



# **Manage Kubernetes clusters**

## Kubernetes clusters

NetApp  
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# Manage Kubernetes clusters

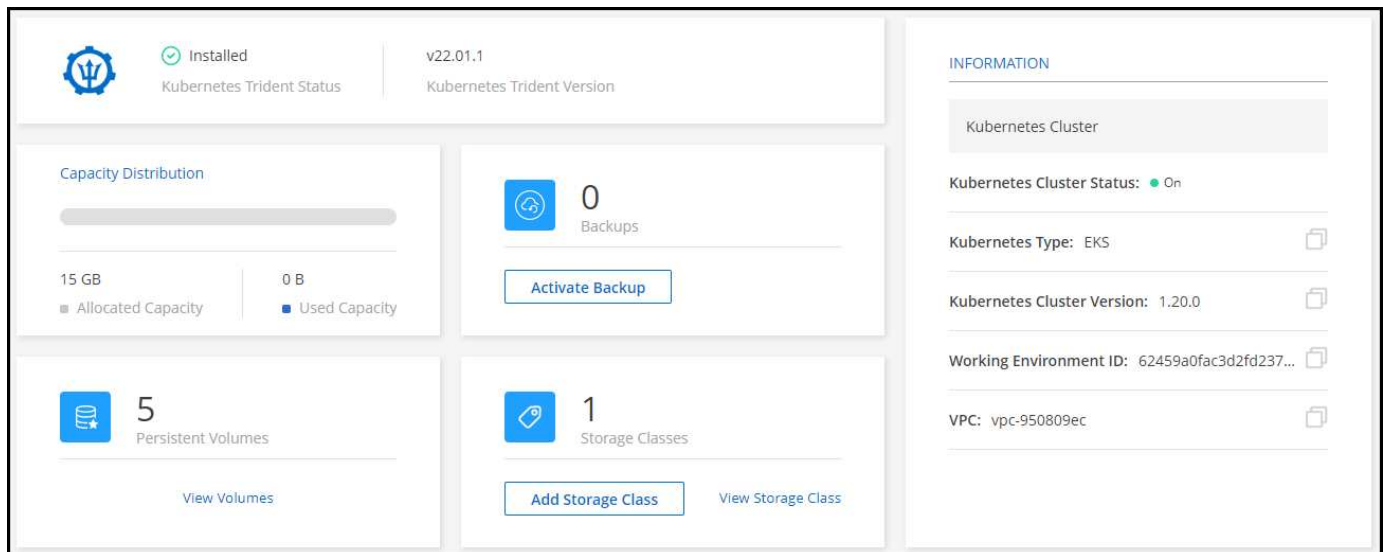
You can use Cloud Manager to install or upgrade Astra Trident, configure storage classes, remove clusters, and enable data services.



Astra Trident deployed using `tridentctl` is not supported. If you deployed Astra Trident using `tridentctl`, you cannot use Cloud Manager to manage your Kubernetes clusters. You must [uninstall using tridentctl](#) and reinstall [using the Trident operator](#) or [using Cloud Manager](#).

## 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 a compatible version of Astra Trident is installed, or upgrade to the latest version of Astra Trident. 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 or upgrade 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 or upgrade Astra Trident to the latest version.




- If Astra Trident is not installed, or an incompatible version of Astra Trident is installed, the cluster will show there is an action required.
- One of the four most recent versions of Astra Trident deployed using the Trident operator—either manually or using Helm chart—is required.
- Astra Trident deployed using `tridentctl` is not supported. If you deployed Astra Trident using `tridentctl`, you cannot use Cloud Manager to manage your Kubernetes clusters. You must [uninstall using `tridentctl`](#) and reinstall [using the Trident operator](#) or using the steps below.

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

### 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**.



⊖ Not Installed

Kubernetes Trident Status

— —

Kubernetes Trident Version

To activate Kubernetes, follow these steps.

**1 | Install Kubernetes Trident**

Kubernetes Trident enables management of storage resources across all popular NetApp storage platforms.

