



# **Manage Kubernetes clusters**

## Kubernetes clusters

NetApp  
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# Manage Kubernetes clusters

You can use Cloud Manager to install Astra Trident, configure storage classes, remove clusters, and enable data services.

## Features

After adding Kubernetes clusters to Cloud Manager, you can manage the clusters from the resource page. To open the resource page, double-click the Kubernetes working environment on the Canvas.



From the resource page you can:

- View the Kubernetes cluster status.
- Confirm Astra Trident is installed. See [Install Astra Trident](#).
- Add and remove storage classes. See [Manage storage classes](#).
- View persistent volumes. See [View persistent volumes](#).
- Remove Kubernetes clusters from the workspace. See [Remove clusters](#).
- Activate or view Cloud Backup. See [Use NetApp cloud data services](#).

## Install Astra Trident

After you add a managed-Kubernetes cluster to the Canvas, you can use Cloud Manager to confirm a compatible Astra Trident installation or install Astra Trident. One of the four most recent versions of Astra Trident is required.

To learn more about Astra Trident, see [Astra Trident documentation](#).



If Astra Trident is not installed, or an incompatible version of Astra Trident is installed, the cluster will show there is an action required.

### Steps

1. Double-click the Kubernetes working environment on the Canvas or click **Enter Working Environment**.
  - a. If Astra Trident is not installed, click **Install Trident**.



- b. If a back level version of Astra Trident is installed, [go to the Astra Trident docs for upgrade steps](#).



## Results

The latest version of Astra Trident is installed. You can now add storage classes.

## Manage storage classes

After you add a managed-Kubernetes cluster to the Canvas, you can use Cloud Manager

to manage storage classes.



If no storage class is defined, the cluster will show there is an action required. Double-clicking the cluster on the Canvas opens the action page to add a storage class.

## Add storage class

### Steps

1. From the Canvas, drag and drop the Kubernetes working environment on the Cloud Volumes ONTAP working environment to open the storage class wizard.
2. Provide a name for the storage class, select definition options, and click **Next**.

A screenshot of a web-based wizard titled "Storage Class Definition for 'Kubernetes Cluster Name'". The wizard has two steps: "1 Storage Class Definitions" (active) and "2 Select Working Environment". The first step contains a text input field for "Storage Class Name". Below this is a list of four settings, each with a radio button: "Storage Class" (Block selected, Filesystem unselected), "Support Volume Expansion" (Yes selected, No unselected), "Volume Binding Mode" (Immediate selected, WaitForFirstConsumer unselected), and "Set as Default Storage Class" (Yes selected, No unselected).

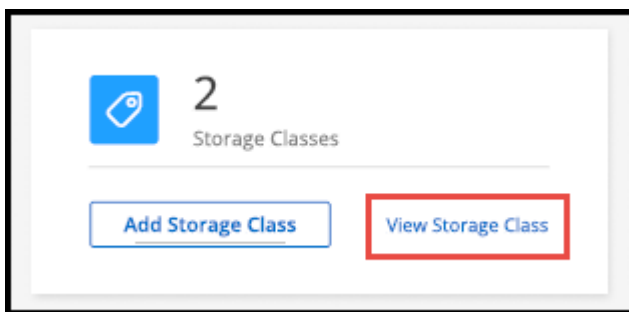
Storage Class Definition	
for "Kubernetes Cluster Name"	
Storage Class Name	<input type="text"/>
Storage Class	<input checked="" type="radio"/> Block <input type="radio"/> Filesystem
Support Volume Expansion	<input checked="" type="radio"/> Yes <input type="radio"/> No
Volume Binding Mode	<input checked="" type="radio"/> Immediate <input type="radio"/> WaitForFirstConsumer
Set as Default Storage Class	<input checked="" type="radio"/> Yes <input type="radio"/> No

3. Select a working environment to connect to the cluster. Click **Add**.



## Results

You can click to view the storage class from the resource page for the Kubernetes cluster.



## View working environment details


### Steps


1. Double-click the Kubernetes working environment on the Canvas or click **Enter Working Environment**.
2. Click the **Storage Classes** tab.
3. Click the information icon to view details for the working environment.

## Results

The working environment details panel opens.

2 Storage Classes
Search
Add Storage Classes

Storage Class Name #1 ID: 01234567890123456789 ☆ Default Storage Class					ⓘ
 csi.trident.netapp.com Provisioner Name	Nas Storage Class Type (Driver)	WaitForFirstConsumer Volume Binding Mode	True Volume Expansion	<div> Working Environment Name </div> <div> Type: Cloud Volumes ONTAP </div> <div> Node: High Availability </div> <div> Provider: AWS </div> <div> Status : ON </div> <div> Region: US East (Northern Virginia) </div>	

Storage Class Name #1 ID: 01234567890123456789					
 csi.trident.netapp.com Provisioner Name	Nas Storage Class Type (Driver)	WaitForFirstConsumer Volume Binding Mode	True Volume Expansion		

## Set default storage class

### Steps


1. Double-click the Kubernetes working environment on the Canvas or click **Enter Working Environment**.
2. Click the **Storage Classes** tab.
3. Click the action menu for the storage class and click **Set as Default**.



### Results

The selected storage class is set as the default.

