



Manage security roles

ONTAP 9.10.1 REST API Documentation

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Manage security roles

Security roles endpoint overview

Overview

ONTAP supports Role Based Access Control (RBAC) wherein a user account must be associated with a role and the role defines the privileges and rights for that user account. A privilege defines the access level of the API as either "none", "readonly", or "all". This specifies whether the user account can perform only a GET operation or POST, PATCH, and DELETE operations as well. A role can comprise of multiple tuples and each tuple consists of the REST API and its access level. For example, "role1" might be a role that has a tuple {"access": "all", "path": "/api/storage/volume"}, which means that a user account with "role1" can perform all GET, POST, PATCH, and DELETE requests on the *api/storage/volume* API or derived APIs which have *api/storage/volume* as the prefix.

In cases where a role has tuples with multiple APIs having the same prefix, the highest match wins out. For example, if "role1" has the following tuples: {"access": "readonly", "path": "/api/cluster"} and {"access": "all", "path": "/api/cluster/schedules"}, then only a GET request is allowed on APIs with *api/cluster* as the prefix; while POST, PATCH and DELETE requests are possible on the *api/cluster/schedules* API.

Predefined (built-in) roles

Related REST APIs are used to form predefined cluster-scoped and SVM-scoped roles, such as: "admin", "backup", "readonly" for cluster and "vsadmin", "vsadmin-backup", "vsadmin-protocol" for SVMs. These can be retrieved by calling a GET request on */api/security/roles* API and can be assigned to user accounts. See the examples for *api/security/accounts*.

These predefined roles cannot be modified or deleted.

Mapped roles

Before REST APIs, the RBAC roles (legacy roles) were defined to contain the CLI commands and their access levels. Now, almost all REST APIs map to one or more CLI commands. When a role is created using a POST request on */api/security/roles*, a mapped legacy role is created. This legacy role has the same access level (as that of the REST API) for the mapped CLI commands. However, if a legacy role with the same name already exists, the POST operation fails and you need to choose a unique name for the role. The legacy roles cannot be managed using the REST endpoint */api/security/roles* or its derivatives. Legacy roles are managed using the CLI commands "security login role <create | modify | delete> -role <rolename>".</rolename>

Note that the mapped legacy role (for the REST API role created) cannot be manipulated using the CLI.

The reverse case is not true; the creation of a legacy role will not create a mapped role with equivalent REST APIs.

API restrictions

Numerous APIs are scoped for the cluster level only. This results in an access error if assigned to an SVM-scoped role. For example, *api/cluster/nodes* does not work when added as a tuple entry for an SVM-scoped role.

A number of APIs allowed for an SVM-scoped role might have restrictions on the access level. For example, */api/network/ethernet/ports* cannot have an access level of "all" for an SVM-scoped role; this results in an

access error when a POST or PATCH request is made.

Roles created with a REST API path prefix which is common to many APIs might have restrictions based on the scope of the role; cluster or SVM. For example, {"access":"all","path":"/api/security"} might be a tuple entry for an SVM role. Any GET, POST, PATCH, or DELETE operation fails on API `/api/security/accounts` while the same on `/api/security/login/messages` succeeds. However, a role with exactly the same tuple when created at the cluster-scope level allows the operations.

Numerous APIs have restrictions on the objects that can be operated on based on the context of the SVM or cluster. For example, a POST request on `/api/security/authentication/password` API changes the password for a user account. If executed in the context of an SVM (POST request on an SVM interface), only the password of the user executing the POST can be modified, and attempts to modify the password of any other user results in an access error. However, if a POST request is performed by a cluster administrator account, the password for any user account (cluster or SVM) can be modified.

Resource-qualified endpoints are now supported. At present, the only supported resource-qualified endpoints are `/api/storage/volumes/{volume.uuid}/snapshots` and `/api/storage/volumes//snaphots`. `"` is a wildcard character denoting "all" volumes.

Examples

Creating a cluster-scoped custom role

Specify the role name and the tuples (of REST APIs and their access level) in the body of the POST request. The owner.uuid or owner.name are not required to be specified for a cluster-scoped role.

```
# The API:
POST "/api/security/roles"

# The call:
curl -X POST "https://<mgmt-ip>/api/security/roles" -d
'{"name":"cluster_role", "privileges" :
 [{"access":"readonly","path":"/api/cluster/jobs"}, {"access":"all","path":"
/api/application/applications"}, {"access":"readonly","path":"/api/applicat
ion/templates"}]}'
```

