

Name	Type	Description
_links	_links	
ip	ip	IP information
name	string	The name of the interface. If only the name is provided, the SVM scope must be provided by the object this object is embedded in.
uuid	string	The UUID that uniquely identifies the interface.

interface

Name	Type	Description
fc	fc	An FC interface.
ip	ip	

logins

Name	Type	Description
connected	boolean	True if the initiator is currently logged in to this connection's interface.

Name	Type	Description
interface	interface	
last_seen_time	string	The last time this initiator logged in. Logins not seen for 48 hours are cleared and not reported.

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

connections

Name	Type	Description
logins	array[logins]	
node	node	

connectivity_tracking

Overview of the initiator's connections to ONTAP.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
connections	array[connections]	

igroup

The initiator group in which the initiator is found.

Note that this does not mean that the initiator cannot also be found in other initiator groups.

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

records

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

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 an initiator

PATCH `/protocols/san/igroups/{igroup.uuid}/initiators/{name}`

Introduced In: 9.9

Updates an initiator of an initiator group. This API only supports modification of initiators owned directly by the initiator group. Initiators of nested initiator groups must be modified on the initiator group that directly owns the initiator.

Related ONTAP commands

- `lun igroup initiator modify`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
igroup.uuid	string	path	True	The unique identifier of the initiator group.
name	string	path	True	The initiator name.

Request Body

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group in which the initiator is found. Note that this does not mean that the initiator cannot also be found in other initiator groups.
records	array[records]	An array of initiators specified to add multiple initiators to an initiator group in a single API call. Not allowed when the `name` property is used.

Example request


```
{
  "comment": "string",
  "connectivity_tracking": {
    "alerts": [
      {
        "summary": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        }
      }
    ],
    "connection_state": "string",
    "connections": [
      {
        "logins": [
          {
            "interface": {
              "fc": {
                "name": "fc_lif1",
                "uuid": "3a09ab42-4da1-32cf-9d35-3385a6101a0b",
                "wwpn": "20:00:00:50:56:b4:13:a8"
              },
              "ip": {
                "name": "lif1",
                "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
              }
            },
            "last_seen_time": "2021-03-14T05:19:00Z"
          }
        ],
        "node": {
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        }
      }
    ]
  },
```

```
  "igroup": {
    "name": "igroup1",
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "records": [
    {
      "comment": "string"
    }
  ]
}
```

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5374034	An initiator is not a member of the initiator group.
5374744	The cluster is currently running in a mixed version and the initiators cannot be modified until the effective cluster version reaches 9.9.1.
5374852	The initiator group does not exist.
5374918	A subset of the provided list of initiators were modified before a failure occurred.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state.

fc

An FC interface.

Name	Type	Description
name	string	The name of the FC interface.

Name	Type	Description
uuid	string	The unique identifier of the FC interface.
wwpn	string	The WWPN of the FC interface.

ip

IP information

ip

Name	Type	Description
ip	ip	IP information
name	string	The name of the interface. If only the name is provided, the SVM scope must be provided by the object this object is embedded in.
uuid	string	The UUID that uniquely identifies the interface.

interface

Name	Type	Description
fc	fc	An FC interface.
ip	ip	

logins

Name	Type	Description
connected	boolean	True if the initiator is currently logged in to this connection's interface.
interface	interface	
last_seen_time	string	The last time this initiator logged in. Logins not seen for 48 hours are cleared and not reported.

node

Name	Type	Description
name	string	
uuid	string	

connections

Name	Type	Description
logins	array[logins]	
node	node	

connectivity_tracking

Overview of the initiator's connections to ONTAP.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
connections	array[connections]	

igroup

The initiator group in which the initiator is found.

Note that this does not mean that the initiator cannot also be found in other initiator groups.

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

records

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.

igroup_initiator

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group in which the initiator is found. Note that this does not mean that the initiator cannot also be found in other initiator groups.
records	array[records]	An array of initiators specified to add multiple initiators to an initiator group in a single API call. Not allowed when the `name` property is used.

error

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

Delete an initiator group

DELETE `/protocols/san/igroups/{uuid}`

Introduced In: 9.6

Deletes an initiator group.

Related ONTAP commands

- `lun igroup delete`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	The unique identifier of the initiator group.
allow_delete_while_mapped	boolean	query	False	Allows the deletion of a mapped initiator group. Deleting a mapped initiator group means that the LUNs, to which the initiator group is mapped, are no longer available to the initiators. This might cause a disruption in the availability of data. **This parameter should be used with caution.** • Default value:

Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1254213	The initiator group is mapped to one or more LUNs and `allow_delete_while_mapped` has not been specified.
5374852	The initiator group does not exist.