Storage Class Name #2  
ID: 01234567890123456789 ☆ Default Storage Class

 csi.trident.netapp.com Provisioner Name	Nas Storage Class Type (Driver)	WaitForFirstConsumer Volume Binding Mode	True Volume Expansion	Working Environment Name Attached Working Environment
--	------------------------------------	---	--------------------------	--

## Remove storage class

### Steps

1. Double-click the Kubernetes working environment on the Canvas or click **Enter Working Environment**.
2. Click the **Storage Classes** tab.
3. Click the action menu for the storage class and click **Set as Default**.



- Click **Remove** to confirm removal of the storage class.



## Results

The selected storage class is removed.

## View persistent volumes

After you add a managed-Kubernetes cluster to the Canvas, you can use Cloud Manager to view persistent volumes.

### Steps

- Double-click the Kubernetes working environment on the Canvas or click **Enter Working Environment**.
- Click **View Volumes** from the **Overview** tab or click the **Persistent Volumes** tab. If no persistent volumes are configured, see [Provisioning](#) for details on provisioning volumes in Astra Trident.

## Results

A table of the configured persistent volumes displays.

Volumes Summary

8

Total Volumes

400

GiB

Total Allocated Capacity

201.2

GiB

Total Used Capacity

8 Volumes

Volume Name	Name Space	Storage Class	Access Mode	Allocated Capacity	Used Capacity
<div>Volumes Very Long Name</div> <div>On</div>	Name Space	Storage Class Name	Access Mode	50 GiB	25.15 GiB
<div>Volumes Very Long Name</div> <div>On</div>	Name Space	Storage Class Name	Access Mode	50 GiB	25.15 GiB



# Remove Kubernetes clusters from the workspace

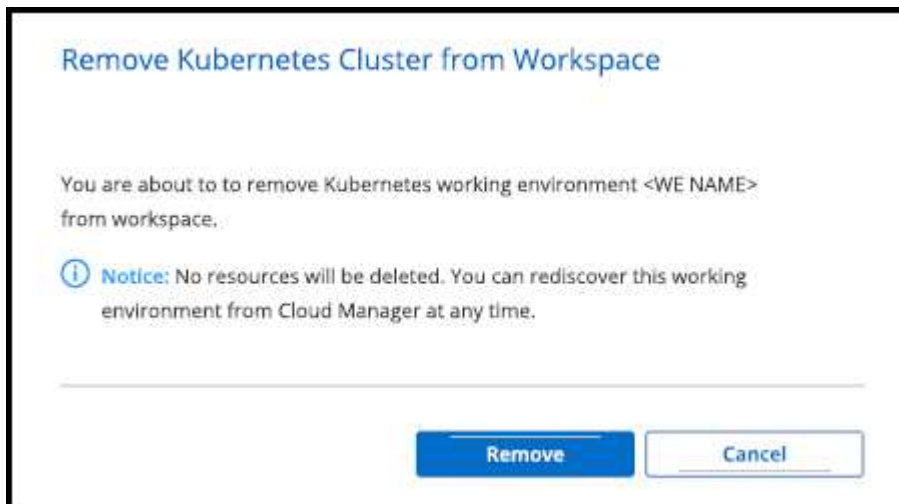
After you add a managed-Kubernetes cluster to the Canvas, you can use Cloud Manager to remove clusters from the workspace.

## Steps

1. Double-click the Kubernetes working environment on the Canvas or click **Enter Working Environment**.
2. At the top right of the page, select the actions menu and click **Remove from Workspace**.



3. Click **Remove** to confirm removal of the cluster from the workspace. You can rediscover this cluster at any time.



## Results

The Kubernetes cluster is removed from the workspace and is no longer visible on the Canvas.

# Use NetApp cloud data services with Kubernetes clusters

After you add a managed-Kubernetes cluster to the Canvas, you can use NetApp cloud data services for advanced data management.

At this time, Cloud Backup is supported with Kubernetes clusters. You can use Cloud Backup to back up persistent volumes to object storage.

[Learn how to protect your Kubernetes cluster data using Cloud Backup.](#)

1 Selected Kubernetes Clusters

Backup Settings



1

Kubernetes Clusters



5

Protected PVs



97.66 KB

Total Backups Size

## Protected Persistent Volumes Status

5

Healthy Backup

0

Failed Backup

## 5 Backup Jobs



Source K8s Cluster	Source Persistent Volume	Source Namespace	Last Backup	Backup Copies	Backup Status	
On	pvc-1704aa1f-af1d-49e9-87fd-6edd86125855 Online	default	Nov 25 2021, 14:56:3	2	Enabled	...
On	pvc-d1f839c1-d932-4f49-b620-33321dbe939e Online	trident	Nov 25 2021, 14:56:3	2	Enabled	...
On	pvc-f615f0a8-2d5d-44d0-b4e4-f365cc3fb4a6 Online	default	Nov 25 2021, 14:56:3	2	Enabled	...
On	pvc-1615f0a8-2d5d-44d0-b4e4-f365cc3fb4a6 Online	default	Nov 25 2021, 14:56:3	2	Enabled	...
On	pvc-05881c70-cf5f-4edc-8537-a0a5ce36f9a1 Online	default	Nov 25 2021, 14:56:3	2	Enabled	...

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