Virtual volume API methods

Element Software

NetApp
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Virtual volume API methods

Element software virtual volume API methods enable you to manage virtual volumes (VVols). You can view existing VVols with these API methods as well as create, modify, and delete virtual volume storage containers. Although you cannot use these methods to operate on normal volumes, you can use the normal volume API methods to list information about VVols.

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Find more information

- SolidFire and Element Software Documentation
- Documentation for earlier versions of NetApp SolidFire and Element products

CreateStorageContainer

You can use the `CreateStorageContainer` method to create a Virtual Volume (VVol) storage container. You can use storage containers for reporting and resource allocation. You need to create at least one storage container to use the Virtual Volumes feature.

Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
name	Name of the storage container. Follows Element software account naming restrictions.	string	None	Yes

Name	Description	Type	Default value	Required
accountID	Non-storage container account that will become a storage container.	integer	None	No
initiatorSecret	The secret for CHAP authentication for the initiator.	string	None	No
targetSecret	The secret for CHAP authentication for the target.	string	None	No

Return value

This method has the following return value:

Name	Description	Type
storageContainer	Object containing Information about the newly created storage container.	storageContainer

Request example

Requests for this method are similar to the following example:

```
{
  "method": "CreateStorageContainer",
    "params": {
        "name" : "example"
    },
    "id": 1
}
```

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "storageContainer": {
      "accountID": 8,
      "initiatorSecret": "rVTOi25^H.d;cP}l",
      "name": "example",
      "protocolEndpointType": "SCSI",
      "status": "active",
      "storageContainerID": "a9ec1138-e386-4a44-90d7-b9acbbc05176",
      "targetSecret": "6?AEIxWpvo6,!boM"
    }
  }
}
```


New since version

9.6

DeleteStorageContainers

You can use the `DeleteStorageContainers` method to remove up to 2000 Virtual Volume (VVol) storage containers from the system at one time. The storage containers you remove must not contain any VVols.

Parameters

This method has the following input parameter:

Name	Description	Type	Default value	Required
storageContainerIDs	A list of IDs of the storage containers to delete. You can specify up to 2000 IDs in the list.	UUID array	None	Yes

Return values

This method has no return values.

Request example

Requests for this method are similar to the following example:

```
{
  "method": "DeleteStorageContainers",
    "params": {
        "storageContainerIDs" : ["a9ec1138-e386-4a44-90d7-b9acbbc05176"]
    },
    "id": 1
}
```

Response example

This method returns a response similar to the following example:

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

New since version

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GetStorageContainerEfficiency

You can use the `GetStorageContainerEfficiency` method to retrieve efficiency information about a virtual volume storage container.

Parameters

This method has the following input parameter:

Name	Description	Type	Default value	Required
storageContainerID	The ID of the storage container for which to retrieve efficiency information.	integer	None	Yes

Return values

This method has the following return values:

Name	Description	Type

compression	The amount of space saved by data compression for all virtual volumes in the storage container. Stated as a ratio where a value of 1 means data has been stored with no compression.	float
deduplication	The amount of space saved by not duplicating data for all virtual volumes in the storage container. Stated as a ratio.	float
missingVolumes	The virtual volumes that could not be queried for efficiency data. Missing volumes can be caused by the Garbage Collection (GC) cycle being less than an hour old, temporary loss of network connectivity, or restarted services since the GC cycle.	integer array
thinProvisioning	The ratio of space used to the amount of space allocated for storing data. Stated as a ratio.	float
timestamp	The last time efficiency data was collected after GC.	ISO 8601 data string

Request example

Requests for this method are similar to the following example:

```
{
  "method": "GetStorageContainerEfficiency",
  "params": {
    "storageContainerID" : "6c95e24f-9f0b-4793-affb-5a4bc6c3d7e1"
  },
  "id" : 1
}
```

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "compression": 1,
    "deduplication": 1,
    "missingVolumes": [],
    "thinProvisioning": 1,
    "timestamp": "2016-04-12T15:39:49Z"
  }
}
```

New since version

9.6

GetVirtualVolumeCount

You can use the `GetVirtualVolumeCount` method to retrieve the number of virtual volumes currently in the system.

Parameters

This method has no input parameters.

