



# **Volume snapshot API methods**

## **Element Software**

NetApp

November 12, 2025

This PDF was generated from [https://docs.netapp.com/us-en/element-software-128/api/concept\\_element\\_api\\_snapshots\\_overview.html](https://docs.netapp.com/us-en/element-software-128/api/concept_element_api_snapshots_overview.html) on November 12, 2025. Always check [docs.netapp.com](https://docs.netapp.com) for the latest.

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# Volume snapshot API methods

## Snapshots overview

A volume snapshot is a point-in-time copy of a volume. You can use snapshots to roll a volume back to the state it was in at the time the snapshot was created.

You can group volume snapshots together so that related volumes can be backed up or rolled back in a consistent manner. A group snapshot captures a point-in-time image of all volume slice files. You can then use the image to roll back a group of volumes to a point-in-time state and ensure that all data is consistent across all volumes in the group.

You can schedule volume snapshots to occur autonomously at defined intervals. You can define intervals by time, days of the week, or days of the month. You can also use scheduled snapshots to ensure snapshots are backed up to remote storage for archiving purposes.

### Find more information

- [SolidFire and Element Software Documentation](#)
- [Documentation for earlier versions of NetApp SolidFire and Element products](#)

## CreateGroupSnapshot

You can use `CreateGroupSnapshot` to create a point-in-time copy of a group of volumes.

You can use this snapshot later as a backup or rollback to ensure the data on the group of volumes is consistent for the point in time that you created the snapshot.

### CLUSTER\_FULLNESS



You can create snapshots if cluster fullness is at stage 1, 2, or 3. You cannot create snapshots when cluster fullness reaches stage 4 or 5.

### Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
attributes	List of name-value pairs in JSON object format.	JSON object	None	No

Name	Description	Type	Default value	Required
enableRemoteReplication	<p>Specifies whether the snapshot will be replicated to remote storage or not. Possible values:</p> <ul style="list-style-type: none"> <li>• <code>true</code>: The snapshot will be replicated to remote storage.</li> <li>• <code>false</code>: The snapshot will not be replicated to remote storage.</li> </ul>	boolean	false	No
ensureSerialCreation	<p>Specifies that the snapshot should not be created if a previous snapshot replication is in progress. Possible values are:</p> <ul style="list-style-type: none"> <li>• <code>true</code>: This ensures that only one snapshot is being replicated at a time. The creation of a new snapshot will fail if a previous snapshot replication is still in progress.</li> <li>• <code>false</code>: Default. This snapshot creation is allowed if another snapshot replication is still in progress.</li> </ul>	boolean	false	No

Name	Description	Type	Default value	Required
expirationTime	Specify the time after which the snapshot can be removed. Cannot be used with retention. If neither expirationTime, or retention are specified, the snapshot will not expire. The time format is an ISO 8601 date string for time based expiration, otherwise it will not expire. A value of <code>null</code> causes the snapshot to be retained permanently. A value of <code>fifo</code> causes the snapshot to be preserved on a First-In-First-Out (FIFO) basis, relative to other FIFO snapshots on the volume. The API will fail if no FIFO space is available.	ISO 8601 date string	None	No
name	The name of the group snapshot. If no name is entered, the date and time the group snapshot was taken is used. The maximum name length allowed is 255 characters.	string	None	No

Name	Description	Type	Default value	Required
retention	This parameter is same as the expirationTime parameter, except the time format is HH:mm:ss. If neither expirationTime nor retention are specified, the snapshot will not expire.	string	None	No
snapMirrorLabel	The label used by SnapMirror software to specify the snapshot retention policy on a SnapMirror endpoint.	string	None	No
volumes	Unique ID of the volume image from which to copy.	volumeID array	None	Yes

## Return values

This method has the following return values:

Name	Description	Type
------	-------------	------



members	<p>List of checksum, volumeIDs, and snapshotIDs for each member of the group. Valid values:</p> <ul style="list-style-type: none"> <li>checksum: A small string representation of the data in the stored snapshot. This checksum can be used later to compare other snapshots to detect errors in the data. (string)</li> <li>snapshotID: Unique ID of a snapshot from which the new snapshot is made. The snapshotID must be from a snapshot on the given volume. (integer)</li> <li>volumeID: The source volume ID for the snapshot. (integer)</li> </ul>	JSON object array
groupSnapshotID	Unique ID of the new group snapshot.	groupSnapshot ID
groupSnapshot	Object containing information about the newly created group snapshot.	<a href="#">groupSnapshot</a>

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "CreateGroupSnapshot",
  "params": {
    "volumes": [1,2]
  },
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "groupSnapshot": {
```

```

"attributes": {},
"createTime": "2016-04-04T22:43:29Z",
"groupSnapshotID": 45,
"groupSnapshotUUID": "473b78a3-ef85-4541-9438-077306b2d3ca",
"members": [
  {
    "attributes": {},
    "checksum": "0x0",
    "createTime": "2016-04-04T22:43:29Z",
    "enableRemoteReplication": false,
    "expirationReason": "None",
    "expirationTime": null,
    "groupID": 45,
    "groupSnapshotUUID": "473b78a3-ef85-4541-9438-077306b2d3ca",
    "name": "2016-04-04T22:43:29Z",
    "snapshotID": 3323,
    "snapshotUUID": "7599f200-0092-4b41-b362-c431551937d1",
    "status": "done",
    "totalSize": 5000658944,
    "virtualVolumeID": null,
    "volumeID": 1
  },
  {
    "attributes": {},
    "checksum": "0x0",
    "createTime": "2016-04-04T22:43:29Z",
    "enableRemoteReplication": false,
    "expirationReason": "None",
    "expirationTime": null,
    "groupID": 45,
    "groupSnapshotUUID": "473b78a3-ef85-4541-9438-077306b2d3ca",
    "name": "2016-04-04T22:43:29Z",
    "snapshotID": 3324,
    "snapshotUUID": "a0776a48-4142-451f-84a6-5315dc37911b",
    "status": "done",
    "totalSize": 6001000448,
    "virtualVolumeID": null,
    "volumeID": 2
  }
],
"name": "2016-04-04T22:43:29Z",
"status": "done"
},
"groupSnapshotID": 45,
"members": [
  {

```