Name	Type	Description
error	error	

Example error

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

Definitions

See Definitions

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

error

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

Retrieve an initiator group

GET `/protocols/san/igroups/{uuid}`

Introduced In: 9.6

Retrieves an initiator group.

Expensive properties

There is an added computational cost to retrieving values for these properties. They are not included by default in GET results and must be explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

- `igroups.*`
- `lun_maps.*`
- `parent_igroups.*`
- `connectivity_tracking.*`

Related ONTAP commands

- `lun igroup show`
- `lun mapping show`

Learn more

- DOC /protocols/san/igroups

Parameters

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

Response

```
Status: 200, Ok
```

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	An overview of the connections to ONTAP by the initiators in this group. • readOnly: 1 • Introduced in: 9.11
delete_on_unmap	boolean	An option that causes the initiator group to be deleted when the last LUN map associated with it is deleted. Optional in POST and PATCH. This property defaults to *false* when the initiator group is created.

Name	Type	Description
igroups	array[igroup_child]	The initiator groups that are members of the group. Optional in POST. This property is mutually exclusive with the *initiators* property during POST. This array contains only the direct children of the initiator group. If the member initiator groups have further nested initiator groups, those are reported in the `igroups` property of the child initiator group. Zero or more nested initiator groups can be supplied when the initiator group is created. The initiator group will act as if it contains the aggregatation of all initiators in any nested initiator groups. After creation, nested initiator groups can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/igroups` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/igroups/{uuid} for more details.

Name	Type	Description
initiators	array[initiators]	The initiators that are members of the group or any group nested below this group. Optional in POST. This property is mutually exclusive with the *igroups* property during POST. During GET, this array contains initiators that are members of this group or any nested initiator groups below this group. When initiators of nested groups are returned, they include links to the initiator group that directly contains the initiator. Zero or more initiators can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.
lun_maps	array[lun_maps]	All LUN maps with which the initiator is associated. If the requested igroup is part of a remote, non-local, MetroCluster SVM, the LUN maps are not retrieved. There is an added computational cost to retrieving property values for `lun_maps`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.
name	string	The name of the initiator group. Required in POST; optional in PATCH.

Name	Type	Description
os_type	string	The host operating system of the initiator group. All initiators in the group should be hosts of the same operating system. Required in POST; optional in PATCH.
parent_igroups	array[igroup_parent]	The initiator groups that contain this initiator group as as member.
portset	portset	The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset. Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.
protocol	string	The protocols supported by the initiator group. This restricts the type of initiators that can be added to the initiator group. Optional in POST; if not supplied, this defaults to *mixed*. The protocol of an initiator group cannot be changed after creation of the group.
supports_igroups	boolean	An initiator group may contain either initiators or other initiator groups, but not both simultaneously. This property is *true* when initiator groups can be added to this initiator group. The `initiators.name` property cannot be used to determine this via a query because it reports initiators inherited from nested igroups.
svm	svm	
target	target	Properties of the SCSI target to which the initiator group provides access.

Name	Type	Description
uuid	string	The unique identifier of the initiator group.

Example response


```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "comment": "string",
  "connectivity_tracking": {
    "alerts": [
      {
        "summary": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        }
      }
    ],
    "connection_state": "string",
    "required_nodes": [
      {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    ]
  },
  "igroups": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
```

```
      "igroups": null,
      "name": "igroup1",
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "initiators": [
    {
      "_links": {
        "connectivity_tracking": {
          "href": "/api/resourcelink"
        },
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
      "connectivity_tracking": {
        "connection_state": "string"
      },
      "igroup": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "igroup1",
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      },
      "name": "iqn.1998-01.com.corp.iscsi:name1"
    }
  ],
  "lun_maps": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "logical_unit_number": 0,
      "lun": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "lun1",
```

```
        "node": {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "name": "igroup1",
  "os_type": "string",
  "parent_igroups": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "comment": "string",
      "name": "igroup1",
      "parent_igroups": null,
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "portset": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "portset1",
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "protocol": "string",
  "svm": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
```

```
  },
  "target": {
    "firmware_revision": "9111",
    "product_id": "LUN C-Mode",
    "vendor_id": "NETAPP"
  },
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
}
```


Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
5374852	The initiator group does not exist.

