



Kubernetes documentation

Kubernetes clusters

NetApp
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Kubernetes documentation

What's new with Kubernetes in Cloud Manager

Learn what's new in Kubernetes in Cloud Manager.

27 Feb 2022

Support for Kubernetes clusters in Google Cloud

You can now add and manage managed Google Kubernetes Engine (GKE) clusters and self-managed Kubernetes clusters in Google Cloud using Cloud Manager.

[Learn how to get started with Kubernetes clusters in Google Cloud.](#)

11 Jan 2022

Support for Kubernetes clusters in Azure

You can now add and manage managed Azure Kubernetes clusters (AKS) and self-managed Kubernetes clusters in Azure using Cloud Manager.

[Getting started with Kubernetes clusters in Azure](#)

28 Nov 2021

Support for Kubernetes clusters in AWS

You can now add your managed-Kubernetes clusters to Cloud Manager's Canvas for advanced data management.

- Discover Amazon EKS clusters
- Back up persistent volumes using Cloud Backup

[Learn more about Kubernetes support.](#)



The existing Kubernetes service (available through the **K8s** tab) has been deprecated and will be removed in a future release.

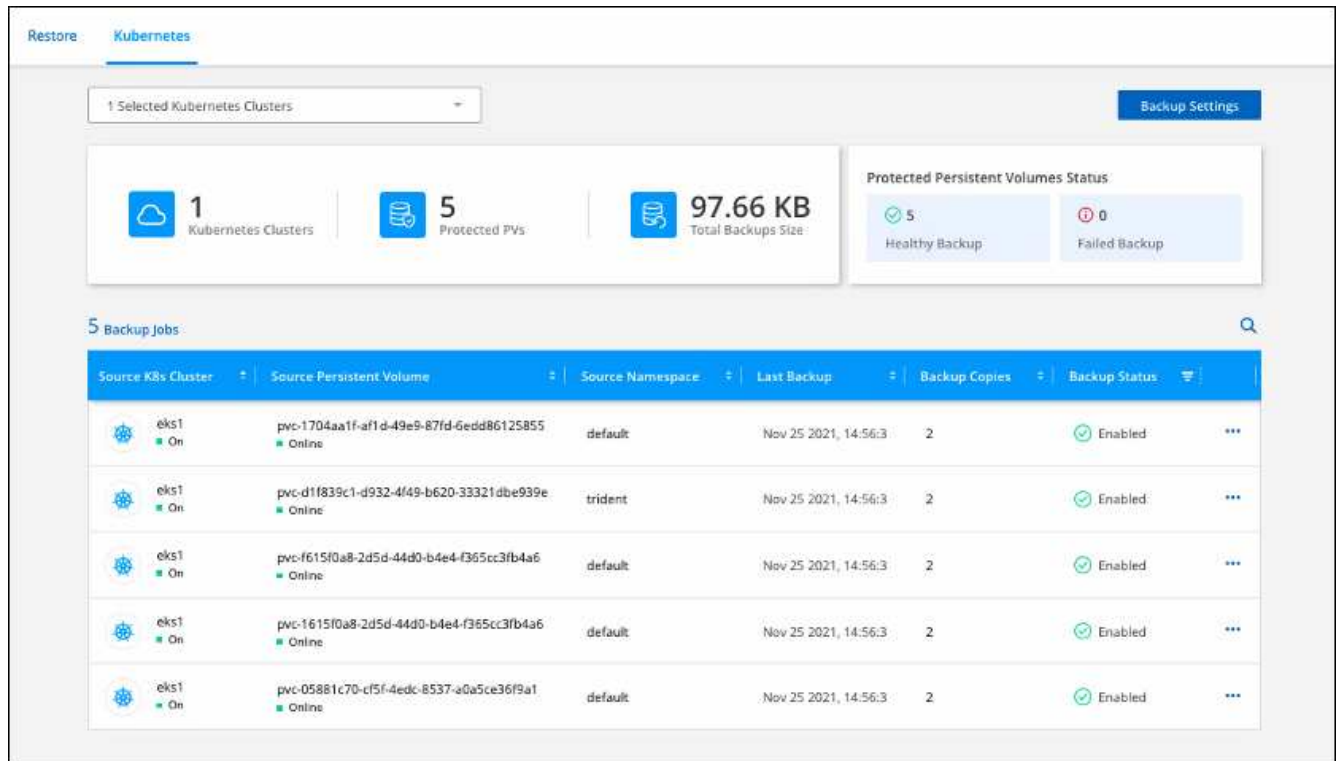
Get started

Kubernetes overview

Add managed-Kubernetes clusters to Cloud Manager for advanced data management.