```

    "checksum": "0x0",
    "snapshotID": 3323,
    "snapshotUUID": "7599f200-0092-4b41-b362-c431551937d1",
    "volumeID": 1
  },
  {
    "checksum": "0x0",
    "snapshotID": 3324,
    "snapshotUUID": "a0776a48-4142-451f-84a6-5315dc37911b",
    "volumeID": 2
  }
]
}
}

```

## New since version

9.6

## CreateSchedule

You can use `CreateSchedule` to schedule an automatic snapshot of a volume at a defined interval.

You can use the created snapshot later as a backup or rollback to ensure the data on a volume or group of volumes is consistent for the point in time in which the snapshot was created. If you schedule a snapshot to run at a time period that is not divisible by 5 minutes, the snapshot will run at the next time period that is divisible by 5 minutes. For example, if you schedule a snapshot to run at 12:42:00 UTC, it will run at 12:45:00 UTC. You cannot schedule a snapshot to run at intervals of less than 5 minutes.



You can create snapshots if cluster fullness is at stage 1, 2, or 3. You cannot create snapshots when cluster fullness reaches stage 4 or 5.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
attributes	<p>Use the “frequency” string to indicate the frequency of the snapshot. Possible values:</p> <ul style="list-style-type: none"> <li>• Days of Week</li> <li>• Days of Month</li> <li>• Time Interval</li> </ul>	JSON object	None	No
hasError	<b>Help with description needed</b>	boolean	false	No
hours	Number of hours between recurring snapshots or hour in GMT time that the snapshot will occur in Days of Week or Days of Month mode. Valid values are 0 through 23.	integer	None	No
lastRunStatus	The result or status of the last scheduled snapshot creation.	string	None	No
name	The name of the snapshot. If no name is entered, the date and time the group snapshot was taken is used. The maximum name length allowed is 244 characters.	string	None	No
minutes	Number of minutes between recurring snapshots or the minute in GMT time that the snapshot will occur in Days of Week or Days of Month mode. Valid values are 5 through 59.	integer	None	No

Name	Description	Type	Default value	Required
paused	Indicates if the schedule should be paused or not. Valid values:  <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul>	boolean	None	No
recurring	Indicates if the schedule will be recurring or not. Valid values are:  <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul>	boolean	None	No
runNextInterval	Specifies whether or not to run the snapshot the next time the scheduler is active. When set to true, the scheduled snapshot runs the next time the scheduler is active and resets back to false. Valid values are:  <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul>	boolean	false	No
scheduleName	Unique name for the schedule. The maximum schedule name length allowed is 244 characters.	string	None	Yes
scheduleType	Indicates the type of schedule to create. Valid value is snapshot.	string	None	Yes

Name	Description	Type	Default value	Required
scheduleInfo	<p>The unique name given to the schedule, the retention period for the snapshot that was created, and the volume ID of the volume from which the snapshot was created. Valid values:</p> <ul style="list-style-type: none"> <li>• <code>volumeID</code>: The ID of the volume to be included in the snapshot. (integer)</li> <li>• <code>volumes</code>: A list of volume IDs to be included in the group snapshot. (integer array)</li> <li>• <code>name</code>: The snapshot name to be used. (string)</li> <li>• <code>enableRemoteReplication</code>: Indicates if the snapshot should be included in remote replication. (boolean)</li> <li>• <code>retention</code>: The amount of time the snapshot will be retained in HH:mm:ss. If empty, the snapshot is retained forever. (string)</li> <li>• <code>fifo</code>: The snapshot is retained on a First-In-First-Out (FIFO) basis. (string)</li> </ul>	JSON object	None	Yes
	ensureSerialCreation:			

Name	Description	Type	Default value	Required
snapMirrorLabel	The label used by SnapMirror software to specify the snapshot retention policy on a SnapMirror endpoint.	string	None	No
startingDate	Time after which the schedule will be run. If not set, the schedule starts immediately. Formatted in UTC time.	ISO 8601 date string	None	No
toBeDeleted	Specifies that this snapshot schedule should be deleted after snapshot creation is completed.	boolean	false	No
monthdays	The days of the month that a snapshot will be made. Valid values are 1 through 31.	integer array	None	Yes (if scheduling for days of the month)

Name	Description	Type	Default value	Required
weekdays	<p>Day of the week the snapshot is to be created. Required values (if used):</p> <ul style="list-style-type: none"> <li>• <b>Day:</b> 0 through 6 (Sunday through Saturday)</li> <li>• <b>Offset:</b> for each possible week in a month, 1 through 6 (If greater than 1, only matched on the Nth-1 day of the week. For example, offset:3 for Sunday means the third Sunday of the month, while offset:4 for Wednesday means the fourth Wednesday of the month. Offset:0 means no action is taken. Offset:1 (default) means that the snapshot is created for this day of the week, regardless of where it falls in the month)</li> </ul>	JSON object array	None	Yes (if scheduling for days of the week)

## Return values

This method has the following return values:

Name	Description	Type
scheduleID	ID of the schedule created.	integer
schedule	An object containing information about the newly created schedule.	<a href="#">schedule</a>



## Request example 1

The following example schedule has the following parameters:

- No start hours or minutes are specified so the schedule starts as closely as possible to midnight (00:00:00Z).
- It is not recurring (will only run once).
- It runs once on either the first Sunday or Wednesday following June 1, 2015, UTC 19:17:15Z (whichever day comes first).
- It includes only one volume (volumeID = 1).