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	

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state of the initiator group.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state of the initiator group.

required_nodes

Name	Type	Description
_links	_links	

Name	Type	Description
name	string	
uuid	string	

connectivity_tracking

An overview of the connections to ONTAP by the initiators in this group.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
required_nodes	array[required_nodes]	Nodes to which the initiators in this group should be connected to ensure reliable service. This is the collection of any node hosting a LUN mapped to this igroup as well as the HA partners of those nodes.

igroup_child

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator.
igroups	array[]	Further nested initiator groups.
name	string	The name of the initiator group.
uuid	string	The unique identifier of the initiator group.

connectivity_tracking

A link to the initiator with connectivity information relevant to its membership of this initiator group.

Name	Type	Description
href	string	

self

A link to the initiator where mutations can be made. If the initiator is inherited from a nested initiator group, the link refers to the initiator in the nested initiator group. In this case, mutations of the initiator will be

applied to all initiator groups referencing the same nested initiator group.

Name	Type	Description
href	string	

_links

Name	Type	Description
connectivity_tracking	connectivity_tracking	A link to the initiator with connectivity information relevant to its membership of this initiator group.
self	self	A link to the initiator where mutations can be made. If the initiator is inherited from a nested initiator group, the link refers to the initiator in the nested initiator group. In this case, mutations of the initiator will be applied to all initiator groups referencing the same nested initiator group.

connectivity_tracking

Overview of the initiator's connections to ONTAP.

Name	Type	Description
connection_state	string	Connection state.

igroup

The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.

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

initiators

Name	Type	Description
_links	_links	

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.
name	string	The FC WWPN, iSCSI IQN, or iSCSI EUI that identifies the host initiator. Valid in POST only and not allowed when the `records` property is used. An FC WWPN consists of 16 hexadecimal digits grouped as 8 pairs separated by colons. The format for an iSCSI IQN is *iqn.yyyy-mm.reverse_domain_name:any*. The iSCSI EUI format consists of the *eui.* prefix followed by 16 hexadecimal characters.

node

Name	Type	Description
_links	_links	
name	string	
uuid	string	

lun

The LUN to which the initiator group is mapped.

Name	Type	Description
_links	_links	

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

lun_maps

A LUN map with which the initiator group is associated.

Name	Type	Description
_links	_links	
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.
lun	lun	The LUN to which the initiator group is mapped.

igroup_parent

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator.
name	string	The name of the initiator group.
parent_igroups	array[]	The initiator groups that contain this initiator group as as member.
uuid	string	The unique identifier of the initiator group.

portset

The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset.

Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.

Name	Type	Description
_links	_links	

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

svm

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

target

Properties of the SCSI target to which the initiator group provides access.

Name	Type	Description
firmware_revision	string	The firmware revision of the SCSI target specific to the OS type of the initiator group.
product_id	string	The product ID of the SCSI target.
vendor_id	string	The vendor ID of the SCSI target.

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 an initiator group

PATCH `/protocols/san/igroups/{uuid}`

Introduced In: 9.6

Updates an initiator group.

Related ONTAP commands

- `lun igroup modify`
- `lun igroup rename`
- `lun igroup bind`
- `lun igroup unbind`

Learn more

- DOC /protocols/san/igroups

Parameters

Name	Type	In	Required	Description
uuid	string	path	True	The unique identifier of the initiator group.

Request Body

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	An overview of the connections to ONTAP by the initiators in this group. • readOnly: 1 • Introduced in: 9.11
delete_on_unmap	boolean	An option that causes the initiator group to be deleted when the last LUN map associated with it is deleted. Optional in POST and PATCH. This property defaults to *false* when the initiator group is created.

Name	Type	Description
lun_maps	array[lun_maps]	All LUN maps with which the initiator is associated. If the requested igroup is part of a remote, non-local, MetroCluster SVM, the LUN maps are not retrieved. There is an added computational cost to retrieving property values for `lun_maps`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.
name	string	The name of the initiator group. Required in POST; optional in PATCH.
os_type	string	The host operating system of the initiator group. All initiators in the group should be hosts of the same operating system. Required in POST; optional in PATCH.
parent_igroups	array[igroup_parent]	The initiator groups that contain this initiator group as as member.
portset	portset	The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset. Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.

Name	Type	Description
supports_igroups	boolean	An initiator group may contain either initiators or other initiator groups, but not both simultaneously. This property is *true* when initiator groups can be added to this initiator group. The `initiators.name` property cannot be used to determine this via a query because it reports initiators inherited from nested igroups.
target	target	Properties of the SCSI target to which the initiator group provides access.
uuid	string	The unique identifier of the initiator group.

