



# Volume

## Astra Automation

NetApp  
December 01, 2023

# 目录

Volume .....	1
Volume overview .....	1
List the volumes for a managed cluster .....	1
Retrieve a volume for a managed cluster .....	13
List the volumes for a storage backend .....	25
Retrieve a volume for a storage backend .....	36
List all volumes .....	48
Retrieve a volume .....	59
List the volumes for an app .....	70
Retrieve a volume for an app .....	81

# Volume

## Volume overview

The Volume API provides visibility into Kubernetes volumes associated with applications.

## List the volumes for a managed cluster

GET

`/accounts/{account_id}/topology/v1/managedClusters/{managedCluster_id}/volumes`

Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

### Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource  • example: {{.Account}}
managedCluster_id	string	path	True	ID of the containing managedCluster resource
include	string	query	False	Indicates which fields should be returned when listing a collection.  URL examples: "include=id", "include=id,name"  OpenAPI examples: "id"  • example: id,name

Name	Type	In	Required	Description
limit	string	query	False	Indicates the maximum number of resources to return when listing a collection.  URL examples: "limit=2"  OpenAPI examples: "2"

## Response

Status: 200, Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

Name	Type	Required	Description
items	array[Any of: <a href="#">volume_1.2_get_response_body</a> , array[]]	True	
metadata	<a href="#">type_astra_metadata_list</a>	True	

## Example response

```
{
  "type": "application/astra-volumes",
  "version": "1.2",
  "items": [
    [
      "24fe6e79-bf8d-45c9-96af-ef1d11fbd4a0",
      "myVolume"
    ],
    [
      "20a370f4-957f-446a-9126-08853d01933a",
      "secondVol"
    ],
    [
      "48e349a2-5bcd-4c59-896c-12b8240e634b",
      "smallVol"
    ]
  ],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

## Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

### Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

### Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

### Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

### Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

# Definitions



## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

volume\_1.2\_get\_response\_body

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"><li>• "application/astra-volume"</li></ul>

Name	Type	Required	Description
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>• "1.0"</li> <li>• "1.1"</li> <li>• "1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>• Conforms to the UUIDv4 Schema</li> </ul>
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.

Name	Type	Required	Description
creationToken	string	False	<p>JSON string containing the creation token of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
snapshotPossible	string	False	<p>JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>
storageClass	string	False	<p>JSON string containing the storage class for the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	<p>JSON string containing the PersistentVolumeClaim (PVC) name of the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>
exportPolicy	string	False	<p>JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.</p>
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>
healthStateDetails	array[type_astra_stateDetail]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>

Name	Type	Required	Description
metadata	<a href="#">type_astra_metadata</a>	True	Client and service-specified metadata associated with the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the Astra Metadata Schema</li> </ul>

#### type\_astra\_metadata\_list

Name	Type	Required	Description
continue	string	False	
count	number	False	
labels	array[ <a href="#">type_astra_label</a> ]	False	
creationTimestamp	string	False	
modificationTimestamp	string	False	
createdBy	string	False	
modifiedBy	string	False	

#### invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

## Retrieve a volume for a managed cluster

GET

/accounts/{account\_id}/topology/v1/managedClusters/{managedCluster\_id}/volumes/{volume\_id}

Returns the stored Volume API resource in the JSON response body.

### Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource <ul style="list-style-type: none"> <li>example: <code>{{.Account}}</code></li> </ul>
managedCluster_id	string	path	True	ID of the containing managedCluster resource
volume_id	string	path	True	ID of the volume collection to list

## Response

Status: 200, Returns the stored Volume API resource in the JSON response body.

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"> <li>"application/astra-volume"</li> </ul>
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>"1.0"</li> <li>"1.1"</li> <li>"1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the UUIDv4 Schema</li> </ul>



Name	Type	Required	Description
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.
creationToken	string	False	JSON string containing the creation token of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
snapshotPossible	string	False	<p>JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>
storageClass	string	False	<p>JSON string containing the storage class for the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	<p>JSON string containing the PersistentVolumeClaim (PVC) name of the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>

Name	Type	Required	Description
exportPolicy	string	False	JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>

Name	Type	Required	Description
healthStateDetails	array[ <a href="#">type_astra_stateDetail</a> ]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>
metadata	<a href="#">type_astra_metadata</a>	True	<p>Client and service-specified metadata associated with the resource. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Metadata Schema</li> </ul>

## Example response