```
{
  "method": "CreateSchedule",
  "params": {
    "hours": 0,
    "minutes": 0,
    "paused": false,
    "recurring": false,
    "scheduleName": "MCAsnapshot1",
    "scheduleType": "snapshot",
    "attributes": {
      "frequency": "Days Of Week"
    },
    "scheduleInfo": {
      "volumeID": "1",
      "name": "MCA1"
    },
    "monthdays": [],
    "weekdays": [
      {
        "day": 0,
        "offset": 1
      },
      {
        "day": 3,
        "offset": 1
      }
    ],
    "startingDate": "2015-06-01T19:17:54Z"
  },
  "id": 1
}
```

## Response example 1

The above request returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "schedule": {
      "attributes": {
        "frequency": "Days Of Week"
      },
      "hasError": false,
      "hours": 0,
      "lastRunStatus": "Success",
      "lastRunTimeStarted": null,
      "minutes": 0,
      "monthdays": [],
      "paused": false,
      "recurring": false,
      "runNextInterval": false,
      "scheduleID": 4,
      "scheduleInfo": {
        "name": "MCA1",
        "volumeID": "1"
      },
      "scheduleName": "MCAsnapshot1",
      "scheduleType": "Snapshot",
      "startingDate": "2015-06-01T19:17:54Z",
      "toBeDeleted": false,
      "weekdays": [
        {
          "day": 0,
          "offset": 1
        },
        {
          "day": 3,
          "offset": 1
        }
      ]
    },
    "scheduleID": 4
  }
}
```

## Request example 2

The following example schedule has the following parameters:

- It is recurring (will run at each scheduled interval of the month at the specified time).
- It runs on the 1st, 10th, 15th and 30th of each month following the starting date.
- It runs at 12:15 PM on each day it is scheduled to occur.
- It includes only one volume (volumeID = 1).

```
{
  "method": "CreateSchedule",
  "params": {
    "hours": 12,
    "minutes": 15,
    "paused": false,
    "recurring": true,
    "scheduleName": "MCASnapshot1",
    "scheduleType": "snapshot",
    "attributes": {
      "frequency": "Days Of Month"
    },
    "scheduleInfo": {
      "volumeID": "1"
    },
    "weekdays": [
    ],
    "monthdays": [
      1,
      10,
      15,
      30
    ],
    "startingDate": "2015-04-02T18:03:15Z"
  },
  "id": 1
}
```

## Response example 2

The above request returns a response similar to the following example:

```

{
  "id": 1,
  "result": {
    "schedule": {
      "attributes": {
        "frequency": "Days Of Month"
      },
      "hasError": false,
      "hours": 12,
      "lastRunStatus": "Success",
      "lastRunTimeStarted": null,
      "minutes": 15,
      "monthdays": [
        1,
        10,
        15,
        30
      ],
      "paused": false,
      "recurring": true,
      "runNextInterval": false,
      "scheduleID": 5,
      "scheduleInfo": {
        "volumeID": "1"
      },
      "scheduleName": "MCASnapshot1",
      "scheduleType": "Snapshot",
      "startingDate": "2015-04-02T18:03:15Z",
      "toBeDeleted": false,
      "weekdays": []
    },
    "scheduleID": 5
  }
}

```

### Request example 3

The following example schedule has the following parameters:

- It starts within 5 minutes of the scheduled interval on April 2, 2015.
- It is recurring (will run at each scheduled interval of the month at the specified time).
- It runs on the second, third, and fourth of each month following the starting date.
- It runs at 14:45 PM on each day it is scheduled to occur.
- It includes a group of volumes (volumes = 1 and 2).

```
{
  "method": "CreateSchedule",
  "params": {
    "hours": 14,
    "minutes": 45,
    "paused": false,
    "recurring": true,
    "scheduleName": "MCASnapUser1",
    "scheduleType": "snapshot",
    "attributes": {
      "frequency": "Days Of Month"
    },
    "scheduleInfo": {
      "volumes": [1, 2]
    },
    "weekdays": [],
    "monthdays": [2, 3, 4],
    "startingDate": "2015-04-02T20:38:23Z"
  },
  "id": 1
}
```

### Response example 3

The above request returns a response similar to the following example:

```

{
  "id": 1,
  "result": {
    "schedule": {
      "attributes": {
        "frequency": "Days Of Month"
      },
      "hasError": false,
      "hours": 14,
      "lastRunStatus": "Success",
      "lastRunTimeStarted": null,
      "minutes": 45,
      "monthdays": [
        2,
        3,
        4
      ],
      "paused": false,
      "recurring": true,
      "runNextInterval": false,
      "scheduleID": 6,
      "scheduleInfo": {
        "volumes": [
          1,
          2
        ]
      },
      "scheduleName": "MCASnapUser1",
      "scheduleType": "Snapshot",
      "startingDate": "2015-04-02T20:38:23Z",
      "toBeDeleted": false,
      "weekdays": []
    },
    "scheduleID": 6
  }
}

```

## New since version

9.6

## CreateSnapshot

You can use `CreateSnapshot` to create a point-in-time copy of a volume. You can create a snapshot from any volume or from an existing snapshot.

If you do not provide a SnapshotID with this API method, a snapshot is created from the volume's active branch. If the volume from which the snapshot is created is being replicated to a remote cluster, the snapshot can also be replicated to the same target. Use the enableRemoteReplication parameter to enable snapshot replication.



