

NAS ONTAP Automation NetApp July 25, 2024

This PDF was generated from https://docs.netapp.com/us-en/ontapautomation/workflows/wf_nas_fs_prepare.html on July 25, 2024. Always check docs.netapp.com for the latest.

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File security permissions

Prepare to manage file security and audit policies

You can manage the permissions and audit policies for files available through the SVMs within an ONTAP cluster.

Overview

ONTAP uses System Access Control Lists (SACLs) and Discretionary Access Control Lists (DACLs) to assign permissions to file objects. Beginning with ONTAP 9.9.1, the REST API includes support for managing the SACL and DACL permissions. You can use the API to automate the administration of the file security permissions. In many cases you can use a single REST API call instead of multiple CLI commands or ONTAPI (ZAPI) calls.



For ONTAP releases prior to 9.9.1, you can automate the administration of the SACL and DACL permissions using the CLI passthrough feature. See Migration considerations and Using the private CLI passthrough with the ONTAP REST API for more information.

Several example workflows are available to illustrate how to manage the ONTAP file security services using the REST API. Before using the workflows and issuing any of the REST API calls, make sure to review Prepare to use the workflows.

If you use Python, also see the script file_security_permissions.py for examples of how to automate some of the file security activities.

ONTAP REST API versus ONTAP CLI commands

For many tasks, using the ONTAP REST API requires fewer calls than the equivalent ONTAP CLI commands or ONTAPI (ZAPI) calls. The table below includes a list of API calls and the equivalent the CLI commands needed for each task.

ONTAP REST API	ONTAP CLI
GET /protocols/file- security/effective-permissions/	vserver security file-directory show-effective- permissions
POST /protocols/file-	1. vserver security file-directory ntfs create
security/permissions/	2. vserver security file-directory ntfs dacl add
	3. vserver security file-directory ntfs sacl add
	4. vserver security file-directory policy create
	 vserver security file-directory policy task add
	6. vserver security file-directory apply

ONTAP REST API	ONTAP CLI
PATCH /protocols/file- security/permissions/	vserver security file-directory ntfs modify
DELETE /protocols/file- security/permissions/	 vserver security file-directory ntfs dacl remove
	 vserver security file-directory ntfs sacl remove

Related information

- Python script illustrating file permissions
- · Simplified management of file-security permissions with ONTAP REST APIs
- Using the private CLI passthrough with the ONTAP REST API

Get the effective permissions for a file

You can retrieve the current effective permissions for a specific file or folder.

HTTP method and endpoint

This REST API call uses the following method and endpoint.

HTTP method	Path
GET	/api/protocols/file-security/effective-permissions/{svm.uuid}/{path}

Processing type

Synchronous

Additional input parameters for curl examples

In addition to the parameters common with all REST API calls, the following parameters are also used in the curl example in this step.

Parameter	Туре	Required	Description
\$SVM_ID	Path	Yes	This is the UUID of the SVM containing the file.
\$FILE_PATH	Path	Yes	This is the path to the file or folder.

Curl example

```
curl --request GET \
--location "https://$FQDN_IP/api/protocols/file-security/effective-
permissions/$SVM_ID/$FILE_PATH" \
--include \
--header "Accept: */*" \
--header "Authorization: Basic $BASIC_AUTH"
```

```
{
 "svm": {
    "uuid": "cf5f271a-1beb-11ea-8fad-005056bb645e",
    "name": "vs1"
  },
  "user": "administrator",
  "type": "windows",
  "path": "/",
  "share": {
    "path": "/"
  },
  "file permission": [
    "read",
    "write",
    "append",
    "read ea",
    "write ea",
    "execute",
    "delete child",
    "read attributes",
    "write attributes",
    "delete",
    "read control",
    "write dac",
    "write owner",
    "synchronize",
    "system security"
  ],
  "share permission": [
   "read",
    "read ea",
    "execute",
    "read attributes",
    "read control",
    "synchronize"
 ]
}
```

Get the auditing information for a file

You can retrieve the auditing information for a specific file or folder.

HTTP method and endpoint

This REST API call uses the following method and endpoint.

HTTP method	Path
GET	/api/protocols/file-security/permissions/{svm.uuid}/{path}

Processing type

Synchronous

Additional input parameters for curl examples

In addition to the parameters common with all REST API calls, the following parameters are also used in the curl example in this step.

Parameter	Туре	Required	Description
\$SVM_ID	Path	Yes	This is the UUID of the SVM containing the file.
\$FILE_PATH	Path	Yes	This is the path to the file or folder.

Curl example

```
curl --request GET \
--location "https://$FQDN_IP/api/protocols/file-
security/permissions/$SVM_ID/$FILE_PATH" \
--include \
--header "Accept: */*" \
--header "Authorization: Basic $BASIC_AUTH"
```