```
{
  "type": "application/astra-volume",
  "version": "1.2",
  "id": "ab5c9fb8-ddba-526f-8bd3-8d5b72cf4f7f",
  "name": "myVolume",
  "state": "ready",
  "size": "512 GiB",
  "used": 10000000000,
  "usedPercentage": 10,
  "total": 10000000000,
  "creationToken": "ba7d4e0c-6ae3-4b6e-859d-9463e7ca4b4e",
  "snapshotPossible": "true",
  "storageClass": "gold",
  "pvcName": "myVolume",
  "internalName": "trident_sd234234_23424_897d_876sd65w",
  "appsUsing": [],
  "orchestrator": "trident",
  "serviceLevel": "gold",
  "exportPolicy": "astra-vp-default",
  "nodeId": "94d16dd2-9beb-4edb-ab58-1a00e9a90052",
  "healthState": "normal",
  "healthStateDetails": [],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

## Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	

Name	Type	Required	Description
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

### Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

### Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

### Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

### Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	



## Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

## Definitions

## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

# List the volumes for a storage backend

GET

/accounts/{account\_id}/topology/v1/storageBackends/{storageBackend\_id}/volumes

Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

## Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource <ul style="list-style-type: none"><li>example: {{.Account}}</li></ul>
storageBackend_id	string	path	True	ID of the containing storageBackend resource
include	string	query	False	Indicates which fields should be returned when listing a collection.  URL examples: "include=id", "include=id,name"  OpenAPI examples: "id" <ul style="list-style-type: none"><li>example: id,name</li></ul>
limit	string	query	False	Indicates the maximum number of resources to return when listing a collection.  URL examples: "limit=2"  OpenAPI examples: "2"

## Response

Status: 200, Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

Name	Type	Required	Description
items	array[Any of: <a href="#">volume_1.2_get_response_body</a> , array[]]	True	
metadata	<a href="#">type_astra_metadata_list</a>	True	

### Example response

```
{
  "type": "application/astra-volumes",
  "version": "1.2",
  "items": [
    [
      "24fe6e79-bf8d-45c9-96af-ef1d11fbd4a0",
      "myVolume"
    ],
    [
      "20a370f4-957f-446a-9126-08853d01933a",
      "secondVol"
    ],
    [
      "48e349a2-5bcd-4c59-896c-12b8240e634b",
      "smallVol"
    ]
  ],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

## Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

### Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

### Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

### Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

### Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	

Name	Type	Required	Description
status	string	True	
correlationID	string	False	

### Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

### Definitions

## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

volume\_1.2\_get\_response\_body

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"><li>• "application/astra-volume"</li></ul>



Name	Type	Required	Description
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>• "1.0"</li> <li>• "1.1"</li> <li>• "1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>• Conforms to the UUIDv4 Schema</li> </ul>
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.

Name	Type	Required	Description
creationToken	string	False	<p>JSON string containing the creation token of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
snapshotPossible	string	False	<p>JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>
storageClass	string	False	<p>JSON string containing the storage class for the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	<p>JSON string containing the PersistentVolumeClaim (PVC) name of the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>
exportPolicy	string	False	<p>JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.</p>
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>
healthStateDetails	array[type_astra_stateDetail]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>

Name	Type	Required	Description
metadata	<a href="#">type_astra_metadata</a>	True	Client and service-specified metadata associated with the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the Astra Metadata Schema</li> </ul>

#### type\_astra\_metadata\_list

Name	Type	Required	Description
continue	string	False	
count	number	False	
labels	array[ <a href="#">type_astra_label</a> ]	False	
creationTimestamp	string	False	
modificationTimestamp	string	False	
createdBy	string	False	
modifiedBy	string	False	

#### invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

## Retrieve a volume for a storage backend

GET

/accounts/{account\_id}/topology/v1/storageBackends/{storageBackend\_id}/volumes/{volume\_id}

Returns the stored Volume API resource in the JSON response body.

### Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource <ul style="list-style-type: none"> <li>example: <code>{{.Account}}</code></li> </ul>
storageBackend_id	string	path	True	ID of the containing storageBackend resource
volume_id	string	path	True	ID of the volume collection to list

## Response

Status: 200, Returns the stored Volume API resource in the JSON response body.

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"> <li>"application/astra-volume"</li> </ul>
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>"1.0"</li> <li>"1.1"</li> <li>"1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the UUIDv4 Schema</li> </ul>

Name	Type	Required	Description
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.
creationToken	string	False	JSON string containing the creation token of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>



Name	Type	Required	Description
snapshotPossible	string	False	<p>JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>
storageClass	string	False	<p>JSON string containing the storage class for the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	<p>JSON string containing the PersistentVolumeClaim (PVC) name of the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>

Name	Type	Required	Description
exportPolicy	string	False	JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>

Name	Type	Required	Description
healthStateDetails	array[type_astra_stateDetail]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>
metadata	type_astra_metadata	True	<p>Client and service-specified metadata associated with the resource. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Metadata Schema</li> </ul>

## Example response

