



Management workflows

Astra Automation 22.08

NetApp
December 15, 2022

Table of Contents

- Management workflows 1
 - Before you begin 1
 - App control 2
 - App protection 6
 - Cloning and restoring an app 12
 - Namespaces 17
 - Support 19

Management workflows

Before you begin

You can use these workflows as part of administering the applications in an Astra managed cluster.



These workflows can be expanded and enhanced by NetApp at any time and so you should review them periodically.

General preparation

Before using any of the Astra workflows, make sure to review [Prepare to use the workflows](#).

Workflow categories

The management workflows are organized in different categories to make it easier to locate the one you want.

Category	Description
Application control	These workflows allow you to control the managed and unmanaged applications. You can list the apps as well as create and remove a managed app.
Application protection	You can use these workflows to protect your managed applications through snapshots and backups.
Cloning and restoring apps	These workflow describe how to clone and restore your managed applications.
Support	There are several workflows available to debug and support your applications as well as the general Kubernetes environment.

Additional considerations

There are a several additional considerations when using the management workflows.

Cloning an app

There are a few things to consider when cloning an application. The parameters described below are part of the JSON input.

Source cluster identifier

The value of `sourceClusterID` always identifies the cluster where the original app is installed.

Cluster identifier

The value of `clusterID` identifies the cluster where the new app will be installed.

- When cloning within the same cluster, `clusterID` and `sourceClusterID` have the same value.
- When cloning across clusters, the two values are different and `clusterID` should be the ID of the target cluster.

Namespaces

The `namespace` value must be different than the original source app. Further, the namespace for the clone cannot exist and Astra will create it.

Backups and snapshots

You can optionally clone an application from an existing backup or snapshot using the `backupID` or `snapshotID` parameters. If you don't provide a backup or snapshot, Astra will create a backup of the application first and then clone from the backup.

Restoring an app

Here are a few things to consider when restoring an application.

- Restoring an application is very similar to the clone operation.
- When restoring an app, you must provide either a backup or snapshot.

App control

List the apps

You can list the applications that are currently managed by Astra. You might do this as part of finding the snapshots or backups for a specific app.

1. List the applications

Perform the following REST API call.

HTTP method	Path
GET	/account/{account_id}/k8s/v2/apps

Additional input parameters

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

Parameter	Type	Required	Description
include	Query	No	Optionally select the values you want returned in the response.

Curl example: Return all data for all apps

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps' --header
'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

Curl example: Return the name, id, and state for all apps

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps?include=name,id
,state' --header 'Accept: */*' --header 'Authorization: Bearer
<API_TOKEN>'
```

JSON output example

```
{
  "items": [
    [
      "mysql",
      "4ee2b8fa-3696-4f32-8879-399792f477c3",
      "ready"
    ],
    [
      "postgresql",
      "3b984474-e5c9-4b64-97ee-cdeb9bcd212e",
      "ready"
    ],
  ],
  "metadata": {}
}
```

Get an app

You can retrieve all the resource variables describing a single application.

Before you begin

You must have the ID of the app you want to retrieve. If needed you can use the workflow [List the apps](#) to locate the application.

1. Get the application

Perform the following REST API call.

HTTP method	Path
GET	/accounts/{account_id}/k8s/v2/apps/{app_id}

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	ID value of the application to retrieve.

Curl example: Return all data for the application

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps/<APP_ID>'
--header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

Manage an app

You can create a managed application based on an application already known to Astra in a specific namespace. When an application is managed or defined to Astra, you can protect it by taking backups and snapshots.

1. Select the namespace

Perform the workflow [List the namespaces](#) and select the namespace.

2. Select the cluster

Perform the workflow [List the clusters](#) and select the cluster.

3. Manage the application

Perform the following REST API call to manage the application.

HTTP method	Path
POST	/account/{account_id}/k8s/v2/apps

Additional input parameters

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

Parameter	Type	Required	Description
JSON	Body	Yes	Provides the parameters needed to identify the application to be managed. See the example below.

JSON input example

```
{
  "clusterID": "7ce83fba-6aa1-4e0c-a194-26e714f5eb46",
  "name": "subtext",
  "namespaceScopedResources": [{"namespace": "kube-matrix"}],
  "type": "application/astra-app",
  "version": "2.0"
}
```

Curl example: Manage an app