Features

- Add clusters to the Canvas to view and manage them as part of your hybrid cloud infrastructure
- Back up persistent volumes using Cloud Backup Service



Supported Kubernetes deployments

Cloud Manager supports managed-Kubernetes clusters running in Amazon Elastic Kubernetes Service (Amazon EKS) and Microsoft Azure Kubernetes Service (AKS).

Supported backend storage

NetApp's Astra Trident must be installed on each Kubernetes cluster and Cloud Volumes ONTAP must be configured as backend storage for the clusters.

Cost

There are no charges to *discover* your Kubernetes clusters in Cloud Manager, but you will be charged when you back up persistent volumes using Cloud Backup Service.

Requirements

Requirements for Kubernetes clusters in AWS

You can add managed Amazon Elastic Kubernetes Service (EKS) clusters or self-managed Kubernetes clusters on AWS to Cloud Manager. Before you can add the clusters to Cloud Manager, you need to ensure that the following requirements are met.

This topic uses *Kubernetes cluster* where configuration is the same for EKS and self-managed Kubernetes clusters. The cluster type is specified where configuration differs.

Requirements

Astra Trident

The Kubernetes cluster must have NetApp Astra Trident installed. One of the four most recent versions of Astra Trident is required. [Go to the Astra Trident docs for installation steps.](#)

Cloud Volumes ONTAP

Cloud Volumes ONTAP for AWS must be set up as backend storage for the cluster. [Go to the Astra Trident docs for configuration steps.](#)

Cloud Manager Connector

A Connector must be running in AWS with the required permissions. [Learn more below.](#)

Network connectivity

Network connectivity is required between the Kubernetes cluster and the Connector and between the Kubernetes cluster and Cloud Volumes ONTAP. [Learn more below.](#)

RBAC authorization

The Cloud Manager Connector role must be authorized on each Kubernetes cluster. [Learn more below.](#)

Prepare a Connector

A Cloud Manager Connector is required in AWS to discover and manage Kubernetes clusters. You'll need to create a new Connector or use an existing Connector that has the required permissions.

Create a new Connector

Follow the steps in one of the links below.

- [Create a Connector from Cloud Manager](#) (recommended)
- [Create a Connector from the AWS Marketplace](#)
- [Install the Connector on an existing Linux host in AWS](#)

Add the required permissions to an existing Connector

Starting in the 3.9.13 release, any *newly* created Connectors include three new AWS permissions that enable discovery and management of Kubernetes clusters. If you created a Connector prior to this release, then you'll need to modify the existing policy for the Connector's IAM role to provide the permissions.

Steps

1. Go the AWS console and open the EC2 service.
2. Select the Connector instance, click **Security**, and click the name of the IAM role to view the role in the IAM service.

The screenshot shows the AWS Management Console interface. On the left is a navigation sidebar with options like 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Tags', 'Limits', and 'Instances'. The 'Instances' section is expanded, showing a list of instances. The 'Cloud-Manager-Connector' instance is selected. The main panel displays the details for this instance, with the 'Security' tab selected. Under 'Security details', the 'IAM Role' is listed as 'Cloud-Manager-Operator-P5mGGXw', which is highlighted by a mouse cursor.

Name	Instan...	Instance state
occmAnatoly	i-0984...	Running
Cloud-Manager-Connector	i-03ad...	Running
tomercM231152prod	i-07cd...	Running
tomercCvo	i-0a05...	Running

Instance: i-03adf85b99abdfbfa (Cloud-Manager-Connector)