```
{
  "type": "application/astra-volume",
  "version": "1.2",
  "id": "ab5c9fb8-ddba-526f-8bd3-8d5b72cf4f7f",
  "name": "myVolume",
  "state": "ready",
  "size": "512 GiB",
  "used": 10000000000,
  "usedPercentage": 10,
  "total": 10000000000,
  "creationToken": "ba7d4e0c-6ae3-4b6e-859d-9463e7ca4b4e",
  "snapshotPossible": "true",
  "storageClass": "gold",
  "pvcName": "myVolume",
  "internalName": "trident_sd234234_23424_897d_876sd65w",
  "appsUsing": [],
  "orchestrator": "trident",
  "serviceLevel": "gold",
  "exportPolicy": "astra-vp-default",
  "nodeId": "94d16dd2-9beb-4edb-ab58-1a00e9a90052",
  "healthState": "normal",
  "healthStateDetails": [],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

## Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	

Name	Type	Required	Description
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

### Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

### Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

### Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

### Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

## Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

## Definitions



## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

# List all volumes

GET /accounts/{account\_id}/topology/v1/volumes

Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

## Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource <ul style="list-style-type: none"><li>example: {{.Account}}</li></ul>
include	string	query	False	Indicates which fields should be returned when listing a collection.  URL examples: "include=id", "include=id,name"  OpenAPI examples: "id" <ul style="list-style-type: none"><li>example: id,name</li></ul>
limit	string	query	False	Indicates the maximum number of resources to return when listing a collection.  URL examples: "limit=2"  OpenAPI examples: "2"

## Response

Status: 200, Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

Name	Type	Required	Description
items	array[Any of: <a href="#">volume_1.2_get_response_body</a> , array[]]	True	
metadata	<a href="#">type_astra_metadata_list</a>	True	