Creating an SVM-scoped custom role

For an SVM-scoped role, specify either owner.name or owner.uuid in the request body along with other parameters for the role. These correspond to the name or UUID of the SVM for which the role is being created and can be obtained from the response body of the GET request performed on the `/api/svm/svms` API.

```
# The API:
POST "/api/security/roles"

# The call:
curl -X POST "https://<mgmt-ip>/api/security/roles" -d '{"owner": {"uuid": "9f93e553-4b02-11e9-a3f9-005056bb7acd"}, "name": "svm_role", "privileges": [{"access": "readonly", "path": "/api/cluster/jobs"}, {"access": "all", "path": "/api/application/applications"}, {"access": "readonly", "path": "/api/application/templates"}]}'
```

Creating a custom role with a resource-qualified endpoint

Specify the role name and the tuples (of REST APIs and their access level) in the body of the POST request. One or more of the tuples can now contain a resource-qualified endpoint. At present, the only supported resource-qualified endpoints are `/api/storage/volumes/{volume.uuid}/snapshots` and `/api/storage/volumes/*/snapshots`. `*` is a wildcard character denoting "all" volumes.

```
# The API:
POST "/api/security/roles"

# The call:
curl -X POST "https://<mgmt-ip>/api/security/roles" -d '{"name": "cluster_role", "privileges": [{"access": "readonly", "path": "/api/cluster/jobs"}, {"access": "all", "path": "/api/storage/volumes/4ae77149-7752-11eb-8d4e-0050568ed6bd/snapshots"}, {"access": "all", "path": "/api/storage/volumes/6519986e-7752-11eb-8d4e-0050568ed6bd/snapshots"}, {"access": "readonly", "path": "/api/application/templates"}]}'
```

Retrieving the configured roles

All of the roles or a filtered list of roles (for example by name, predefined, and so on) can be retrieved.

```
# The API:
GET "/api/security/roles"

# The call to retrieve all the roles configured in the cluster:
curl -X GET "https://<mgmt-ip>/api/security/roles"

# The response:
{
  "records": [
    {
```

```

"owner": {
  "uuid": "2903de6f-4bd2-11e9-b238-0050568e2e25",
  "name": "cluster1",
  "_links": {
    "self": {
      "href": "/api/svm/svms/2903de6f-4bd2-11e9-b238-0050568e2e25"
    }
  }
},
"name": "admin",
"privileges": [
  {
    "path": "/api",
    "access": "all",
    "_links": {
      "self": {
        "href": "/api/security/roles/2903de6f-4bd2-11e9-b238-0050568e2e25/admin/privileges/%2Fapi"
      }
    }
  }
],
"builtin": true,
"scope": "cluster",
"_links": {
  "self": {
    "href": "/api/security/roles/2903de6f-4bd2-11e9-b238-0050568e2e25/admin"
  }
}
},
{
  "owner": {
    "uuid": "2903de6f-4bd2-11e9-b238-0050568e2e25",
    "name": "cluster1",
    "_links": {
      "self": {
        "href": "/api/svm/svms/2903de6f-4bd2-11e9-b238-0050568e2e25"
      }
    }
  },
  "name": "customRole",
  "privileges": [
    {
      "path": "/api/storage/volumes/738e3c9f-9897-41f2-be92-a00945fd9bdb/snapshots",

```

```

    "access": "readonly",
    "_links": {
      "self": {
        "href": "/api/security/roles/2903de6f-4bd2-11e9-b238-0050568e2e25/customRole/privileges/%2Fapi%2Fstorage%2Fvolumes%2F738e3c9f-9897-41f2-be92-a00945fd9bdb%2Fsnapshots"
      }
    },
    {
      "path": "/api/storage/volumes/e621583b-f445-4713-ba9e-a052d53c8a83/snapshots",
      "access": "all",
      "_links": {
        "self": {
          "href": "/api/security/roles/2903de6f-4bd2-11e9-b238-0050568e2e25/customRole/privileges/%2Fapi%2Fstorage%2Fvolumes%2Fe621583b-f445-4713-ba9e-a052d53c8a83%2Fsnapshots"
        }
      }
    }
  ],
  "builtin": false,
  "scope": "cluster",
  "_links": {
    "self": {
      "href": "/api/security/roles/2903de6f-4bd2-11e9-b238-0050568e2e25/customRole"
    }
  },
  {
    "owner": {
      "uuid": "aaef7c38-4bd3-11e9-b238-0050568e2e25",
      "name": "svml",
      "_links": {
        "self": {
          "href": "/api/svm/svms/aaef7c38-4bd3-11e9-b238-0050568e2e25"
        }
      }
    }
  },
  "name": "vsadmin",
  "privileges": [
    {
      "path": "/api/application/applications",
      "access": "all",