Return value

This method has the following return value:

Name	Description	Type
count	The number of virtual volumes currently in the system.	integer

Request example

Requests for this method are similar to the following example:

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

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "count": 5
  }
}
```

New since version

9.6

ListProtocolEndpoints

You can use the `ListProtocolEndpoints` method to retrieve information about all protocol endpoints in the cluster. Protocol endpoints govern access to their associated virtual volume storage containers.

Parameters

This method has the following input parameter:

Name	Description	Type	Default value	Required
protocolEndpointIDs	A list of protocol endpoint IDs for which to retrieve information. If you omit this parameter, the method returns information about all protocol endpoints.	protocolEndpointID UUID array	None	No

Return values

This method has the following return value:

Name	Description	Type
protocolEndpoints	List of objects containing information about each protocol endpoint in the system.	protocolEndpoint array

Request example

Requests for this method are similar to the following example:

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

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "protocolEndpoints": [
      {
        "primaryProviderID": 1,
        "protocolEndpointID": "1387e257-d2e3-4446-be6d-39db71583e7b",
        "protocolEndpointState": "Active",
        "providerType": "Primary",
        "scsiNAADeviceID": "6f47acc2000000016970687200000000",
        "secondaryProviderID": 2
      },
      {
        "primaryProviderID": 2,
        "protocolEndpointID": "1f16ed86-3f31-4c76-b004-a1251187700b",
        "protocolEndpointState": "Active",
        "providerType": "Primary",
        "scsiNAADeviceID": "6f47acc2000000026970687200000000",
        "secondaryProviderID": 3
      },
      {
        "primaryProviderID": 4,
        "protocolEndpointID": "c6458dfe-9803-4350-bb4e-68a3feb7e830",
        "protocolEndpointState": "Active",
        "providerType": "Primary",
        "scsiNAADeviceID": "6f47acc2000000046970687200000000",
        "secondaryProviderID": 1
      },
      {
        "primaryProviderID": 3,
        "protocolEndpointID": "f3e7911d-0e86-4776-97db-7468c272213f",
        "protocolEndpointState": "Active",
        "providerType": "Primary",
        "scsiNAADeviceID": "6f47acc2000000036970687200000000",
        "secondaryProviderID": 4
      }
    ]
  }
}
```


New since version

9.6

ListStorageContainers

You can use the `ListStorageContainers` method to retrieve information about all virtual volume storage containers known to the system.

Parameters

This method has the following input parameter:

Name	Description	Type	Default value	Required
storageContainerIDs	A list of storage container IDs for which to retrieve information. If you omit this parameter, the method returns information about all storage containers in the system.	UUID array	None	No

Return value

This method has the following return value:

Name	Description	Type
storageContainers	List of objects containing information about all storage containers in the system.	storageContainer array

Request example

Requests for this method are similar to the following example:

```
{
   "method": "ListStorageContainers",
   "params": {
      "storageContainerIDs": ["efda8307-b916-4424-979e-658a3f16894d"]
   },
   "id" : 1
}
```

Response example

This method returns a response similar to the following example:

```
{
  "id": 6395,
  "result": {
    "storageContainers": [
      {
        "accountID": 64,
        "initiatorSecret": "EJ:08An1MyNQmL!7",
        "name": "VvolContainer",
        "protocolEndpointType": "SCSI",
        "status": "active",
        "storageContainerID": "efda8307-b916-4424-979e-658a3f16894d",
        "targetSecret": "g38}zWBK%206jQr~",
        "virtualVolumes": []
      }
    ]
  }
}
```


New since version

9.6

ListVirtualVolumeBindings

You can use the `ListVirtualVolumeBindings` method to get a list of all virtual volumes in the cluster that are bound to protocol endpoints.