### Example response

```
{
  "type": "application/astra-volumes",
  "version": "1.2",
  "items": [
    [
      "24fe6e79-bf8d-45c9-96af-ef1d11fbd4a0",
      "myVolume"
    ],
    [
      "20a370f4-957f-446a-9126-08853d01933a",
      "secondVol"
    ],
    [
      "48e349a2-5bcd-4c59-896c-12b8240e634b",
      "smallVol"
    ]
  ],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

### Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

### Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

## Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

## Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

## Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

## Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	

Name	Type	Required	Description
status	string	True	
correlationID	string	False	

### Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

### Definitions

## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

volume\_1.2\_get\_response\_body

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"><li>• "application/astra-volume"</li></ul>

Name	Type	Required	Description
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>• "1.0"</li> <li>• "1.1"</li> <li>• "1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>• Conforms to the UUIDv4 Schema</li> </ul>
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.



Name	Type	Required	Description
creationToken	string	False	JSON string containing the creation token of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
snapshotPossible	string	False	JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are: <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>
storageClass	string	False	JSON string containing the storage class for the volume. <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	JSON string containing the PersistentVolumeClaim (PVC) name of the volume. <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>
exportPolicy	string	False	<p>JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.</p>
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>
healthStateDetails	array[type_astra_stateDetail]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>

Name	Type	Required	Description
metadata	<a href="#">type_astra_metadata</a>	True	Client and service-specified metadata associated with the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the Astra Metadata Schema</li> </ul>

#### type\_astra\_metadata\_list

Name	Type	Required	Description
continue	string	False	
count	number	False	
labels	array[ <a href="#">type_astra_label</a> ]	False	
creationTimestamp	string	False	
modificationTimestamp	string	False	
createdBy	string	False	
modifiedBy	string	False	

#### invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

## Retrieve a volume

GET /accounts/{account\_id}/topology/v1/volumes/{volume\_id}

Returns the stored Volume API resource in the JSON response body.

### Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource <ul style="list-style-type: none"> <li>example: <code>{{.Account}}</code></li> </ul>
volume_id	string	path	True	ID of the volume collection to list

## Response

Status: 200, Returns the stored Volume API resource in the JSON response body.

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"> <li>"application/astra-volume"</li> </ul>
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>"1.0"</li> <li>"1.1"</li> <li>"1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the UUIDv4 Schema</li> </ul>
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>Minimum length: 1</li> <li>Maximum length: 255</li> </ul>

Name	Type	Required	Description
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.
creationToken	string	False	JSON string containing the creation token of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
snapshotPossible	string	False	JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are: <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>

Name	Type	Required	Description
storageClass	string	False	<p>JSON string containing the storage class for the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	<p>JSON string containing the PersistentVolumeClaim (PVC) name of the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>



Name	Type	Required	Description
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>
exportPolicy	string	False	<p>JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.</p>
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>
healthStateDetails	array[type_astra_stateDetail]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>

Name	Type	Required	Description
metadata	<a href="#">type_astra_metadata</a>	True	Client and service-specified metadata associated with the resource. Defined values are: <ul style="list-style-type: none"> <li>• Conforms to the Astra Metadata Schema</li> </ul>

### Example response

```
{
  "type": "application/astra-volume",
  "version": "1.2",
  "id": "ab5c9fb8-ddba-526f-8bd3-8d5b72cf4f7f",
  "name": "myVolume",
  "state": "ready",
  "size": "512 GiB",
  "used": 1000000000,
  "usedPercentage": 10,
  "total": 1000000000,
  "creationToken": "ba7d4e0c-6ae3-4b6e-859d-9463e7ca4b4e",
  "snapshotPossible": "true",
  "storageClass": "gold",
  "pvcName": "myVolume",
  "internalName": "trident_sd234234_23424_897d_876sd65w",
  "appsUsing": [],
  "orchestrator": "trident",
  "serviceLevel": "gold",
  "exportPolicy": "astra-vp-default",
  "nodeId": "94d16dd2-9beb-4edb-ab58-1a00e9a90052",
  "healthState": "normal",
  "healthStateDetails": [],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

## Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

## Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

## Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

## Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

## Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

## Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	

Name	Type	Required	Description
status	string	True	
correlationID	string	False	

### Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

### Definitions

## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

# List the volumes for an app

GET /accounts/{account\_id}/k8s/v1/apps/{app\_id}/volumes

Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

## Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource <ul style="list-style-type: none"><li>example: {{.Account}}</li></ul>
app_id	string	path	True	ID of the containing app resource
include	string	query	False	Indicates which fields should be returned when listing a collection.  URL examples: "include=id", "include=id,name"  OpenAPI examples: "id" <ul style="list-style-type: none"><li>example: id,name</li></ul>
limit	string	query	False	Indicates the maximum number of resources to return when listing a collection.  URL examples: "limit=2"  OpenAPI examples: "2"

## Response



Status: 200, Returns a JSON array of all matching resources in the collection. If individual fields are specified in the request, the items JSON array will contain the fields requested for each matching resource in the order specified.