You can create snapshots if cluster fullness is at stage 1, 2, or 3. You cannot create snapshots when cluster fullness reaches stage 4 or 5.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
attributes	List of name-value pairs in JSON object format.	JSON object	None	No
enableRemoteReplication	<p>Specifies whether the snapshot will be replicated to remote storage or not. Possible values:</p> <ul style="list-style-type: none"><li>• <code>true</code>: The snapshot will be replicated to remote storage.</li><li>• <code>false</code>: The snapshot will not be replicated to remote storage.</li></ul>	boolean	false	No

Name	Description	Type	Default value	Required
ensureSerialCreation	<p>Specifies that the snapshot should not be created if a previous snapshot replication is in progress. Possible values are:</p> <ul style="list-style-type: none"> <li>• <code>true</code>: This ensures that only one snapshot is being replicated at a time. The creation of a new snapshot will fail if a previous snapshot replication is still in progress.</li> <li>• <code>false</code>: Default. This snapshot creation is allowed if another snapshot replication is still in progress.</li> </ul>	boolean	false	No



Name	Description	Type	Default value	Required
expirationTime	Specify the time after which the snapshot can be removed. Cannot be used with retention. If neither expirationTime or retention are specified the snapshot will not expire. The time format is an ISO 8601 date string for time based expiration, otherwise it will not expire. A value of <code>null</code> causes the snapshot to be retained permanently. A value of <code>fifo</code> causes the snapshot to be preserved on a First-In-First-Out basis, relative to other FIFO snapshots on the volume. The API will fail if no FIFO space is available.	string	None	No
name	The name of the snapshot. If no name is entered, the date and time the snapshot was taken is used. The maximum name length allowed is 255 characters.	string	None	No

Name	Description	Type	Default value	Required
retention	This parameter is same as the expirationTime parameter, except the time format is HH:mm:ss. If neither expirationTime nor retention are specified, the snapshot will not expire.	string	None	No
snapMirrorLabel	The label used by SnapMirror software to specify the snapshot retention policy on a SnapMirror endpoint.	string	None	No
snapshotID	Unique ID of a snapshot from which the new snapshot is made. The snapshotID passed must be a snapshot on the given volume.	integer	None	No
volumeID	Unique ID of the volume image from which to copy.	integer	None	Yes

## Return values

This method has the following return values:

Name	Description	Type
checksum	A string that represents the correct digits in the stored snapshot. This checksum can be used later to compare other snapshots to detect errors in the data.	string
snapshotID	Unique ID of the new snapshot.	Snapshot ID
snapshot	An object containing information about the newly created snapshot.	<a href="#">snapshot</a>

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "CreateSnapshot",
  "params": {
    "volumeID": 1
  },
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "checksum": "0x0",
    "snapshot": {
      "attributes": {},
      "checksum": "0x0",
      "createTime": "2016-04-04T17:14:03Z",
      "enableRemoteReplication": false,
      "expirationReason": "None",
      "expirationTime": null,
      "groupID": 0,
      "groupSnapshotUUID": "00000000-0000-0000-0000-000000000000",
      "name": "2016-04-04T17:14:03Z",
      "snapshotID": 3110,
      "snapshotUUID": "6f773939-c239-44ca-9415-1567eae79646",
      "status": "done",
      "totalSize": 5000658944,
      "virtualVolumeID": null,
      "volumeID": 1
    },
    "snapshotID": 3110
  }
}
```

## Exception

An `xNotPrimary` exception is displayed when the `CreateSnapshot` API is called and the snapshot fails to get created. This is expected behavior. Retry the `CreateSnapshot` API call.

## New since version

9.6

# DeleteGroupSnapshot

You can use `DeleteGroupSnapshot` to delete a group snapshot.

You can use the `saveMembers` parameter to preserve all the snapshots that were made for the volumes in the group, but the group association will be removed.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
groupSnapshotID	Unique ID of the group snapshot.	integer	None	Yes
saveMembers	<p>Specifies what to delete when you delete a group snapshot. Valid values:</p> <ul style="list-style-type: none"><li>• <code>true</code>: Snapshots are kept, but the group association is removed.</li><li>• <code>false</code>: The group and snapshots are deleted.</li></ul>	boolean	false	No

## Return value

This method has no return value.

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "DeleteGroupSnapshot",
  "params": {
    "groupSnapshotID": 10,
    "saveMembers" : true
  },
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {}
}
```

## New since version

9.6

# DeleteSnapshot

You can use the `DeleteSnapshot` method to delete a snapshot.

A snapshot that is currently the active snapshot cannot be deleted. You must rollback and make another snapshot active before the current snapshot can be deleted.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
snapshotID	The ID of the snapshot to delete.	integer	None	Yes

Name	Description	Type	Default value	Required
overrideSnapMirrorHold	Override the lock placed on snapshots during replication. You can use this parameter to delete stale SnapMirror snapshots after the associated SnapMirror relationship has been deleted.	boolean	false	No

## Return values

This method has no return values.

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "DeleteSnapshot",
  "params": {
    "snapshotID": 8,
    "overrideSnapMirrorHold": true
  },
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {}
}
```

## New since version

9.6

## Find more information

[RollbackToSnapshot](#)

# GetSchedule

You can use `GetSchedule` to get information about a scheduled snapshot.

You can see information about a specific schedule if there are many snapshot schedules in the system. You also retrieve information about more than one schedule with this method by specifying additional IDs in the `scheduleID` parameter.

## Parameter

This method has the following input parameter:

Name	Description	Type	Default value	Required
<code>scheduleID</code>	Unique ID of the schedule or multiple schedules to display.	integer	None	Yes

## Return value

This method has the following return value:

Name	Description	Type
<code>schedule</code>	An array of schedule attributes.	<a href="#">schedule</a> array

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "GetSchedule",
  "params": {
    "scheduleID" : 2
  },
  "id" : 1
}
```

## Response example

This method returns a response similar to the following example:

```

{
  "id": 1,
  "result": {
    "schedule": {
      "attributes": {
        "frequency": "Time Interval"
      },
      "hasError": false,
      "hours": 0,
      "lastRunStatus": "Success",
      "lastRunTimeStarted": "2015-03-23T21:25:00Z",
      "minutes": 2,
      "monthdays": [],
      "paused": false,
      "recurring": true,
      "runNextInterval": false,
      "scheduleID": 2,
      "scheduleInfo": {
        "name": "MCA2",
        "volumeID": "3"
      },
      "scheduleName": "MCAsnapshot2",
      "scheduleType": "Snapshot",
      "startingDate": "2015-03-23T19:28:57Z",
      "toBeDeleted": false,
      "weekdays": []
    }
  }
}

```

## New since version

9.6

## ListGroupSnapshots

You can use `ListGroupSnapshots` method to return information about all group snapshots that have been created.