Security | Details | Networking | Storage | Status checks

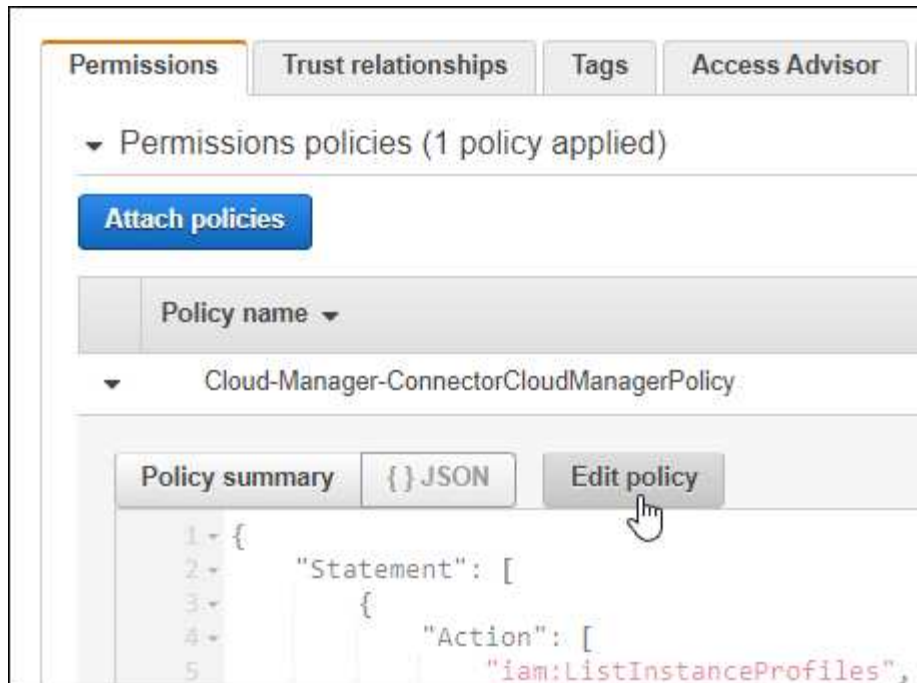
Security details

IAM Role

[Cloud-Manager-Operator-P5mGGXw](#)

Security groups

3. In the **Permissions** tab, expand the policy and click **Edit policy**.



4. Click **JSON** and add the following permissions under the first set of actions:

```
"eks:ListClusters",
"eks:DescribeCluster",
"iam:GetInstanceProfile"
```

[View the full JSON format for the policy.](#)

5. Click **Review policy** and then click **Save changes**.

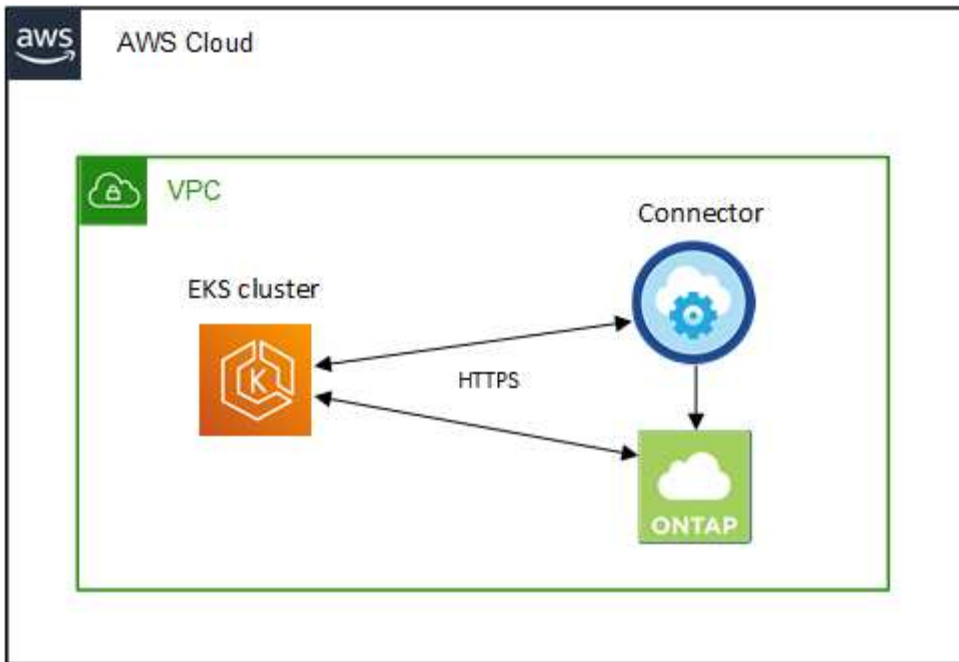
Review networking requirements

You need to provide network connectivity between the Kubernetes cluster and the Connector and between the Kubernetes cluster and the Cloud Volumes ONTAP system that provides backend storage to the cluster.