Name	Type	Required	Description
items	array[Any of: <a href="#">volume_1.2_get_response_body</a> , array[]]	True	
metadata	<a href="#">type_astra_metadata_list</a>	True	

### Example response

```
{
  "type": "application/astra-volumes",
  "version": "1.2",
  "items": [
    [
      "24fe6e79-bf8d-45c9-96af-ef1d11fbd4a0",
      "myVolume"
    ],
    [
      "20a370f4-957f-446a-9126-08853d01933a",
      "secondVol"
    ],
    [
      "48e349a2-5bcd-4c59-896c-12b8240e634b",
      "smallVol"
    ]
  ],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

### Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

### Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

### Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

### Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

### Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	

Name	Type	Required	Description
status	string	True	
correlationID	string	False	

### Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

### Definitions

## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

volume\_1.2\_get\_response\_body

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"><li>• "application/astra-volume"</li></ul>

Name	Type	Required	Description
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>• "1.0"</li> <li>• "1.1"</li> <li>• "1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>• Conforms to the UUIDv4 Schema</li> </ul>
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.

Name	Type	Required	Description
creationToken	string	False	<p>JSON string containing the creation token of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
snapshotPossible	string	False	<p>JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>
storageClass	string	False	<p>JSON string containing the storage class for the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	<p>JSON string containing the PersistentVolumeClaim (PVC) name of the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>



Name	Type	Required	Description
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>
exportPolicy	string	False	<p>JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.</p>
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>

Name	Type	Required	Description
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>
healthStateDetails	array[type_astra_stateDetail]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>

Name	Type	Required	Description
metadata	<a href="#">type_astra_metadata</a>	True	Client and service-specified metadata associated with the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the Astra Metadata Schema</li> </ul>

#### type\_astra\_metadata\_list

Name	Type	Required	Description
continue	string	False	
count	number	False	
labels	array[ <a href="#">type_astra_label</a> ]	False	
creationTimestamp	string	False	
modificationTimestamp	string	False	
createdBy	string	False	
modifiedBy	string	False	

#### invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

## Retrieve a volume for an app

GET /accounts/{account\_id}/k8s/v1/apps/{app\_id}/volumes/{volume\_id}

Returns the stored Volume API resource in the JSON response body.

### Parameters

Name	Type	In	Required	Description
account_id	string	path	True	ID of the containing account resource <ul style="list-style-type: none"> <li>example: <code>{{.Account}}</code></li> </ul>
app_id	string	path	True	ID of the containing app resource
volume_id	string	path	True	ID of the volume collection to list

## Response

Status: 200, Returns the stored Volume API resource in the JSON response body.

Name	Type	Required	Description
type	string	True	Media type of the resource. Defined values are: <ul style="list-style-type: none"> <li>"application/astra-volume"</li> </ul>
version	string	True	Version of the resource. Defined values are: <ul style="list-style-type: none"> <li>"1.0"</li> <li>"1.1"</li> <li>"1.2"</li> </ul>
id	string	True	Globally unique identifier of the resource. Defined values are: <ul style="list-style-type: none"> <li>Conforms to the UUIDv4 Schema</li> </ul>

Name	Type	Required	Description
name	string	True	JSON string containing the name of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
state	string	False	JSON string containing a value indicating the operational state of the volume.
size	string	False	JSON string containing the size of the volume.
used	number	False	JSON number containing the number of bytes of quota used by the provisioned volume.
usedPercentage	number	False	JSON number containing the percentage of volume used.
total	number	False	JSON number containing the total bytes of volumes provisioned.
creationToken	string	False	JSON string containing the creation token of the volume. Defined values are: <ul style="list-style-type: none"> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
snapshotPossible	string	False	<p>JSON string indicating whether the driver can perform a snapshot of the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• "true" - Driver can take a snapshot of the volume</li> <li>• "false" - Driver cannot take a snapshot of the volume</li> </ul>
storageClass	string	False	<p>JSON string containing the storage class for the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
pvcName	string	False	<p>JSON string containing the PersistentVolumeClaim (PVC) name of the volume.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>
internalName	string	False	<p>JSON string containing the internal name of the volume on the target storage cluster, if available. This name is obtained from the Kubernetes CSI driver.</p> <ul style="list-style-type: none"> <li>• Defined values are:</li> <li>• Minimum length: 1</li> <li>• Maximum length: 255</li> </ul>

Name	Type	Required	Description
appsUsing	array[string]	True	<p>JSON array of JSON strings, each containing the ID of an application that is using the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
storageBackendID	string	False	<p>JSON string containing the ID of the storage backend that provides the volume. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
orchestrator	string	False	<p>JSON string containing the orchestrator for this volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "trident" - Trident has provisioned this volume</li> <li>• "vasa" - NetApp VASA Provider has provisioned this volume</li> <li>• "other" - The volume has been provisioned manually or the orchestrator is not known</li> </ul>
serviceLevel	string	False	<p>JSON string containing the quality of service (QoS) policy defined for this volume at the storage backend level. This will be defined for Astra Data Store volumes.</p>

Name	Type	Required	Description
exportPolicy	string	False	JSON string containing the export policy associated with this volume. This will be defined for Astra Data Store volumes.
nodeId	string	False	<p>JSON string containing the node ID serving the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Identifier Schema</li> </ul>
healthState	string	False	<p>JSON string containing a value indicating the health state of the volume. This will be defined for Astra Data Store volumes. Defined values are:</p> <ul style="list-style-type: none"> <li>• "indeterminate" - The health of the resource cannot be determined (for example, due to lack of connectivity)</li> <li>• "normal" - The resource has no known issues and can provide services in accordance with the interface specification</li> <li>• "warning" - The resource has known issues that do not prevent it providing services in accordance with the interface specification</li> <li>• "critical" - The resource has known issues that prevent it from providing services in accordance with the interface specification</li> </ul>



Name	Type	Required	Description
healthStateDetails	array[type_astra_stateDetail]	True	<p>JSON array of JSON objects that lists additional details about the current health. If no details are available, this array will be empty.</p> <ul style="list-style-type: none"> <li>• Minimum Items: 0</li> </ul>
metadata	type_astra_metadata	True	<p>Client and service-specified metadata associated with the resource. Defined values are:</p> <ul style="list-style-type: none"> <li>• Conforms to the Astra Metadata Schema</li> </ul>

## Example response