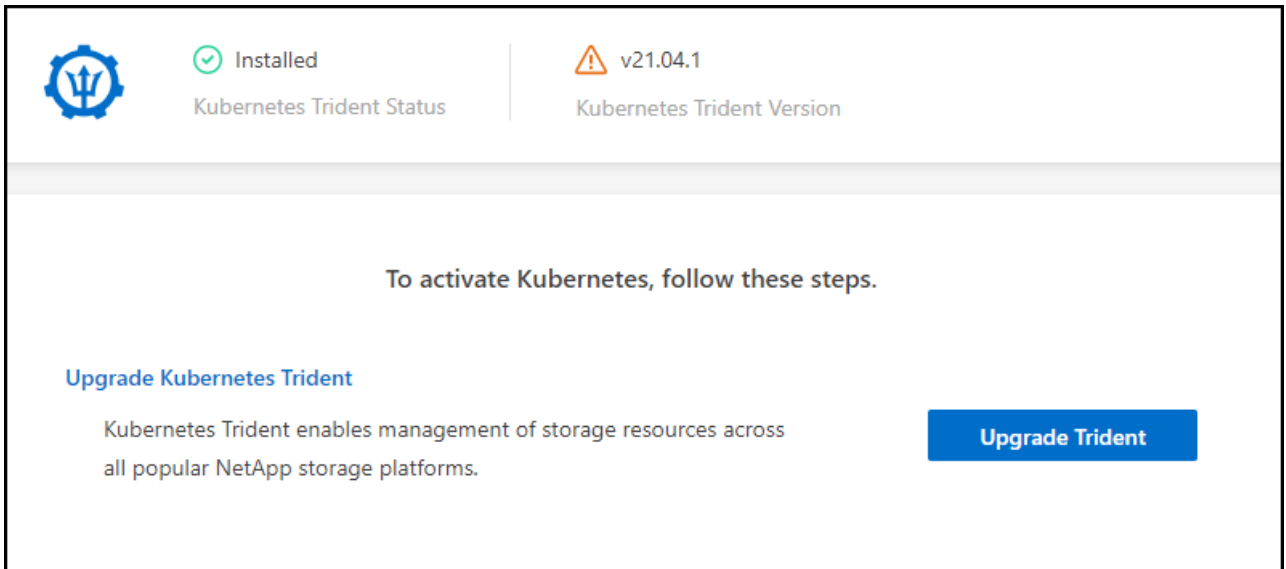
**Install Trident**

**2 | Add Storage Class**

Define the first storage class for this Kubernetes cluster and attach the storage class to the Working Environment.

**Add Storage Class**

- b. If an unsupported version of Astra Trident is installed, click **Upgrade Trident**.



## 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 to the Cloud Volumes ONTAP or Amazon FSx for ONTAP working environment to open the storage class wizard.
2. Provide a name for the storage class, select definition options, and click **Next**.

1 Storage Class Definitions

2 Select Working Environment

Storage Class Definition

for "Kubernetes Cluster Name"

Storage Class Name

Storage Class

☒ Block

☐ Filesystem

Support Volume Expansion

☒ Yes

☐ No

Volume Binding Mode

☒ Immediate

☐ WaitForFirstConsumer

Set as Default Storage Class

☒ Yes

☐ No

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

✓ Storage Class Definitions

2 Select Working Environment

Select Working Environment

Working Environment	Type	Configuration	Region	Connected to K8s Clusters
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	High Availability	US East (Northern Virginia)	Not Connected
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	High Availability	US East (Northern Virginia)	Not Connected
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	High Availability	US East (Northern Virginia)	Not Connected
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	Single Node	US East (Northern Virginia)	Not Connected
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	Single Node	US East (Northern Virginia)	Not Connected
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	High Availability	US East (Northern Virginia)	Not Connected
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	Single Node	US East (Northern Virginia)	Not Connected
<input type="radio"/> Working Environment Name ● On	Cloud Volumes ONTAP	Single Node	US East (Northern Virginia)	Not Connected

Previous

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.



## Set default storage class

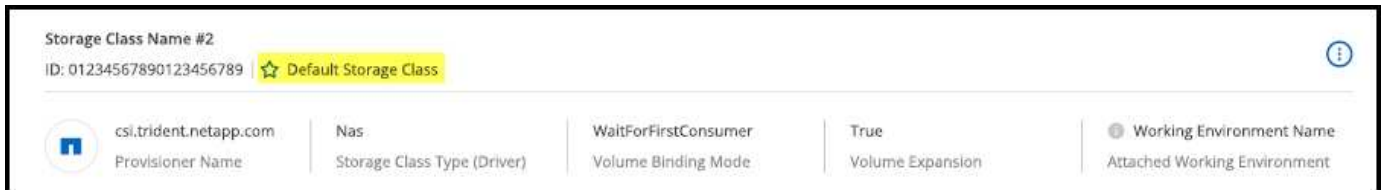
### Steps

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.



## 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**.



4. 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

- 1. Double-click the Kubernetes working environment on the Canvas or click **Enter Working Environment**.
- 2. 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



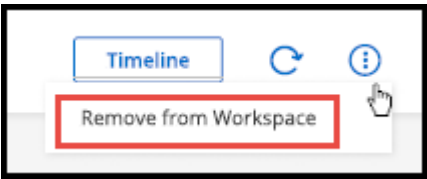
Volume Name	Name Space	Storage Class	Access Mode	Allocated Capacity	Used Capacity
Volumes Very Long Name <div>● On</div>	Name Space	Storage Class Name	Access Mode	50 GIB	25.15 GIB
Volumes Very Long Name <div>● On</div>	Name Space	Storage Class Name	Access Mode	50 GIB	25.15 GIB

# 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.

You can use Cloud Backup to back up persistent volumes to object storage.

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

Restore

Kubernetes

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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