```

```

    "_links": {
      "self": {
        "href": "/api/security/roles/aaef7c38-4bd3-11e9-b238-0050568e2e25/vsadmin/privileges/%2Fapi%2Fapplication%2Fapplications"
      }
    },
    {
      "path": "/api/application/templates",
      "access": "readonly",
      "_links": {
        "self": {
          "href": "/api/security/roles/aaef7c38-4bd3-11e9-b238-0050568e2e25/vsadmin/privileges/%2Fapi%2Fapplication%2Ftemplates"
        }
      }
    },
    {
      "path": "/api/cluster",
      "access": "readonly",
      "_links": {
        "self": {
          "href": "/api/security/roles/aaef7c38-4bd3-11e9-b238-0050568e2e25/vsadmin/privileges/%2Fapi%2Fcluster"
        }
      }
    },
    {
      "path": "/api/svm/svms",
      "access": "readonly",
      "_links": {
        "self": {
          "href": "/api/security/roles/aaef7c38-4bd3-11e9-b238-0050568e2e25/vsadmin/privileges/%2Fapi%2Fsvm%2Fsvms"
        }
      }
    },
    {
      "path": "/api/svms",
      "access": "readonly",
      "_links": {
        "self": {
          "href": "/api/security/roles/aaef7c38-4bd3-11e9-b238-0050568e2e25/vsadmin/privileges/%2Fapi%2Fsvms"
        }
      }
    }
  }
}

```



```

    }
  ],
  "builtin": true,
  "scope": "svm",
  "_links": {
    "self": {
      "href": "/api/security/roles/aaef7c38-4bd3-11e9-b238-
0050568e2e25/vsadmin"
    }
  }
}
],
"num_records": 3,
_links": {
  "self": {
    "href": "/api/security/roles"
  }
}
}
}

```

Using a scoped call to retrieve the configured roles

```

# Scoped call to retrieve all the roles for a particular SVM using
owner.uuid:
curl -X GET "https://<mgmt-ip>/api/security/roles/?owner.uuid=aaef7c38-
4bd3-11e9-b238-0050568e2e25"

# Scoped call to retrieve all the roles for a particular SVM using
owner.name:
curl -X GET "https://<mgmt-ip>/api/security/roles/?owner.name=svm1"

# Scoped call to retrieve the roles having vsadmin as the prefix in the
role name:
curl -X GET "https://<mgmt-ip>/api/security/roles/?name=vsadmin*"

# Scoped call to retrieve the predefined roles:
curl -X GET "https://<mgmt-ip>/api/security/roles/?builtin=true"

# Scoped call to retrieve the custom roles:
curl -X GET "https://<mgmt-ip>/api/security/roles/?builtin=false"

```

Retrieve a list of roles configured in the cluster

GET /security/roles

Introduced In: 9.6

Retrieves a list of roles configured in the cluster.

Related ONTAP commands

- `security login rest-role show`

Learn more

- [DOC /security/roles](#)

Parameters

| Name | Type | In | Required | Description |
|-------------------|--------|-------|----------|---|
| owner.uuid | string | query | False | Filter by owner.uuid <ul style="list-style-type: none">• Introduced in: 9.7 |
| owner.name | string | query | False | Filter by owner.name <ul style="list-style-type: none">• Introduced in: 9.7 |
| name | string | query | False | Filter by name <ul style="list-style-type: none">• Introduced in: 9.7 |
| scope | string | query | False | Filter by scope <ul style="list-style-type: none">• Introduced in: 9.7 |
| privileges.path | string | query | False | Filter by privileges.path <ul style="list-style-type: none">• Introduced in: 9.7 |
| privileges.access | string | query | False | Filter by privileges.access <ul style="list-style-type: none">• Introduced in: 9.7 |

| Name | Type | In | Required | Description |
|----------------|---------------|-------|----------|---|
| builtin | boolean | query | False | Filter by builtin <ul style="list-style-type: none"> • Introduced in: 9.7 |
| 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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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 | Number of records |
| records | array[role] | |

Example response

```
{
  "_links": {
    "next": {
      "href": "/api/resourcelink"
    },
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "records": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "name": "admin",
      "owner": {
        "_links": {
          "self": {
            "href": "/api/resourcelink"
          }
        },
        "name": "svml",
        "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
      },
      "privileges": [
        {
          "_links": {
            "self": {
              "href": "/api/resourcelink"
            }
          },
          "access": "readonly",
          "path": "/api/storage/volumes"
        }
      ],
      "scope": "string"
    }
  ]
}
```

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 | |

owner

Owner name and UUID that uniquely identifies the role.