### Parameters

This method has the following input parameters:



Name	Description	Type	Default value	Required
groupSnapshotID	Retrieve information for an individual group snapshot ID.	integer	None	No
volumes	An array of unique volume IDs to query. If you do not specify this parameter, all group snapshots on the cluster are included.	volumeID array	None	No

## Return value

This method has the following return value:

Name	Description	Type
groupSnapshots	A list of objects containing information about each group snapshot.	<a href="#">groupSnapshot</a> array

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "ListGroupSnapshots",
  "params": {
    "volumes": [
      31,
      49
    ]
  },
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "groupSnapshots": [
    {
```

```

    "status": "Done",
    "remoteStatuses": [
      {
        "volumePairUUID": "abcdef-1234-5678-90ab-cdef0123",
        "remoteStatus": "Present"
      }
    ],
    "attributes": {},
    "groupSnapshotID": 1,
    "createTime": "2014-06-17T17:35:05Z",
    "members": [
      {
        "snapshotUUID": "abcdef-1234-5678-90ab-cdef0123",
        "expirationReason": "None",
        "virtualVolumeID": "abcdef-1234-5678-90ab-cdef0123",
        "groupID": 1,
        "createTime": "2014-06-17T17:35:05Z",
        "totalSize": 1,
        "snapMirrorLabel": "test1",
        "volumeName": "test1",
        "instanceCreateTime": "2014-06-17T17:35:05Z",
        "volumeID": 1,
        "checksum": "0x0",
        "attributes": {},
        "instanceSnapshotUUID": "abcdef-1234-5678-90ab-cdef0123",
        "snapshotID": 1,
        "status": "Done",
        "groupSnapshotUUID": "abcdef-1234-5678-90ab-cdef0123",
        "expirationTime": "2014-06-17T17:35:05Z",
        "enableRemoteReplication": true,
        "name": "test1",
        "remoteStatuses": [
          {
            "volumePairUUID": "abcdef-1234-5678-90ab-
cdef0123",
            "remoteStatus": "Present"
          }
        ]
      }
    ],
    "enableRemoteReplication": true,
    "name": "test1",
    "groupSnapshotUUID": "abcdef-1234-5678-90ab-cdef0123"
  }
]
}

```

## New since version

9.6

# ListSchedules

You can use `ListSchedules` to get information about all scheduled snapshots that have been created.

## Parameters

This method has no input parameters.

## Return value

This method has the following return value:

Name	Description	Type
schedules	A list of the schedules currently on the cluster.	<a href="#">schedule</a> array

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "ListSchedules",
  "params": {},
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "schedules": [
      {
        "attributes": {
          "frequency": "Days Of Week"
        },
        "hasError": false,
        "hours": 0,

```

```

    "lastRunStatus": "Success",
    "lastRunTimeStarted": null,
    "minutes": 1,
    "monthdays": [],
    "paused": false,
    "recurring": false,
    "runNextInterval": false,
    "scheduleID": 3,
    "scheduleInfo": {
        "name": "Wednesday Schedule",
        "retention": "00:02:00",
        "volumeID": "2"
    },
    "scheduleName": "Vol2Schedule",
    "scheduleType": "Snapshot",
    "startingDate": "2015-03-23T20:08:33Z",
    "toBeDeleted": false,
    "weekdays": [
        {
            "day": 3,
            "offset": 1
        }
    ]
},
{
    "attributes": {
        "frequency": "Time Interval"
    },
    "hasError": false,
    "hours": 0,
    "lastRunStatus": "Success",
    "lastRunTimeStarted": "2015-03-23T21:40:00Z",
    "minutes": 2,
    "monthdays": [],
    "paused": false,
    "recurring": true,
    "runNextInterval": false,
    "scheduleID": 2,
    "scheduleInfo": {
        "name": "MCA2",
        "volumeID": "3"
    },
    "scheduleName": "MCAsnapshot2",
    "scheduleType": "Snapshot",
    "startingDate": "2015-03-23T19:28:57Z",
    "toBeDeleted": false,

```

```

        "weekdays": []
      }
    ]
  }
}

```

## New since version

9.6

# ListSnapshots

You can use `ListSnapshots` to return the attributes of each snapshot taken on the volume.