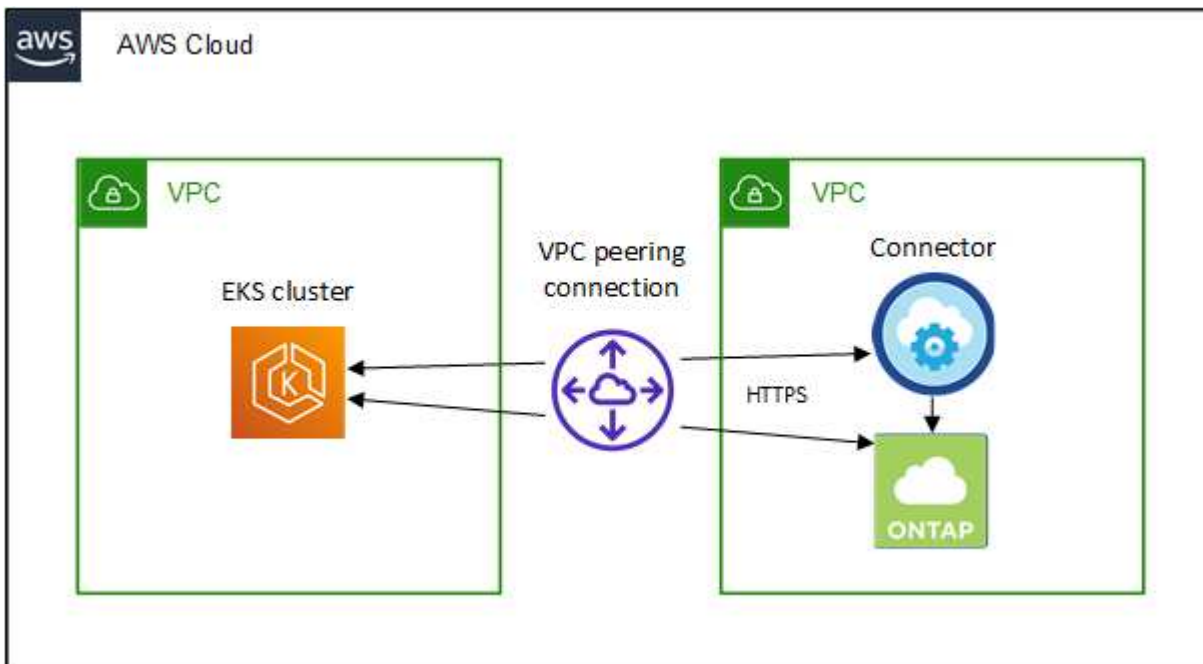
- Each Kubernetes cluster must have an inbound connection from the Connector
- The Connector must have an outbound connection to each Kubernetes cluster over port 443

The simplest way to provide this connectivity is to deploy the Connector and Cloud Volumes ONTAP in the same VPC as the Kubernetes cluster. Otherwise, you need to set up a VPC peering connection between the different VPCs.

Here's an example that shows each component in the same VPC.



And here's another example that shows an EKS cluster running in a different VPC. In this example, VPC peering provides a connection between the VPC for the EKS cluster and the VPC for the Connector and Cloud Volumes ONTAP.



Set up RBAC authorization

You need to authorize the Connector role on each Kubernetes cluster so the Connector can discover and manage a cluster.

Steps

1. Create a cluster role and role binding.
 - a. Create a YAML file that includes the following text.

```

apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRole
metadata:
  name: cloudmanager-access-clusterrole
rules:
  - apiGroups:
      - ''
    resources:
      - secrets
      - namespaces
      - persistentvolumeclaims
      - persistentvolumes
    verbs:
      - get
      - list
      - create
  - apiGroups:
      - storage.k8s.io
    resources:
      - storageclasses
    verbs:
      - get
      - list
  - apiGroups:
      - trident.netapp.io
    resources:
      - tridentbackends
      - tridentorchestrators
    verbs:
      - get
      - list
---
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
  name: k8s-access-binding
subjects:
  - kind: Group
    name: cloudmanager-access-group
    apiGroup: rbac.authorization.k8s.io
roleRef:
  kind: ClusterRole
  name: cloudmanager-access-clusterrole
  apiGroup: rbac.authorization.k8s.io

```

b. Apply the configuration to a cluster.

```
kubectl apply -f <file-name>
```

2. Create an identity mapping to the permissions group.

Use eksctl

Use eksctl to create an IAM identity mapping between a cluster and the IAM role for the Cloud Manager Connector.

[Go to the eksctl documentation for full instructions.](#)

An example is provided below.

```
eksctl create iamidentitymapping --cluster <eksCluster> --region  
<us-east-2> --arn <ARN of the Connector IAM role> --group  
cloudmanager-access-group --username  
system:node:{{EC2PrivateDNSName}}
```

Edit aws-auth

Directly edit the aws-auth ConfigMap to add RBAC access to the IAM role for the Cloud Manager Connector.