```
{
  "type": "application/astra-volume",
  "version": "1.2",
  "id": "ab5c9fb8-ddba-526f-8bd3-8d5b72cf4f7f",
  "name": "myVolume",
  "state": "ready",
  "size": "512 GiB",
  "used": 10000000000,
  "usedPercentage": 10,
  "total": 10000000000,
  "creationToken": "ba7d4e0c-6ae3-4b6e-859d-9463e7ca4b4e",
  "snapshotPossible": "true",
  "storageClass": "gold",
  "pvcName": "myVolume",
  "internalName": "trident_sd234234_23424_897d_876sd65w",
  "appsUsing": [],
  "orchestrator": "trident",
  "serviceLevel": "gold",
  "exportPolicy": "astra-vp-default",
  "nodeId": "94d16dd2-9beb-4edb-ab58-1a00e9a90052",
  "healthState": "normal",
  "healthStateDetails": [],
  "metadata": {
    "labels": [],
    "creationTimestamp": "2022-10-06T20:58:16.305662Z",
    "modificationTimestamp": "2022-10-06T20:58:16.305662Z",
    "createdBy": "8f84cf09-8036-51e4-b579-bd30cb07b269"
  }
}
```

## Response

Status: 401, Unauthorized

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	

Name	Type	Required	Description
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/3",
  "title": "Missing bearer token",
  "detail": "The request is missing the required bearer token.",
  "status": "401"
}
```

### Response

Status: 400, Bad request

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	
invalidParams	array[invalidParams]	False	List of invalid query parameters

### Example response

```
{
  "type": "https://astra.netapp.io/problems/5",
  "title": "Invalid query parameters",
  "detail": "The supplied query parameters are invalid.",
  "status": "400"
}
```