```
curl --location -i --request POST
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps' --header
'Content-Type: application/astra-app+json' --header 'Accept: */*' --header
'Authorization: Bearer <API_TOKEN>' --data @JSONinput
```

Unmanage an app

You can remove a managed app when it's no longer needed. Removing a managed application also deletes the associated schedules.

Before you begin

You must have the ID of the app you want to unmanage. If needed you can use the workflow [List the apps](#) to locate the application.

The application's backups and snapshots are not automatically removed when it is deleted. If you no longer need the backups and snapshots, you should delete them before removing the application.

1. Unmanaged the app

Perform the following REST API call to remove the app.

HTTP method	Path
DELETE	/accounts/{account_id}/k8s/v2/apps/{app_id}

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	Identifies the application to remove.

Curl example: Remove a managed app

```
curl --location -i --request DELETE
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps/<APP_ID>'
--header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

App protection

List the snapshots

You can list the snapshots that have been taken for a specific application.

Before you begin

You must have the ID of the app you want to list the snapshots for. If needed you can use the workflow [List the apps](#) to locate the application.

1. List the snapshots

Perform the following REST API call to list the snapshots.

HTTP method	Path
GET	/accounts/{account_id}/k8s/v1/apps/{app_id}/appSnaps

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	Identifies the application owning the listed snapshots.
count	Query	No	If <code>count=true</code> the number of snapshots is included in the metadata section of the response.

Curl example: Return all snapshots for the app

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appSnaps'
--header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

Curl example: Return all snapshots for the app and the count

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appSnaps?count=true'
--header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```


JSON output example

```
{
  "items": [
    {
      "type": "application/astra-appSnap",
      "version": "1.1",
      "id": "1ce34da4-bb0a-4926-b925-4a5d85dda8c2",
      "hookState": "success",
      "metadata": {
        "createdBy": "a530e865-23e8-4e2e-8020-e92c419a3867",
        "creationTimestamp": "2022-10-30T22:44:20Z",
        "modificationTimestamp": "2022-10-30T22:44:20Z",
        "labels": []
      },
      "snapshotAppAsset": "0ebfe3f8-40ed-4bdc-88c4-2144fbda85a0",
      "snapshotCreationTimestamp": "2022-10-30T22:44:33Z",
      "name": "snapshot-david-1",
      "state": "completed",
      "stateUnready": []
    }
  ],
  "metadata": {}
}
```

List the backups

You can list the backups that have been created for a specific application.

Before you begin

You must have the ID of the app you want to list the backups for. If needed you can use the workflow [List the apps](#) to locate the application.

1. List the backups

Perform the following REST API call.

HTTP method	Path
GET	/accounts/{account_id}/k8s/v1/apps/{app_id}/appBackups

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	Identifies the managed application owning the listed backups.

Curl example: Return all backups for the app

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appBackups' --header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

JSON output example

```
{
  "items": [
    {
      "type": "application/astra-appBackup",
      "version": "1.1",
      "id": "8edeb4a4-fd8b-4222-a559-1013145b28fc",
      "name": "backup-david-oct28-1",
      "bucketID": "a443e58f-59bd-4d45-835a-1bc7813f659a",
      "snapshotID": "dfe237cb-57b7-4576-af4d-00ba3a8f2828",
      "state": "completed",
      "stateUnready": [],
      "hookState": "success",
      "totalBytes": 205219132,
      "bytesDone": 205219132,
      "percentDone": 100,
      "metadata": {
        "labels": [
          {
            "name": "astra.netapp.io/labels/read-only/triggerType",
            "value": "backup"
          }
        ],
        "creationTimestamp": "2022-10-28T21:58:37Z",
        "modificationTimestamp": "2022-10-28T21:58:55Z",
        "createdBy": "a530e865-23e8-4e2e-8020-e92c419a3867"
      }
    }
  ],
  "metadata": {}
}
```

Create a snapshot for an app

You can create a snapshot for a specific application.

Before you begin

You must have the ID of the app you want to create a snapshot for. If needed you can use the workflow [List the apps](#) to locate the application.