Information about snapshots that reside on the target cluster will be displayed on the source cluster when this method is called from the source cluster.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
volumeID	Retrieves snapshots for a volume. If volumeID is not provided, all snapshots for all volumes are returned.	integer	None	No
snapshotID	Retrieves information for an individual snapshot ID.	integer	None	No

## Return value

This method has the following return value:

Name	Description	Type
snapshots	Information about each snapshot for each volume. If volumeID is not provided, all snapshots for all volumes are returned. Snapshots that are in a group are returned with a group ID.	<a href="#">snapshot</a> array

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "ListSnapshots",
  "params": {
    "volumeID": "1"
  },
  "id" : 1
}
```

## Response example

This method returns a response similar to the following example:

```

{
  "id": 1,
  "result": {
    "snapshots": [
      {
        "attributes": {},
        "checksum": "0x0",
        "createTime": "2015-05-08T13:15:00Z",
        "enableRemoteReplication": true,
        "expirationReason": "None",
        "expirationTime": "2015-05-08T21:15:00Z",
        "groupID": 0,
        "groupSnapshotUUID": "00000000-0000-0000-0000-000000000000",
        "name": "Hourly",
        "remoteStatuses": [
          {
            "remoteStatus": "Present",
            "volumePairUUID": "237e1cf9-fb4a-49de-a089-a6a9a1f0361e"
          }
        ],
        "snapshotID": 572,
        "snapshotUUID": "efa98e40-cb36-4c20-a090-a36c48296c14",
        "status": "done",
        "totalSize": 10000269312,
        "volumeID": 1
      }
    ]
  }
}

```

## New since version

9.6

## ModifyGroupSnapshot

You can use `ModifyGroupSnapshot` to change the attributes of a group of snapshots. You can also use this method to enable snapshots created on the read/write (source) volume to be remotely replicated to a target storage system.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
------	-------------	------	---------------	----------

enableRemoteReplication	<p>Use to enable the snapshot created to be replicated to a remote cluster. Possible values:</p> <ul style="list-style-type: none"> <li>• <code>true</code>: The snapshot will be replicated to remote storage.</li> <li>• <code>false</code>: The snapshot will not be replicated to remote storage.</li> </ul>	boolean	false	No
expirationTime	<p>Specify the time after which the snapshot can be removed. Cannot be used with retention. If neither <code>expirationTime</code>, or retention on the original snapshot, are specified, the snapshot will not expire. The time format is an ISO 8601 date string for time based expiration, otherwise it will not expire. A value of <code>null</code> causes the snapshot to be retained permanently. A value of <code>fifo</code> causes the snapshot to be preserved on a First-In-First-Out (FIFO) basis, relative to other FIFO snapshots on the volume. The API will fail if no FIFO space is available.</p>	ISO 8601 date string	None	No



name	The name of the group snapshot. If no name is entered, the date and time the group snapshot was taken is used. The maximum name length allowed is 255 characters.	string	None	No
groupSnapshotID	The ID of the group of snapshots.	string	None	Yes
snapMirrorLabel	The label used by SnapMirror software to specify the snapshot retention policy on a SnapMirror endpoint.	string	None	No

## Return value

This method has the following return value:

Name	Description	Type
groupSnapshot	Object containing information about the newly modified group snapshot.	<a href="#">groupSnapshot</a>

## Request example

Requests for this method are similar to the following example:

```
{
  "id": 695,
  "method": "ModifyGroupSnapshot",
  "params": {
    "groupSnapshotID": 3,
    "enableRemoteReplication": true,
    "expirationTime": "2016-04-08T22:46:25Z"
  }
}
```

## Response example

This method returns a response similar to the following example:

```

{
  "id": 695,
  "result": {
    "groupSnapshot": {
      "attributes": {},
      "createTime": "2016-04-06T17:31:41Z",
      "groupSnapshotID": 3,
      "groupSnapshotUUID": "8b2e101d-c5ab-4a72-9671-6f239de49171",
      "members": [
        {
          "attributes": {},
          "checksum": "0x0",
          "createTime": "2016-04-06T17:31:41Z",
          "enableRemoteReplication": true,
          "expirationReason": "None",
          "expirationTime": "2016-04-08T22:46:25Z",
          "groupID": 3,
          "groupSnapshotUUID": "8b2e101d-c5ab-4a72-9671-6f239de49171",
          "name": "grpsnap1-2",
          "snapshotID": 2,
          "snapshotUUID": "719b162c-e170-4d80-b4c7-1282ed88f4e1",
          "status": "done",
          "totalSize": 1000341504,
          "virtualVolumeID": null,
          "volumeID": 2
        }
      ],
      "name": "grpsnap1",
      "status": "done"
    }
  }
}

```

## New since version

9.6

## ModifySchedule

You can use `ModifySchedule` to change the intervals at which a scheduled snapshot occurs. You can also delete or pause a schedule by using this method.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
attributes	Use to change the frequency of the snapshot occurrence. Possible values: <ul style="list-style-type: none"> <li>• Days of Week</li> <li>• Days of Month</li> <li>• Time Interval</li> </ul>	JSON object	None	No
hours	Number of hours between snapshots or hour at which the snapshot will occur in Days of Week or Days of Month mode. Valid values are 0 through 24.	string	None	No
name	The name of the snapshot. If no name is entered, the date and time the group snapshot was taken is used. The maximum name length allowed is 244 characters.	string	None	No
minutes	Number of minutes between snapshots or minute at which snapshot will occur in Days of Week or Days of Month mode. Valid values are 0 through 59.	integer	None	No
lastRunStatus	The result or status of the last scheduled snapshot creation.	string	None	No

Name	Description	Type	Default value	Required
paused	Indicates if the schedule should be paused or not. Valid values: <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul>	boolean	None	No
recurring	Indicates if the schedule will be recurring or not. Valid values are: <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul>	boolean	None	No
runNextInterval	Use to choose whether or not to run the snapshot the next time the scheduler is active. Valid values: <ul style="list-style-type: none"> <li>• true</li> <li>• false</li> </ul> When set to true, the scheduled snapshot runs the next time the scheduler is active, and then resets back to false.	boolean	false	No
scheduleID	Unique ID of the schedule.	integer	None	Yes
scheduleName	Unique name for the schedule. The maximum schedule name length allowed is 244 characters.	string	None	No
scheduleType	Indicates the type of schedule to create. The only supported value is <code>snapshot</code> .	string	None	Yes

Name	Description	Type	Default value	Required
scheduleInfo	<p>The unique name given to the schedule, the retention period for the snapshot that was created, and the volume ID of the volume from which the snapshot was created. Valid values:</p> <ul style="list-style-type: none"> <li>• enableRemote Replication: Indicates if the snapshot should be included in remote replication. (boolean)</li> <li>• ensureSerial Creation: Specifies whether a new snapshot creation should be allowed if a previous snapshot replication is in progress. (boolean)</li> <li>• name: The snapshot name to be used. (string)</li> <li>• retention: The amount of time the snapshot is retained. Depending on the time, it displays in one of the following formats: <ul style="list-style-type: none"> <li>◦ fifo: The snapshot is retained on a First-In-First-Out (FIFO) basis. If empty, the</li> </ul> </li> </ul>	schedule	None	No

Name	Description	Type	Default value	Required
snapMirrorLabel	The label used by SnapMirror software to specify the snapshot retention policy on a SnapMirror endpoint.	string	None	No
toBeDeleted	Indicates if the schedule is marked for deletion. Valid values: <ul style="list-style-type: none"> <li>• <code>true</code></li> <li>• <code>false</code></li> </ul>	boolean	None	No
startingDate	Indicates the date the first time the schedule began or will begin.	ISO 8601 date string	None	No
monthdays	The days of the month that a snapshot will be made. Valid values are 1 through 31.	integer array	None	Yes
weekdays	Day of the week the snapshot is to be created. The day of the week starts at Sunday with the value of 0 and an offset of 1.	string	None	No

## Return value

This method has the following return value:

Name	Description	Type
schedule	An object containing the modified schedule attributes.	<a href="#">schedule</a>

## Request example