Parameters

This method has the following input parameter:

Name	Description	Type	Default value	Required
virtualVolumeBindingIDs	A list of virtual volume binding IDs for which to retrieve information. If you omit this parameter, the method returns information about all virtual volume bindings.	integer array	None	No

Return value

This method has the following return value:

Name	Description	Type
bindings	A list of objects describing all virtual volumes in the cluster that are bound to protocol endpoints.	binding

Request example

Requests for this method are similar to the following example:

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

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "bindings": [
      {
        "protocolEndpointID": "5dd53da0-b9b7-43f9-9b7e-b41c2558e92b",
        "protocolEndpointInBandID":
"naa.6f47acc2000000016a67746700000000",
        "protocolEndpointType": "SCSI",
        "virtualVolumeBindingID": 177,
        "virtualVolumeHostID": "564de1a4-9a99-da0f-8b7c-3a41dfd64bf1",
        "virtualVolumeID": "269d3378-1ca6-4175-a18f-6d4839e5c746",
        "virtualVolumeSecondaryID": "0xe200000000a6"
      }
    ]
  }
}
```

New since version

9.6

ListVirtualVolumeHosts

You can use the `ListVirtualVolumeHosts` method to get a list of all virtual volume hosts known to the cluster. A virtual volume host is a VMware ESX host that has initiated a session with the VASA API provider.

Parameters

This method has the following input parameter:

Name	Description	Type	Default value	Required
virtualVolumeHostIDs	A list of virtual volume host IDs for which to retrieve information. If you omit this parameter, the method returns information about all virtual volume hosts.	virtualVolumeHostID UUID array	None	No

Return value

This method has the following return value:

Name	Description	Type
hosts	A list of objects describing the virtual volume hosts in the cluster.	host array

Request example

Requests for this method are similar to the following example:

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

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "hosts": [
      {
        "bindings": [],
        "clusterID": "5ebdb4ad-9617-4647-adfd-c1013578483b",
        "hostAddress": "172.30.89.117",
        "initiatorNames": [
          "iqn.1998-01.com.vmware:zdc-dhcp-0-c-29-d6-4b-f1-1a0cd614",
          "iqn.1998-01.com.vmware:zdc-dhcp-0-c-29-d6-4b-f1-5bcf9254"
        ],
        "virtualVolumeHostID": "564de1a4-9a99-da0f-8b7c-3a41dfd64bf1",
        "visibleProtocolEndpointIDs": [
          "5dd53da0-b9b7-43f9-9b7e-b41c2558e92b"
        ]
      }
    ]
  }
}
```


New since version

9.6

ListVirtualVolumes

You can use the `ListVirtualVolumes` method to list the virtual volumes currently in the system. You can use this method to list all virtual volumes, or only list a subset.

Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
details	The level of detail in the response. Possible values: • true: Include more details about each VVol in the response. • false: Include the standard level of detail about each VVol in the response.	boolean	False	No
limit	The maximum number of virtual volumes to list.	integer	10000	No
recursive	Specifies whether to include information about the children of each VVol in the response or not. Possible values: • true: Include information about the children of each VVol in the response. • false: Do not include information about the children of each VVol in the response.	boolean	False	No
startVirtualVolumeID	The ID of the virtual volume at which to begin the list in the response.	UUIDType	None	No

Name	Description	Type	Default value	Required
virtualVolumeIDs	A list of virtual volume IDs for which to retrieve information. If you omit this parameter, the method returns information about only these virtual volumes.	virtualVolumeID UUID array	None	No

Return values

This method has the following return values:

Name	Description	Type
nextVirtualVolumeID	The ID of the next virtual volume in the list.	UUID
virtualVolumes	A list of objects describing the virtual volumes currently in the system.	virtualVolume array

Request example

Requests for this method are similar to the following example:

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

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "nextVirtualVolumeID": "00000000-0000-0000-0000-000000000000",
    "virtualVolumes": [
      {
        "bindings": [
          177
        ],
        "children": [],
        "metadata": {
          "SFProfileId": "f4e5bade-15a2-4805-bf8e-52318c4ce443",
          "SFgenerationId": "0",
          "VMW_ContainerId": "abaab415-bedc-44cd-98b8-f37495884db0",
          "VMW_VVolName": "asdf",
          "VMW_VVolType": "Config",
          "VMW_VmID": "502e0676-e510-ccdd-394c-667f6867fcdf",
          "VMW_VvolProfile": "f4e5bade-15a2-4805-bf8e-52318c4ce443:0"
        },
        "parentVirtualVolumeID": "00000000-0000-0000-0000-000000000000",
        "snapshotID": 0,
        "snapshotInfo": null,
        "status": "done",
        "storageContainer": {
          "accountID": 1,
          "initiatorSecret": "B5)D1y10K)8IDN58",
          "name": "test",
          "protocolEndpointType": "SCSI",
          "status": "active",
          "storageContainerID": "abaab415-bedc-44cd-98b8-f37495884db0",
          "targetSecret": "qgae@{o{~8\"2U)U^"
        },
        "virtualVolumeID": "269d3378-1ca6-4175-a18f-6d4839e5c746",
        "virtualVolumeType": "config",
        "volumeID": 166,
        "volumeInfo": null
      }
    ]
  }
}
```


New since version

9.6

ListVirtualVolumeTasks

You can use the `ListVirtualVolumeTasks` method to get a list of virtual volume tasks in the system.

Parameters

This method has the following input parameter:

Name	Description	Type	Default value	Required
virtualVolumeTaskIDs	A list of virtual volume task IDs for which to retrieve information. If you omit this parameter, the method returns information about all virtual volume tasks.	UUID array	None	No

Return value

This method has the following return value:

Name	Description	Type
tasks	A list of objects describing the virtual volume tasks in the cluster.	task array

Request example

Requests for this method are similar to the following example:

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

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "tasks": [
      {
        "cancelled": false,
        "cloneVirtualVolumeID": "fafeb3a0-7dd9-4c9f-8a07-80e0bbf6f4d0",
        "operation": "clone",
        "parentMetadata": {
          "SFProfileId": "f4e5bade-15a2-4805-bf8e-52318c4ce443",
          "SFgenerationId": "0",
          "VMW_ContainerId": "abaab415-bedc-44cd-98b8-f37495884db0",
          "VMW_GosType": "windows7Server64Guest",
          "VMW_VVolName": "asdf.vmdk",
          "VMW_VVolNamespace": "/vmfs/volumes/vvol:abaab415bedc44cd-
98b8f37495884db0/rfc4122.269d3378-1ca6-4175-a18f-6d4839e5c746",
          "VMW_VVolType": "Data",
          "VMW_VmID": "502e0676-e510-ccdd-394c-667f6867fcdf",
          "VMW_VvolAllocationType": "4",
          "VMW_VvolProfile": "f4e5bade-15a2-4805-bf8e-52318c4ce443:0"
        },
        "parentTotalSize": 42949672960,
        "parentUsedSize": 0,
        "status": "success",
        "virtualVolumeHostID": "564de1a4-9a99-da0f-8b7c-3a41dfd64bf1",
        "virtualVolumeTaskID": "a1b72df7-66a6-489a-86e4-538d0dbe05bf",
        "virtualvolumeID": "fafeb3a0-7dd9-4c9f-8a07-80e0bbf6f4d0"
      }
    ]
  }
}
```


New since version

9.6

ModifyStorageContainer

You can use the `ModifyStorageContainer` method to make changes to an existing virtual volume storage container.

Parameters

This method has the following input parameters:

Name	Description	Type	Default value	Required
storageContainerID	The unique ID of the virtual volume storage container to modify.	UUID	None	Yes
initiatorSecret	The new secret for CHAP authentication for the initiator.	string	None	No
targetSecret	The new secret for CHAP authentication for the target.	string	None	No

Return values

This method has the following return value:

Name	Description	Type
storageContainer	Information about the newly created storage container.	storageContainer

Request example

Requests for this method are similar to the following example:

```
{
  "method": "ModifyStorageContainer",
    "params": {
      "storageContainerID": "6c95e24f-9f0b-4793-affb-5a4bc6c3d7e1",
      "targetSecret": "O,IM;tOQdn9$JJ*8"
    },
    "id": 1
}
```

Response example

This method returns a response similar to the following example:

```
{
  "id": 1,
  "result": {
    "storageContainer": {
      "accountID": 8,
      "initiatorSecret": "T$|5TO>2IY5sk4@k",
      "name": "doctest1",
      "protocolEndpointType": "SCSI",
      "status": "active",
      "storageContainerID": "6c95e24f-9f0b-4793-affb-5a4bc6c3d7e1",
      "targetSecret": "O,IM;tOQdn9$JJ*8"
    }
  }
}
```


New since version

9.6

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