1. Create a snapshot

Perform the following REST API call.

HTTP method	Path
POST	/accounts/{account_id}/k8s/v1/apps/{app_id}/appSnaps

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	Identifies the managed application where the snapshot will be created.
JSON	Body	Yes	Provides the parameters for the snapshot. See the example below.

JSON input example

```
{
  "type": "application/astra-appSnap",
  "version": "1.1",
  "name": "snapshot-david-1"
}
```

Curl example: Create a snapshot for the app

```
curl --location -i --request POST
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appSnaps' --header 'Content-Type: application/astra-appSnap+json' --header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>' --data @JSONinput
```

Create a backup for an app

You can create a backup for a specific application and then use the backup to restore or

clone the app.

Before you begin

You must have the ID of the app you want to back up. If needed you can use the workflow [List the apps](#) to locate the application.

1. Create a backup

Perform the following REST API call.

HTTP method	Path
POST	/accounts/{account_id}/k8s/v1/apps/{app_id}/appBackups

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	Identifies the application where the backup will be created.
JSON	Body	Yes	Provides the parameters for the backup. See the example below.

JSON input example

```
{
  "type": "application/astra-appBackup",
  "version": "1.1",
  "name": "backup-david-1"
}
```

Curl example: Create a backup for the app

```
curl --location -i --request POST
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appBackups' --header 'Content-Type: application/astra-appBackup+json' --header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>' --data @JSONinput
```

Delete a snapshot

You can delete a snapshot associated with an application.

Before you begin

You must have the following:

- ID of the app that owns the snapshot. If needed you can use the workflow [List the apps](#) to locate the application.
- ID of the snapshot you want to delete. If needed you can use the workflow [List the snapshots](#) to locate the snapshot.

1. Delete the snapshot

Perform the following REST API call.

HTTP method	Path
DELETE	/accounts/{account_id}/k8s/v1/apps/{app_id}/appSnaps/{appSnap_id}

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	Identifies the managed application owning the snapshot.
snapshot id	Path	Yes	Identifies the snapshot to be deleted.

Curl example: Delete a single snapshot for the app

```
curl --location -i --request DELETE
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appSnaps/<SNAPSHOT_ID>' --header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

Delete a backup

You can delete a backup associated with an application.

Before you begin

You must have the following:

- ID of the app that owns the backup. If needed you can use the workflow [List the apps](#) to locate the application.
- ID of the backup you want to delete. If needed you can use the workflow [List the backups](#) to locate the snapshot.

1. Delete the backup

Perform the following REST API call.



You can force the deletion of a failed backup using the optional request header as described below.

HTTP method	Path
DELETE	/accounts/{account_id}/k8s/v1/apps/{app_id}/appBackups/{appBackup_id}

Additional input parameters

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

Parameter	Type	Required	Description
app id	Path	Yes	Identifies the managed application owning the backup.
backup id	Path	Yes	Identifies the backup to be deleted.
force delete	Header	No	Used to force the deletion of a failed backup.

Curl example: Delete a single backup for the app

```
curl --location -i --request DELETE
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appBackups/<BACKUP_ID>' --header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

Curl example: Delete a single backup for the app with the force option

```
curl --location -i --request DELETE
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v1/apps/<APP_ID>/appBackups/<BACKUP_ID>' --header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>' --header 'Force-Delete: true'
```

Cloning and restoring an app

Clone an app

You can create a new application by cloning an existing app.

Before you begin

Note the following about this workflow:

- An app backup or snapshot is not used
- The clone operation is performed within the same cluster
- The new app is placed in a different namespace



To clone an app to a different cluster, you need to update the `clusterId` parameter in the JSON input as appropriate for your environment.

1. Select the app to clone

Perform the workflow [List the apps](#) and select application you want to clone. Several of the resource values are needed for the REST call used to clone the app.

2. Clone the app

Perform the following REST API call to clone the app.

HTTP method	Path
POST	/account/{account_id}/k8s/v2/apps

Additional input parameters

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

Parameter	Type	Required	Description
JSON	Body	Yes	Provides the parameters for the cloned app. See the example below.