[Go to the AWS EKS documentation for full instructions.](#)

An example is provided below.

```
apiVersion: v1  
data:  
  mapRoles: |  
    - groups:  
      - cloudmanager-access-group  
      rolearn: <ARN of the Connector IAM role>  
      username: system:node:{{EC2PrivateDNSName}}  
kind: ConfigMap  
metadata:  
  creationTimestamp: "2021-09-30T21:09:18Z"  
  name: aws-auth  
  namespace: kube-system  
  resourceVersion: "1021"  
  selfLink: /api/v1/namespaces/kube-system/configmaps/aws-auth  
  uid: dcc31de5-3838-11e8-af26-02e00430057c
```

Requirements for Kubernetes clusters in Azure

You can add and manage managed Azure Kubernetes clusters (AKS) and self-managed Kubernetes clusters in Azure using Cloud Manager. Before you can add the clusters to Cloud Manager, ensure the following requirements are met.

This topic uses *Kubernetes cluster* where configuration is the same for AKS and self-managed Kubernetes clusters. The cluster type is specified where configuration differs.

Requirements

Astra Trident

The Kubernetes cluster must have NetApp Astra Trident deployed. Install one of the four most recent versions of Astra Trident using Helm. [Go to the Astra Trident docs for installation steps using Helm.](#)

Cloud Volumes ONTAP

Cloud Volumes ONTAP must be set up as backend storage for the cluster. [Go to the Astra Trident docs for configuration steps.](#)

Cloud Manager Connector

A Connector must be running in Azure with the required permissions. [Learn more below.](#)

Network connectivity

Network connectivity is required between the Kubernetes cluster and the Connector and between the Kubernetes cluster and Cloud Volumes ONTAP. [Learn more below.](#)

RBAC authorization

Cloud Manager supports RBAC-enabled clusters with and without Active Directory. The Cloud Manager Connector role must be authorized on each Azure cluster. [Learn more below.](#)

Prepare a Connector

A Cloud Manager Connector in Azure is required to discover and manage Kubernetes clusters. You'll need to create a new Connector or use an existing Connector that has the required permissions.

Create a new Connector

Follow the steps in one of the links below.

- [Create a Connector from Cloud Manager](#) (recommended)
- [Create a Connector from the Azure Marketplace](#)
- [Install the Connector on an existing Linux host](#)

Add the required permissions to an existing Connector (to discover a managed AKS cluster)

If you want to discover a managed AKS cluster, you might need to modify the custom role for the Connector to provide the permissions.

Steps

1. Identify the role assigned to the Connector virtual machine:

- a. In the Azure portal, open the Virtual machines service.
 - b. Select the Connector virtual machine.
 - c. Under Settings, select **Identity**.
 - d. Click **Azure role assignments**.
 - e. Make note of the custom role assigned to the Connector virtual machine.
2. Update the custom role:
- a. In the Azure portal, open your Azure subscription.
 - b. Click **Access control (IAM) > Roles**.
 - c. Click the ellipsis (...) for the custom role and then click **Edit**.
 - d. Click JSON and add the following permissions:

```
"Microsoft.ContainerService/managedClusters/listClusterUserCredential/action"  
"Microsoft.ContainerService/managedClusters/read"
```

- e. Click **Review + update** and then click **Update**.