JSON output example

```
{
 "svm": {
   "uuid": "9479099d-5b9f-11eb-9c4e-0050568e8682",
   "name": "vs1"
 },
 "path": "/parent",
 "owner": "BUILTIN\\Administrators",
 "group": "BUILTIN\\Administrators",
 "control flags": "0x8014",
 "acls": [
   {
     "user": "BUILTIN\\Administrators",
     "access": "access allow",
     "apply to": {
       "files": true,
        "sub folders": true,
       "this folder": true
      },
      "advanced rights": {
        "append data": true,
```

```
"delete": true,
      "delete child": true,
      "execute file": true,
      "full control": true,
      "read attr": true,
      "read data": true,
      "read ea": true,
      "read perm": true,
      "write attr": true,
      "write data": true,
      "write ea": true,
      "write owner": true,
      "synchronize": true,
      "write perm": true
    },
    "access control": "file directory"
  },
  {
    "user": "BUILTIN\\Users",
    "access": "access allow",
    "apply_to": {
      "files": true,
      "sub folders": true,
      "this folder": true
    },
    "advanced rights": {
      "append data": true,
      "delete": true,
      "delete child": true,
      "execute file": true,
      "full control": true,
      "read attr": true,
      "read data": true,
      "read ea": true,
      "read perm": true,
      "write attr": true,
      "write data": true,
      "write ea": true,
      "write owner": true,
      "synchronize": true,
      "write perm": true
    },
    "access control": "file_directory"
 }
],
"inode": 64,
```

```
"security_style": "mixed",
"effective_style": "ntfs",
"dos_attributes": "10",
"text_dos_attr": "----D---",
"user_id": "0",
"group_id": "0",
"mode_bits": 777,
"text_mode_bits": "rwxrwxrwx"
}
```

Apply new permissions to a file

You can apply a new security descriptor to a specific file or folder.

Step 1: Apply the new permissions

HTTP method and endpoint

This REST API call uses the following method and endpoint.

HTTP method	Path
POST	/api/protocols/file-security/permissions/{svm.uuid}/{path}

Processing type

Asynchronous

Additional input parameters for curl examples

In addition to the parameters common with all REST API calls, the following parameters are also used in the curl example in this step.

Parameter	Туре	Required	Description
\$SVM_ID	Path	Yes	This is the UUID of the SVM containing the file.
\$FILE_PATH	Path	Yes	This is the path to the file or folder.

```
curl --request POST --location "https://$FQDN_IP/api/protocols/file-
security/permissions/$SVM_ID/$FILE_PATH?return_timeout=0" --include
--header "Accept */*" --header "Authorization: Basic $BASIC_AUTH" --data
'{ \"acls\": [ { \"access\": \"access_allow\", \"advanced_rights\": {
\"append_data\": true, \"delete\": true, \"delete_child\": true,
\"execute_file\": true, \"full_control\": true, \"read_attr\": true,
\"read_data\": true, \"full_control\": true, \"read_attr\": true,
\"write_attr\": true, \"write_data\": true, \"write_ea\": true,
\"write_owner\": true, \"write_perm\": true }, \"apply_to\": { \"files\":
true, \"sub_folders\": true, \"this_folder\": true }, \"user\":
\"administrator\" } ], \"control_flags\": \"32788\", \"group\": \"S-1-5-
21-223347455-2266964949-1780268902-69700\", \"ignore_paths\": [
\"/parent/child2\" ], \"owner\": \"S-1-5-21-2233347455-2266964949-
1780268902-69304\", \"propagation_mode\": \"propagate\"}'
```

JSON output example

Step 2: Retrieve the status of the job

Perform the workflow Get job instance and confirm the state value is success.

Update security descriptor information

You can update a specific security descriptor to a specific file or folder, including the primary owner, group, or control flags.

Step 1: Update the security descriptor

HTTP method and endpoint

This REST API call uses the following method and endpoint.

HTTP method	Path
PATCH	/api/protocols/file-security/permissions/{svm.uuid}/{path}

Processing type

Asynchronous

Additional input parameters for curl examples

In addition to the parameters common with all REST API calls, the following parameters are also used in the curl example in this step.

Parameter	Туре	Required	Description
\$SVM_ID	Path	Yes	This is the UUID of the SVM containing the file.
\$FILE_PATH	Path	Yes	This is the path to the file or folder.

Curl example

```
curl --request POST --location "https://$FQDN_IP/api/protocols/file-
security/permissions/$SVM_ID/$FILE_PATH?return_timeout=0" --include
--header "Accept */*" --header "Authorization: Basic $BASIC_AUTH" --data
'{ \"control_flags\": \"32788\", \"group\": \"everyone\", \"owner\":
\"user1\"}'
```

JSON output example

Step 2: Retrieve the status of the job

Perform the workflow Get job instance and confirm the state value is success.

Delete an access control entry

You can delete an existing Access Control Entry (ACE) from a specific file or folder. The change propagates to any child objects.

Step 1: Delete the ACE

HTTP method and endpoint

This REST API call uses the following method and endpoint.

HTTP method	Path
DELETE	/api/protocols/file-security/permissions/{svm.uuid}/{path}

Processing type

Asynchronous

Additional input parameters for curl examples

In addition to the parameters common with all REST API calls, the following parameters are also used in the curl example in this step.

Parameter	Туре	Required	Description
\$SVM_ID	Path	Yes	This is the UUID of the SVM containing the file.
\$FILE_PATH	Path	Yes	This is the path to the file or folder.

Curl example

```
curl --request DELETE --location "https://$FQDN_IP/api/protocols/file-
security/permissions/$SVM_ID/$FILE_PATH?return_timeout=0" --include
--header "Accept */*" --header "Authorization: Basic $BASIC_AUTH" --data
'{ \"access\": \"access_allow\", \"apply_to\": { \"files\": true,
\"sub_folders\": true, \"this_folder\": true }, \"ignore_paths\": [
\"/parent/child2\" ], \"propagation_mode\": \"propagate\"}'
```

JSON output example

Step 2: Retrieve the status of the job

Perform the workflow Get job instance and confirm the state value is success.

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