JSON input example

```
{
  "type": "application/astra-app",
  "version": "2.0",
  "name": "mysql-clone",
  "clusterID": "30880586-d579-4d27-930f-a9633e59173b",
  "sourceClusterID": "30880586-d579-4d27-930f-a9633e59173b",
  "namespace": "mysql-ns",
  "sourceAppID": "e591ee59-ea90-4a9f-8e6c-d2b6e8647096"
}
```

Curl example: Clone an app

```
curl --location -i --request POST
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps' --header
'Content-Type: application/astra-app+json' --header '*/*' --header
'Authorization: Bearer <API_TOKEN>' --data @JSONinput
```

Clone an app from a snapshot

You can create a new application by cloning it from a snapshot.

Before you begin

Note the following about this workflow:

- An app snapshot is used
- The clone operation is performed within the same cluster



To clone an app to a different cluster, you need to update the `clusterId` parameter in the JSON input as appropriate for your environment.

1. Select the app to clone

Perform the workflow [List the apps](#) and select application you want to clone. Several of the resource values are needed for the REST call used to clone the app.

2. Select the snapshot to use

Perform the workflow [List the snapshots](#) and select snapshot you want to use.

3. Clone the app

Perform the following REST API call.

HTTP method	Path
POST	/account/{account_id}/k8s/v2/apps

Additional input parameters

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

Parameter	Type	Required	Description
JSON	Body	Yes	Provides the parameters for the cloned app. See the example below.

JSON input example


```
{
  "type": "application/astra-app",
  "version": "2.0",
  "name": "mysql-clone2",
  "clusterID": "30880586-d579-4d27-930f-a9633e59173b",
  "sourceClusterID": "30880586-d579-4d27-930f-a9633e59173b",
  "namespace": "mysql",
  "snapshotID": "e24515bd-a28e-4b28-b832-f3c74dbf32fb"
}
```

Curl example: Clone an app from a snapshot

```
curl --location -i --request POST
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps' --header
'Content-Type: application/astra-app+json' --header '*/*' --header
'Authorization: Bearer <API_TOKEN>' --data @JSONinput
```

Clone an app from a backup

You can create a new application by cloning it from a backup.

Before you begin

Note the following about this workflow:

- An app backup is used
- The clone operation is performed within the same cluster



To clone an app to a different cluster, you need to update the `clusterId` parameter in the JSON input as appropriate for your environment.

1. Select the app to clone

Perform the workflow [List the apps](#) and select application you want to clone. Several of the resource values are needed for the REST call used to clone the app.

2. Select the backup to use

Perform the workflow [List the backups](#) and select backup you want to use.

3. Clone the app

Perform the following REST API call.

HTTP method	Path
POST	/account/{account_id}/k8s/v2/qpps

Additional input parameters

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

Parameter	Type	Required	Description
JSON	Body	Yes	Provides the parameters for the cloned app. See the example below.

JSON input example

```
{
  "type": "application/astra-app",
  "version": "2.0",
  "name": "mysql-clone3",
  "clusterID": "30880586-d579-4d27-930f-a9633e59173b",
  "sourceClusterID": "30880586-d579-4d27-930f-a9633e59173b",
  "namespace": "mysql",
  "backupID": "e24515bd-a28e-4b28-b832-f3c74dbf32fb"
}
```

Curl example: Clone an app from a backup

```
curl --location -i --request POST
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps' --header
'Content-Type: application/astra-app+json' --header '*/*' --header
'Authorization: Bearer <API_TOKEN>' --data @JSONinput
```

Restore an app from a backup

You can restore an application by creating a new app from a backup.

1. Select the app to restore

Perform the workflow [List the apps](#) and select application you want to clone. Several of the resource values are needed for the REST call used to restore the app.

2. Select the backup to use

Perform the workflow [List the backups](#) and select backup you want to use.

3. Restore the app

Perform the following REST API call. You must provide the ID for either a backup (as shown below) or snapshot.

HTTP method	Path
PUT	/account/{account_id}/k8s/v2/apps/{app_id}

Additional input parameters

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

Parameter	Type	Required	Description
JSON	Body	Yes	Provides the parameters for the cloned app. See the example below.