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

role_privilege

A tuple containing the REST endpoint and the access level assigned to that endpoint. The REST endpoint can be a resource-qualified endpoint. At present, the only supported resource-qualified endpoints are `/api/storage/volumes/{volume.uuid}/snapshots` and `/api/storage/volumes//snapshots`. `"` is a wildcard character denoting "all" volumes.

| Name | Type | Description |
|--------|------------------------|-------------------------------------|
| _links | _links | |
| access | string | Access level for the REST endpoint. |
| path | string | REST URI/endpoint |

role

A named set of privileges that defines the rights an account has when it is assigned the role.

| Name | Type | Description |
|-------------------------|---|---|
| <code>_links</code> | _links | |
| <code>builtin</code> | boolean | Indicates if this is a built-in (pre-defined) role which cannot be modified or deleted. |
| <code>name</code> | string | Role name |
| <code>owner</code> | owner | Owner name and UUID that uniquely identifies the role. |
| <code>privileges</code> | array[role_privilege] | The list of privileges that this role has been granted. |
| <code>scope</code> | string | Scope of the entity. Set to "cluster" for cluster owned objects and to "svm" for SVM owned objects. |

error_arguments

| Name | Type | Description |
|----------------------|--------|------------------|
| <code>code</code> | string | Argument code |
| <code>message</code> | string | Message argument |

error

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

Create a new cluster-scoped or SVM-scoped role

POST /security/roles

Introduced In: 9.6

Creates a new cluster-scoped role or an SVM-scoped role. For an SVM-scoped role, specify either the SVM name as the `owner.name` or SVM UUID as the `owner.uuid` in the request body along with other parameters for the role. The `owner.uuid` or `owner.name` are not required to be specified for a cluster-scoped role.

Required parameters

- `name` - Name of the role to be created.
- `privileges` - Array of privilege tuples. Each tuple consists of a REST API path and its desired access level.

Optional parameters

- `owner.name` or `owner.uuid` - Name or UUID of the SVM for an SVM-scoped role.

Related ONTAP commands

- `security login rest-role create`

Learn more

- [DOC /security/roles](#)

Parameters

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

Request Body

| Name | Type | Description |
|----------------------|------------------------|---|
| <code>_links</code> | _links | |
| <code>builtin</code> | boolean | Indicates if this is a built-in (pre-defined) role which cannot be modified or deleted. |
| <code>name</code> | string | Role name |
| <code>owner</code> | owner | Owner name and UUID that uniquely identifies the role. |

| Name | Type | Description |
|------------|-----------------------|---|
| privileges | array[role_privilege] | The list of privileges that this role has been granted. |
| scope | string | Scope of the entity. Set to "cluster" for cluster owned objects and to "svm" for SVM owned objects. |

Example request

```
{
  "_links": {
    "self": {
      "href": "/api/resourcelink"
    }
  },
  "name": "admin",
  "owner": {
    "_links": {
      "self": {
        "href": "/api/resourcelink"
      }
    },
    "name": "svm1",
    "uuid": "02c9e252-41be-11e9-81d5-00a0986138f7"
  },
  "privileges": [
    {
      "_links": {
        "self": {
          "href": "/api/resourcelink"
        }
      },
      "access": "readonly",
      "path": "/api/storage/volumes"
    }
  ],
  "scope": "string"
}
```

Response

Status: 201, Created

Error

Status: Default

ONTAP Error Response Codes

| Error Code | Description |
|------------|---|
| 2621462 | The supplied SVM does not exist. |
| 5636129 | Role with given name has not been defined. |
| 5636143 | Vserver admin cannot use the API with this access level. |
| 5636144 | Invalid value specified for access level. |
| 5636169 | Invalid character in URI. |
| 5636170 | URI does not exist. |
| 5636171 | Role already exists in legacy role table. |
| 5636184 | Expanded REST roles for granular resource control feature is currently disabled. |
| 5636185 | The specified UUID was not found. |
| 5636186 | Expanded REST roles for granular resource control requires an effective cluster version of 9.10.1 or later. |
| 13434890 | Vserver-ID failed for Vserver roles. |
| 13434891 | UUID lookup failed for Vserver roles. |
| 13434892 | Roles is a required field. |

| 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 | |

owner

Owner name and UUID that uniquely identifies the role.

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

role_privilege

A tuple containing the REST endpoint and the access level assigned to that endpoint. The REST endpoint can be a resource-qualified endpoint. At present, the only supported resource-qualified endpoints are */api/storage/volumes/{volume.uuid}/snapshots* and */api/storage/volumes//**snapshots***. *"* is a wildcard character denoting "all" volumes.

| Name | Type | Description |
|--------|------------------------|-------------------------------------|
| _links | _links | |
| access | string | Access level for the REST endpoint. |
| path | string | REST URI/endpoint |

role

A named set of privileges that defines the rights an account has when it is assigned the role.

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

| Name | Type | Description |
|------------|---|---|
| builtin | boolean | Indicates if this is a built-in (pre-defined) role which cannot be modified or deleted. |
| name | string | Role name |
| owner | owner | Owner name and UUID that uniquely identifies the role. |
| privileges | array[role_privilege] | The list of privileges that this role has been granted. |
| scope | string | Scope of the entity. Set to "cluster" for cluster owned objects and to "svm" for SVM owned objects. |

error_arguments

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

error

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

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