```
{
  "method": "ModifySchedule",
  "params": {
    "scheduleName" : "Chicago",
    "scheduleID" : 3
  },
  "id": 1
}
```

## Response example

```

{
  "id": 1,
  "result": {
    "schedule": {
      "attributes": {
        "frequency": "Days Of Week"
      },
      "hasError": false,
      "hours": 5,
      "lastRunStatus": "Success",
      "lastRunTimeStarted": null,
      "minutes": 0,
      "monthdays": [],
      "paused": false,
      "recurring": true,
      "runNextInterval": false,
      "scheduleID": 3,
      "scheduleInfo": {
        "volumeID": "2"
      },
      "scheduleName": "Chicago",
      "scheduleType": "Snapshot",
      "startingDate": null,
      "toBeDeleted": false,
      "weekdays": [
        {
          "day": 2,
          "offset": 1
        }
      ]
    }
  }
}

```

## New since version

9.6

## ModifySnapshot

You can use `ModifySnapshot` to change the attributes currently assigned to a snapshot. You can also use this method to enable snapshots created on the read/write (source) volume to be remotely replicated to a target storage cluster running Element software.



## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
enableRemoteReplication	<p>Use to enable the snapshot created to be replicated to a remote storage cluster. Possible values:</p> <ul style="list-style-type: none"><li>• <code>true</code>: The snapshot will be replicated to remote storage.</li><li>• <code>false</code>: The snapshot will not be replicated to remote storage.</li></ul>	boolean	false	No
expirationTime	<p>Specify the time after which the snapshot can be removed. Cannot be used with retention. If neither <code>expirationTime</code>, or retention on the original snapshot, are specified, the snapshot will not expire. The time format is an ISO 8601 date string for time based expiration, otherwise it will not expire. A value of null causes the snapshot to be retained permanently. A value of <code>fifo</code> causes the snapshot to be preserved on a First-In-First-Out (FIFO) basis, relative to other FIFO snapshots on the volume. The API will fail if no FIFO space is available.</p>	ISO 8601 date string	None	No

name	The name of the snapshot. If no name is entered, the date and time the snapshot was taken is used. The maximum name length allowed is 255 characters.	string	None	No
snapMirrorLabel	The label used by SnapMirror software to specify the snapshot retention policy on a SnapMirror endpoint.	string	None	No
snapshotID	Identifier of the snapshot.	string	None	Yes

## Return value

This method has the following return value:

Name	Description	Type
snapshot	An object containing information about the newly modified snapshot.	<a href="#">snapshot</a>

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "ModifySnapshot",
  "params": {
    "snapshotID": 3114,
    "enableRemoteReplication": "true",
    "name" : "Chicago"
  },
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "snapshot": {
      "attributes": {},
      "checksum": "0x0",
      "createTime": "2016-04-04T17:26:20Z",
      "enableRemoteReplication": true,
      "expirationReason": "None",
      "expirationTime": null,
      "groupID": 0,
      "groupSnapshotUUID": "00000000-0000-0000-0000-000000000000",
      "name": "test1",
      "snapshotID": 3114,
      "snapshotUUID": "5809a671-4ad0-4a76-9bf6-01cccf1e65eb",
      "status": "done",
      "totalSize": 5000658944,
      "virtualVolumeID": null,
      "volumeID": 1
    }
  }
}
```

## New since version

9.6

## RollbackToGroupSnapshot

You can use `RollbackToGroupSnapshot` to roll back all individual volumes in a snapshot group to each volume's individual snapshot.

Rolling back to a group snapshot creates a temporary snapshot of each volume within the group snapshot.