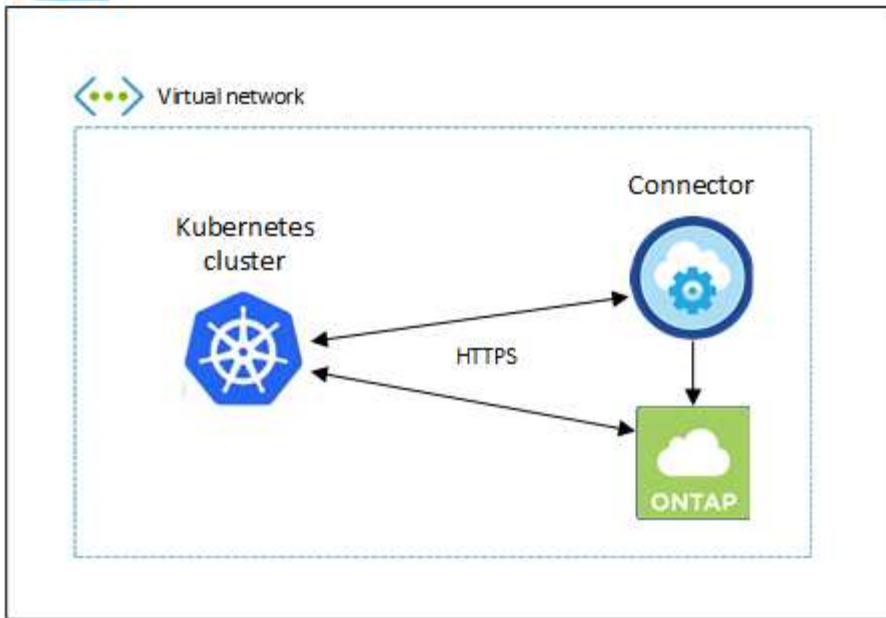
Review networking requirements

You need to provide network connectivity between the Kubernetes cluster and the Connector and between the Kubernetes cluster and the Cloud Volumes ONTAP system that provides backend storage to the cluster.

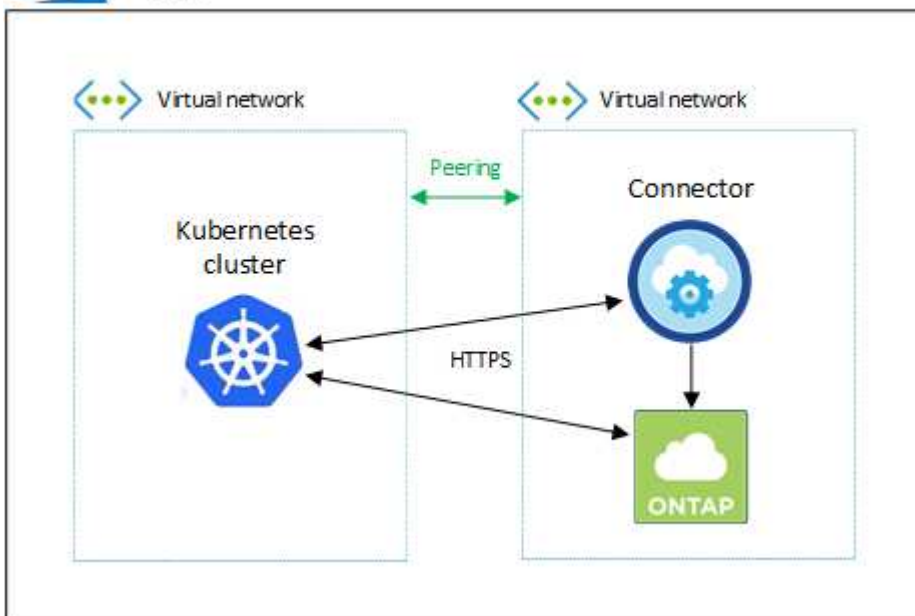
- Each Kubernetes cluster must have an inbound connection from the Connector
- The Connector must have an outbound connection to each Kubernetes cluster over port 443

The simplest way to provide this connectivity is to deploy the Connector and Cloud Volumes ONTAP in the same VNet as the Kubernetes cluster. Otherwise, you need to set up a peering connection between the different VNets.

Here's an example that shows each component in the same VNet.



And here's another example that shows a Kubernetes cluster running in a different VNet. In this example, peering provides a connection between the VNet for the Kubernetes cluster and the VNet for the Connector and Cloud Volumes ONTAP.