### Response

Status: 403, Forbidden

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

### Example response

```
{
  "type": "https://astra.netapp.io/problems/11",
  "title": "Operation not permitted",
  "detail": "The requested operation isn't permitted.",
  "status": "403"
}
```

### Error

Status: 404, Not found

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
status	string	True	
correlationID	string	False	

## Example error response

```
{
  "type": "https://astra.netapp.io/problems/2",
  "title": "Collection not found",
  "detail": "The collection specified in the request URI wasn't
found.",
  "status": "404"
}
```

## Definitions

## See Definitions

additionalDetails

type\_astra\_stateDetail

Name	Type	Required	Description
type	string	True	
title	string	True	
detail	string	True	
additionalDetails	<a href="#">additionalDetails</a>	False	

type\_astra\_label

Name	Type	Required	Description
name	string	True	
value	string	True	

type\_astra\_metadata

Client and service-specified metadata associated with the resource. Defined values are:

- Conforms to the Astra Metadata Schema

Name	Type	Required	Description
labels	array[ <a href="#">type_astra_label</a> ]	True	
creationTimestamp	string	True	
modificationTimestamp	string	True	
createdBy	string	True	
modifiedBy	string	False	

invalidParams

Name	Type	Required	Description
name	string	True	Name of the invalid query parameter
reason	string	True	Reason why the query parameter is invalid

## 版权信息

版权所有 © 2023 NetApp, Inc.。保留所有权利。中国印刷。未经版权所有者事先书面许可，本档中受版权保护的任何部分不得以任何形式或通过任何手段（图片、电子或机械方式，包括影印、录音、录像或存储在电子检索系统中）进行复制。

从受版权保护的 NetApp 资料派生的软件受以下许可和免责声明的约束：

本软件由 NetApp 按“原样”提供，不含任何明示或暗示担保，包括但不限于适销性以及针对特定用途的适用性的隐含担保，特此声明不承担任何责任。在任何情况下，对于因使用本软件而以任何方式造成的任何直接性、间接性、偶然性、特殊性、惩罚性或后果性损失（包括但不限于购买替代商品或服务；使用、数据或利润方面的损失；或者业务中断），无论原因如何以及基于何种责任理论，无论出于合同、严格责任或侵权行为（包括疏忽或其他行为），NetApp 均不承担责任，即使已被告知存在上述损失的可能性。

NetApp 保留在不另行通知的情况下随时对本文档所述的任何产品进行更改的权利。除非 NetApp 以书面形式明确同意，否则 NetApp 不承担因使用本文档所述产品而产生的任何责任或义务。使用或购买本产品不表示获得 NetApp 的任何专利权、商标权或任何其他知识产权许可。

本手册中描述的产品可能受一项或多项美国专利、外国专利或正在申请的专利的保护。

有限权利说明：政府使用、复制或公开本文档受 DFARS 252.227-7013（2014 年 2 月）和 FAR 52.227-19（2007 年 12 月）中“技术数据权利 — 非商用”条款第 (b)(3) 条规定的限制条件的约束。

本文档中所含数据与商业产品和/或商业服务（定义见 FAR 2.101）相关，属于 NetApp, Inc. 的专有信息。根据本协议提供的所有 NetApp 技术数据和计算机软件具有商业性质，并完全由私人出资开发。美国政府对这些数据的使用权具有非排他性、全球性、受限且不可撤销的许可，该许可既不可转让，也不可再许可，但仅限在与交付数据所依据的美国政府合同有关且受合同支持的情况下使用。除本文档规定的情形外，未经 NetApp, Inc. 事先书面批准，不得使用、披露、复制、修改、操作或显示这些数据。美国政府对国防部的授权仅限于 DFARS 的第 252.227-7015(b)（2014 年 2 月）条款中明确的权利。

## 商标信息

NetApp、NetApp 标识和 <http://www.netapp.com/TM> 上所列的商标是 NetApp, Inc. 的商标。其他公司和产品名称可能是其各自所有者的商标。