- Creating a snapshot is allowed if cluster fullness is at stage 1, 2, or 3. Snapshots are not created when cluster fullness is at stage 4 or 5.
- Rolling back volumes to a group snapshot might fail when slice synchronization is in progress. Retry `RollbackToGroupSnapshot` after syncing completes.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
groupSnapshotID	Unique ID of the group snapshot.	integer	None	Yes
attributes	List of name-value pairs in JSON object format.	JSON object	None	No
name	Name for the group snapshot of the volume's current state that is created if <code>saveCurrentState</code> is set to true. If you do not give a name, then the name of the snapshots (group and individual volume) are set to a timestamp of the time that the rollback occurred.	string	None	No
saveCurrentState	Specifies whether to save the previous active volume image or not. Valid values: <ul style="list-style-type: none"> <li><code>true</code>: The previous active volume image is kept.</li> <li><code>false</code>: The previous active volume image is deleted.</li> </ul>	boolean	false	No

## Return values

This method has the following return values:

Name	Description	Type
------	-------------	------

members	<p>An array containing volumeIDs and snapshotIDs of members of the group snapshot. Values:</p> <ul style="list-style-type: none"> <li>checksum: A small string representation of the data in the stored snapshot. This checksum can be used later to compare other snapshots to detect errors in the data. (string)</li> <li>snapshotID: Unique ID of a snapshot from which the new snapshot is made. The snapshotID must be a snapshot on the given volume. (integer)</li> <li>volumeID: The source volume ID for the snapshot. (integer)</li> </ul>	JSON object array
groupSnapshotID	<p>If <code>saveCurrentState</code> was set to false, this value is null.</p> <p>If <code>saveCurrentState</code> was set to true, the unique ID of the newly created group snapshot.</p>	integer
groupSnapshot	<p>If <code>saveCurrentState</code> was set to false, this value is null.</p> <p>If <code>saveCurrentState</code> was set to true, an object containing information about the group snapshot which <code>RollbackToGroupSnapshot</code> just rolled back to.</p>	<a href="#">groupSnapshot</a>

## Request example

Requests for this method are similar to the following example:

```
{
  "id": 438,
  "method": "RollbackToGroupSnapshot",
  "params": {
    "groupSnapshotID": 1,
    "name": "grpsnap1",
    "saveCurrentState": true
  }
}
```

## Response example

This method returns a response similar to the following example:

```

{
  "id": 438,
  "result": {
    "groupSnapshot": {
      "attributes": {},
      "createTime": "2016-04-06T17:27:17Z",
      "groupSnapshotID": 1,
      "groupSnapshotUUID": "468fe181-0002-4b1d-ae7f-8b2a5c171eee",
      "members": [
        {
          "attributes": {},
          "checksum": "0x0",
          "createTime": "2016-04-06T17:27:17Z",
          "enableRemoteReplication": false,
          "expirationReason": "None",
          "expirationTime": null,
          "groupID": 1,
          "groupSnapshotUUID": "468fe181-0002-4b1d-ae7f-8b2a5c171eee",
          "name": "2016-04-06T17:27:17Z",
          "snapshotID": 4,
          "snapshotUUID": "03563c5e-51c4-4e3b-a256-a4d0e6b7959d",
          "status": "done",
          "totalSize": 1000341504,
          "virtualVolumeID": null,
          "volumeID": 2
        }
      ],
      "name": "2016-04-06T17:27:17Z",
      "status": "done"
    },
    "groupSnapshotID": 3,
    "members": [
      {
        "checksum": "0x0",
        "snapshotID": 2,
        "snapshotUUID": "719b162c-e170-4d80-b4c7-1282ed88f4e1",
        "volumeID": 2
      }
    ]
  }
}

```

## New since version

9.6

# RollbackToSnapshot

You can use the `RollbackToSnapshot` method to make an existing snapshot of the active volume image. This method creates a new snapshot from an existing snapshot.

The new snapshot becomes active and the existing snapshot is preserved until it is manually deleted. The previously active snapshot is deleted unless you set the `saveCurrentState` parameter to true.

## CLUSTER\_FULLNESS



- You can create snapshots if cluster fullness is at stage 1, 2, or 3. You cannot create snapshots when cluster fullness reaches stage 4 or 5.
- Rolling back a volume to a snapshot might fail when slice synchronization is in progress. Retry `RollbackToSnapshot` after syncing completes.

## Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
volumeID	VolumeID for the volume.	integer	None	Yes
attributes	List of name-value pairs in JSON object format.	JSON attributes	None	No
name	Name for the snapshot. If no name is given, the name of the snapshot being rolled back to is used with "- copy" appended to the end of the name.	string	None	No
snapshotID	ID of a previously created snapshot on the given volume.	integer	None	Yes



Name	Description	Type	Default value	Required
saveCurrentState	<p>Specifies whether to save previous active volume image or not. Valid values:</p> <ul style="list-style-type: none"> <li>• true: The previous active volume image is kept.</li> <li>• false: The previous active volume image is deleted.</li> </ul>	boolean	false	No

## Return values

This method has the following return values:

Name	Description	Type
checksum	A small string representation of the data in the stored snapshot.	string
snapshotID	<p>If saveCurrentState was set to false, this value is null.</p> <p>If saveCurrentState was set to true, the unique ID of the newly created snapshot.</p>	integer
snapshot	<p>If saveCurrentState was set to false, this value is null.</p> <p>If saveCurrentState was set to true, an object containing information about the newly created snapshot.</p>	<a href="#">snapshot</a>

## Request example

Requests for this method are similar to the following example:

```
{
  "method": "RollbackToSnapshot",
  "params": {
    "volumeID": 1,
    "snapshotID": 3114,
    "saveCurrentState": true
  },
  "id": 1
}
```

## Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "checksum": "0x0",
    "snapshot": {
      "attributes": {},
      "checksum": "0x0",
      "createTime": "2016-04-04T17:27:32Z",
      "enableRemoteReplication": false,
      "expirationReason": "None",
      "expirationTime": null,
      "groupID": 0,
      "groupSnapshotUUID": "00000000-0000-0000-0000-000000000000",
      "name": "test1-copy",
      "snapshotID": 1,
      "snapshotUUID": "30d7e3fe-0570-4d94-a8d5-3cc8097a6bfb",
      "status": "done",
      "totalSize": 5000658944,
      "virtualVolumeID": null,
      "volumeID": 1
    },
    "snapshotID": 1
  }
}
```

## New since version

9.6

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