JSON input example

```
{
  "type": "application/astra-app",
  "version": "2.0",
  "backupID": "e24515bd-a28e-4b28-b832-f3c74dbf32fb"
}
```

Curl example: Restore an app in place from a backup

```
curl --location -i --request PUT
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/k8s/v2/apps/<APP_ID>'
--header 'Content-Type: application/astra-app+json' --header '*/*'
--header 'ForceUpdate: true' --header 'Authorization: Bearer <API_TOKEN>'
--data @JSONinput
```

Namespaces

List the namespaces

You can list the available namespaces.

1. List the namespaces

Perform the following REST API call to list the namespaces.

HTTP method	Path
GET	/account/{account_id}/topology/v1/namespaces

Curl example: Return all data for all namespaces

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/topology/v1/namespaces'
--header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

Curl example: Return name, state, and cluster ID for all namespaces

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/topology/v1/namespaces?include=name,namespaceState,clusterID' --header 'Accept: */*' --header
'Authorization: Bearer <API_TOKEN>'
```

JSON output example

```
{
  "items": [
    [
      "default",
      "discovered",
      "922f924a-a476-4a79-97f6-472571698154"
    ],
    [
      "kube-node-lease",
      "discovered",
      "922f924a-a476-4a79-97f6-472571698154"
    ],
    [
      "kube-public",
      "discovered",
      "922f924a-a476-4a79-97f6-472571698154"
    ],
    [
      "kube-system",
      "discovered",
      "922f924a-a476-4a79-97f6-472571698154"
    ],
    [
      "mysql",
      "discovered",
      "922f924a-a476-4a79-97f6-472571698154"
    ],
    [
      "mysql-clone1",
      "discovered",

```

```

    "922f924a-a476-4a79-97f6-472571698154"
  ],
  [
    "netapp-acc-operator",
    "discovered",
    "922f924a-a476-4a79-97f6-472571698154"
  ],
  [
    "openshift",
    "discovered",
    "922f924a-a476-4a79-97f6-472571698154"
  ],
  [
    "trident",
    "discovered",
    "922f924a-a476-4a79-97f6-472571698154"
  ]
],
"metadata": {}
}

```

Support

List the notifications

You can list the notifications for a specific Astra account. You might do this as part of monitoring the system activity or debugging an issue.

1. List the notifications

Perform the following REST API call.

HTTP method	Path
GET	/account/{account_id}/core/v1/notifications

Additional input parameters

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

Parameter	Type	Required	Description
filter	Query	No	Optionally filter the notifications you want returned in the response.
include	Query	No	Optionally select the values you want returned in the response.

Curl example: Return all notifications

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/core/v1/notifications'
--header 'Accept: */*' --header 'Authorization: Bearer <API_TOKEN>'
```

Curl example: Return the description for notifications with severity of warning

```
curl --location -i --request GET
'https://astra.netapp.io/accounts/<ACCOUNT_ID>/core/v1/notifications?filter=severity%20eq%20'warning'&include=description' --header 'Accept: */*'
--header 'Authorization: Bearer <API_TOKEN>'
```

JSON output example

```
{
  "items": [
    [
      "Trident on cluster david-ie-00 has failed or timed out;
installation of the Trident operator failed or is not yet complete;
operator failed to reach an installed state within 300.00 seconds;
container trident-operator not found in operator deployment"
    ],
    [
      "Trident on cluster david-ie-00 has failed or timed out;
installation of the Trident operator failed or is not yet complete;
operator failed to reach an installed state within 300.00 seconds;
container trident-operator not found in operator deployment"
    ]
  ],
  "metadata": {}
}
```

Delete a failed app

You might be unable to remove a managed app if it has a backup or snapshot in a failed state. In this case you can manually remove the app using the workflow described below.

1. Select the app to delete

Perform the workflow [List the apps](#) and select application you want to remove.

2. List the existing backups for the app

Perform the workflow [List the backups](#).

3. Delete all the backups

Delete all the app backups by performing the workflow [Delete a backup](#) for each backup in the list.

4. List the existing snapshots for the app

Perform the workflow [List the snapshots](#).

5. Delete all the snapshots

Perform the workflow [Delete a snapshot](#) from each snapshot in the list.

6. Remove the application

Perform the workflow [Unmanage an app](#) to remove the application.

Copyright information

Copyright © 2022 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

Trademark information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.