Example request


```
{
  "comment": "string",
  "connectivity_tracking": {
    "alerts": [
      {
        "summary": {
          "arguments": [
            {
              "code": "string",
              "message": "string"
            }
          ],
          "code": "4",
          "message": "entry doesn't exist",
          "target": "uuid"
        }
      }
    ],
    "connection_state": "string",
    "required_nodes": [
      {
        "name": "node1",
        "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
      }
    ]
  },
  "lun_maps": [
    {
      "logical_unit_number": 0,
      "lun": {
        "name": "lun1",
        "node": {
          "name": "node1",
          "uuid": "1cd8a442-86d1-11e0-ae1c-123478563412"
        },
        "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
      }
    }
  ],
  "name": "igroup1",
  "os_type": "string",
  "parent_igroups": [
    {
      "comment": "string",
```

```
      "name": "igroup1",
      "parent_igroups": null,
      "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
    }
  ],
  "portset": {
    "name": "portset1",
    "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
  },
  "target": {
    "firmware_revision": "9111",
    "product_id": "LUN C-Mode",
    "vendor_id": "NETAPP"
  },
  "uuid": "4ea7a442-86d1-11e0-ae1c-123478563412"
}
```


Response

```
Status: 200, Ok
```

Error

```
Status: Default
```

ONTAP Error Response Codes

Error Code	Description
1254264	An attempt was made to bind a portset to an initiator group that is already bound to a portset.
5373958	An invalid initiator group name was supplied for a rename operation.
5374023	A rename operation failed because an initiator group with the same name already exists.
5374027	An attempt was made to bind a portset with no member network interfaces to the initiator group.
5374028	An attempt was made to bind a portset with an incompatible protocol to the initiator group.
5374733	An initiator is already in another initiator group with a conflicting operating system type.

Error Code	Description
5374745	An attempt was made to add an initiator group as a child to itself.
5374746	The cluster is currently running in a mixed version and nested initiator groups cannot be created until the effective cluster version reaches 9.9.1.
5374747	The cluster is currently running in a mixed version and initiator group comments cannot be created until the effective cluster version reaches 9.9.1.
5374852	The initiator group does not exist.
5374868	The initiator group was partially modified before an error was encountered while renaming the initiator group.

Definitions

See Definitions

href

Name	Type	Description
href	string	

_links

error_arguments

Name	Type	Description
code	string	Argument code
message	string	Message argument

summary

A user friendly message describing the connection state of the initiator group.

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.

alerts

Name	Type	Description
summary	summary	A user friendly message describing the connection state of the initiator group.

required_nodes

Name	Type	Description
name	string	
uuid	string	

connectivity_tracking

An overview of the connections to ONTAP by the initiators in this group.

Name	Type	Description
alerts	array[alerts]	
connection_state	string	Connection state.
required_nodes	array[required_nodes]	Nodes to which the initiators in this group should be connected to ensure reliable service. This is the collection of any node hosting a LUN mapped to this igroup as well as the HA partners of those nodes.

igroup_child

Name	Type	Description
comment	string	A comment available for use by the administrator.
igroups	array[]	Further nested initiator groups.

connectivity_tracking

A link to the initiator with connectivity information relevant to its membership of this initiator group.

Name	Type	Description
href	string	

self

A link to the initiator where mutations can be made. If the initiator is inherited from a nested initiator group, the link refers to the initiator in the nested initiator group. In this case, mutations of the initiator will be applied to all initiator groups referencing the same nested initiator group.

Name	Type	Description
href	string	

connectivity_tracking

Overview of the initiator’s connections to ONTAP.

Name	Type	Description
connection_state	string	Connection state.

igroup

The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.

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

initiators

Name	Type	Description
_links	_links	
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	Overview of the initiator's connections to ONTAP. • readOnly: 1 • Introduced in: 9.11
igroup	igroup	The initiator group that directly owns the initiator, which is where modification of the initiator is supported. This property will only be populated when the initiator is a member of a nested initiator group.

node

Name	Type	Description
name	string	
uuid	string	

lun

The LUN to which the initiator group is mapped.

Name	Type	Description
name	string	The name of the LUN.
node	node	

Name	Type	Description
uuid	string	The unique identifier of the LUN.

lun_maps

A LUN map with which the initiator group is associated.

Name	Type	Description
logical_unit_number	integer	The logical unit number assigned to the LUN for initiators in the initiator group.
lun	lun	The LUN to which the initiator group is mapped.

igroup_parent

Name	Type	Description
comment	string	A comment available for use by the administrator.
name	string	The name of the initiator group.
parent_igroups	array[]	The initiator groups that contain this initiator group as as member.
uuid	string	The unique identifier of the initiator group.

portset

The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset.

Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.

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

svm

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

target

Properties of the SCSI target to which the initiator group provides access.

Name	Type	Description
firmware_revision	string	The firmware revision of the SCSI target specific to the OS type of the initiator group.
product_id	string	The product ID of the SCSI target.
vendor_id	string	The vendor ID of the SCSI target.

igroup

An initiator group (igroup) is a collection of Fibre Channel (FC) world wide port names (WWPNs), and/or iSCSI Qualified Names (IQNs), and/or iSCSI EUIs (Extended Unique Identifiers) that identify host initiators.

Initiator groups are used to control which hosts can access specific LUNs. To grant access to a LUN from one or more hosts, create an initiator group containing the host initiator names, then create a LUN map that associates the initiator group with the LUN.

An initiator group may contain either initiators or other initiator groups, but not both simultaneously. When a parent initiator group is mapped, it inherits all of the initiators of any initiator groups nested below it. If any nested initiator group is modified to contain different initiators, the parent initiator groups inherit the change. A parent can have many nested initiator groups and an initiator group can be nested under multiple parents. Initiators can only be added or removed from the initiator group that directly contains them. The maximum supported depth of nesting is three layers.

Best practice when using nested initiator groups is to match host hierarchies. A single initiator group should correspond to a single host. If a LUN needs to be mapped to multiple hosts, the initiator groups representing those hosts should be aggregated into a parent initiator group and the LUN should be mapped to that initiator group. For multi-ported hosts, initiators have a comment property where the port corresponding to the initiator can be documented.

An initiator can appear in multiple initiator groups. An initiator group can be mapped to multiple LUNs. A specific initiator can be mapped to a specific LUN only once. With the introduction of nestable initiator groups, best practice is to use the hierarchy such that an initiator is only a direct member of a single initiator group, and that initiator group can then be referenced by other initiator groups.

All initiators or nested initiator groups in an initiator group must be from the same operating system. The initiator group’s operating system is specified when the initiator group is created.

When an initiator group is created, the `protocol` property is used to restrict member initiators to Fibre Channel (*fcp*), iSCSI (*iscsi*), or both (*mixed*). Initiator groups within a nested hierarchy may not have conflicting protocols.

Zero or more initiators or nested initiator groups can be supplied when the initiator group is created. After creation, initiators can be added or removed from the initiator group using the `/protocols/san/igroups/{igroup.uuid}/initiators` endpoint. Initiator groups containing other initiator groups report the aggregated list of initiators from all nested initiator groups, but modifications of the initiator list must be performed on the initiator group that directly contains the initiators. See DELETE /protocols/san/igroups/{igroup.uuid}/initiators/{name} for more details.

Name	Type	Description
comment	string	A comment available for use by the administrator. Valid in POST and PATCH.
connectivity_tracking	connectivity_tracking	An overview of the connections to ONTAP by the initiators in this group. • readOnly: 1 • Introduced in: 9.11
delete_on_unmap	boolean	An option that causes the initiator group to be deleted when the last LUN map associated with it is deleted. Optional in POST and PATCH. This property defaults to *false* when the initiator group is created.
lun_maps	array[lun_maps]	All LUN maps with which the initiator is associated. If the requested igroup is part of a remote, non-local, MetroCluster SVM, the LUN maps are not retrieved. There is an added computational cost to retrieving property values for `lun_maps`. They are not populated for either a collection GET or an instance GET unless explicitly requested using the `fields` query parameter. See Requesting specific fields to learn more.

Name	Type	Description
name	string	The name of the initiator group. Required in POST; optional in PATCH.
os_type	string	The host operating system of the initiator group. All initiators in the group should be hosts of the same operating system. Required in POST; optional in PATCH.
parent_igroups	array[igroup_parent]	The initiator groups that contain this initiator group as as member.
portset	portset	The portset to which the initiator group is bound. Binding the initiator group to a portset restricts the initiators of the group to accessing mapped LUNs only through network interfaces in the portset. Optional in POST and PATCH. PATCH `portset.name` to an empty string ("") to unbind a portset from the initiator group.
supports_igroups	boolean	An initiator group may contain either initiators or other initiator groups, but not both simultaneously. This property is *true* when initiator groups can be added to this initiator group. The `initiators.name` property cannot be used to determine this via a query because it reports initiators inherited from nested igroups.
target	target	Properties of the SCSI target to which the initiator group provides access.
uuid	string	The unique identifier of the initiator group.

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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