Set up RBAC authorization

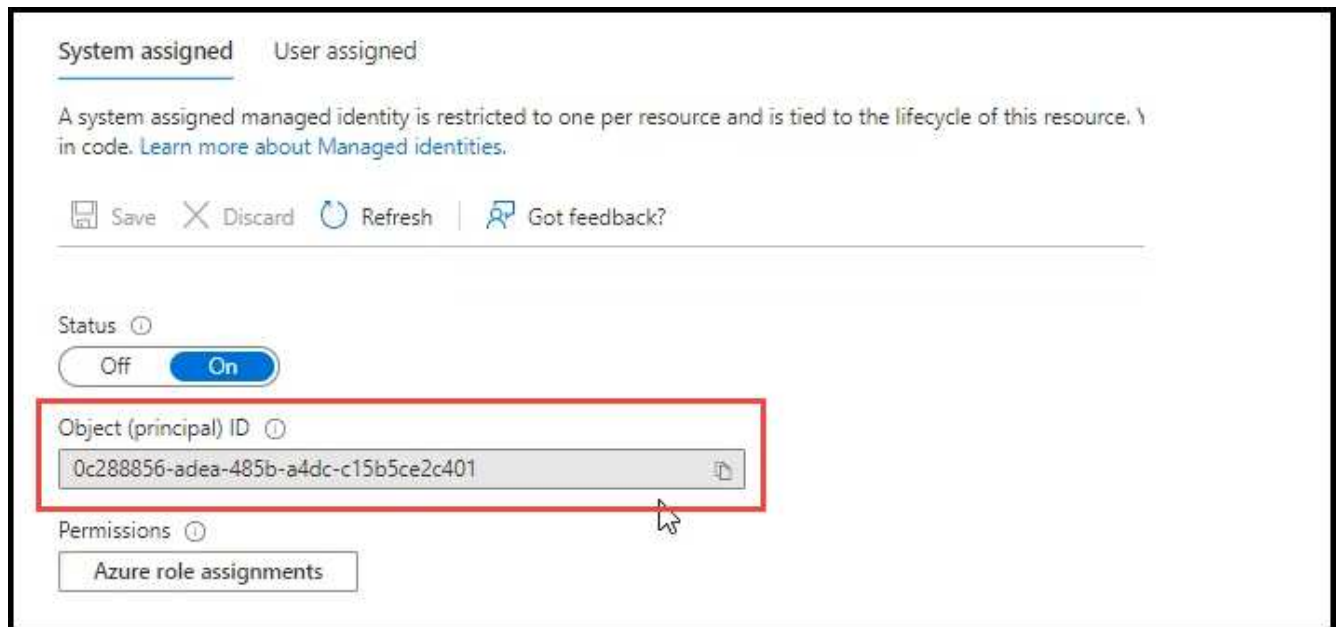
RBAC validation occurs only on Kubernetes clusters with Active Directory (AD) enabled. Kubernetes clusters without AD will pass validation automatically.

You need authorize the Connector role on each Kubernetes cluster so the Connector can discover and manage a cluster.

Before you begin

Your RBAC subjects: name: configuration varies slightly based on your Kubernetes cluster type.

- If you are deploying a **managed AKS cluster**, you need the Object ID for the system-assigned managed identity for the Connector. This ID is available in Azure management portal.



- If you are deploying a **self-managed Kubernetes cluster**, you need the username of any authorized user.

Steps

Create a cluster role and role binding.

1. Create a YAML file that includes the following text. Replace the `subjects: kind: variable` with your username and `subjects: user:` with either the Object ID for the system-assigned managed identity or username of any authorized user as described above.

```

apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRole
metadata:
  name: cloudmanager-access-clusterrole
rules:
  - apiGroups:
      - ''
    resources:
      - secrets
      - namespaces
      - persistentvolumeclaims
      - persistentvolumes
    verbs:
      - get
      - list
      - create
  - apiGroups:
      - storage.k8s.io
    resources:
      - storageclasses
    verbs:
      - get
      - list
  - apiGroups:
      - trident.netapp.io
    resources:
      - tridentbackends
      - tridentorchestrators
    verbs:
      - get
      - list
---
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
  name: k8s-access-binding
subjects:
  - kind: User
    name: Object (principal) ID (for AKS) or username (for self-
managed)
    apiGroup: rbac.authorization.k8s.io
roleRef:
  kind: ClusterRole
  name: cloudmanager-access-clusterrole
  apiGroup: rbac.authorization.k8s.io

```


2. Apply the configuration to a cluster.

```
kubectl apply -f <file-name>
```

Requirements for Kubernetes clusters in Google Cloud

You can add and manage managed Google Kubernetes Engine (GKE) clusters and self-managed Kubernetes clusters in Google using Cloud Manager. Before you can add the clusters to Cloud Manager, ensure the following requirements are met.

This topic uses *Kubernetes cluster* where configuration is the same for GKE and self-managed Kubernetes clusters. The cluster type is specified where configuration differs.

Requirements

Astra Trident

The Kubernetes cluster must have NetApp Astra Trident deployed. Install one of the four most recent versions of Astra Trident using Helm. [Go to the Astra Trident docs for installation steps using Helm.](#)

Cloud Volumes ONTAP

Cloud Volumes ONTAP must be in Cloud Manager under the same tenancy account, workspace, and Connector as the Kubernetes cluster. [Go to the Astra Trident docs for configuration steps.](#)

Cloud Manager Connector

A Connector must be running in Google with the required permissions. [Learn more below.](#)

Network connectivity

Network connectivity is required between the Kubernetes cluster and the Connector and between the Kubernetes cluster and Cloud Volumes ONTAP. [Learn more below.](#)

RBAC authorization

Cloud Manager supports RBAC-enabled clusters with and without Active Directory. The Cloud Manager Connector role must be authorized on each GKE cluster. [Learn more below.](#)

Prepare a Connector

A Cloud Manager Connector in Google is required to discover and manage Kubernetes clusters. You'll need to create a new Connector or use an existing Connector that has the required permissions.

Create a new Connector

Follow the steps in one of the links below.

- [Create a Connector from Cloud Manager](#) (recommended)
- [Install the Connector on an existing Linux host](#)

Add the required permissions to an existing Connector (to discover a managed GKE cluster)

If you want to discover a managed GKE cluster, you might need to modify the custom role for the Connector to

provide the permissions.

Steps

1. In [Cloud Console](#), go to the **Roles** page.
2. Using the drop-down list at the top of the page, select the project or organization that contains the role that you want to edit.
3. Click a custom role.
4. Click **Edit Role** to update the role's permissions.
5. Click **Add Permissions** to add the following new permissions to the role.

```
container.clusters.get  
container.clusters.list
```

6. Click **Update** to save the edited role.

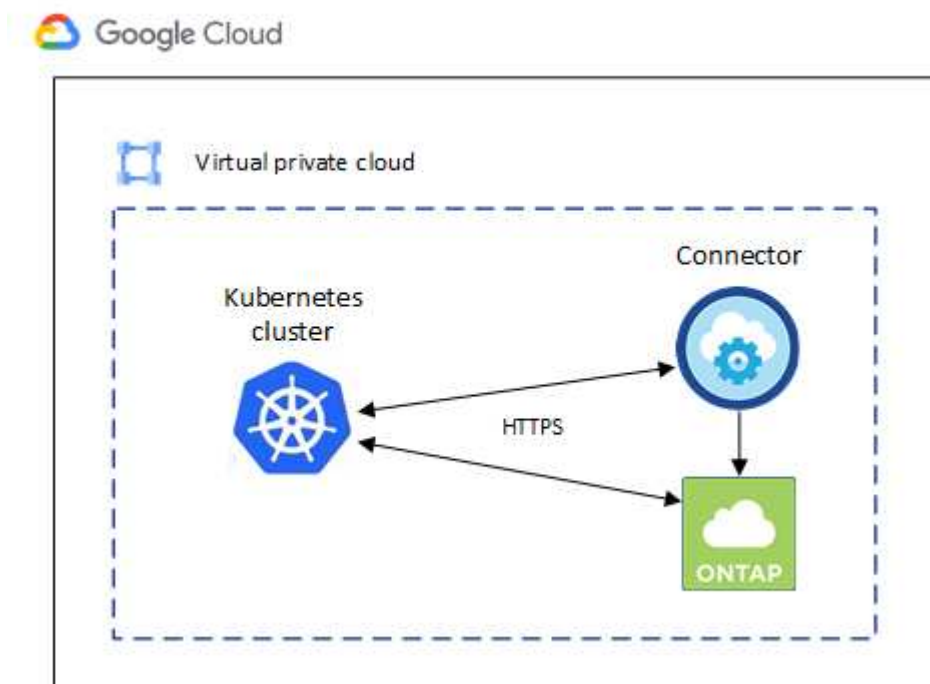
Review networking requirements

You need to provide network connectivity between the Kubernetes cluster and the Connector and between the Kubernetes cluster and the Cloud Volumes ONTAP system that provides backend storage to the cluster.

- Each Kubernetes cluster must have an inbound connection from the Connector
- The Connector must have an outbound connection to each Kubernetes cluster over port 443

The simplest way to provide this connectivity is to deploy the Connector and Cloud Volumes ONTAP in the same VPC as the Kubernetes cluster. Otherwise, you need to set up a peering connection between the different VPC.

Here's an example that shows each component in the same VPC.



Set up RBAC authorization

RBAC validation occurs only on Kubernetes clusters with Active Directory (AD) enabled. Kubernetes clusters without AD will pass validation automatically.

You need authorize the Connector role on each Kubernetes cluster so the Connector can discover and manage a cluster.

Before you begin

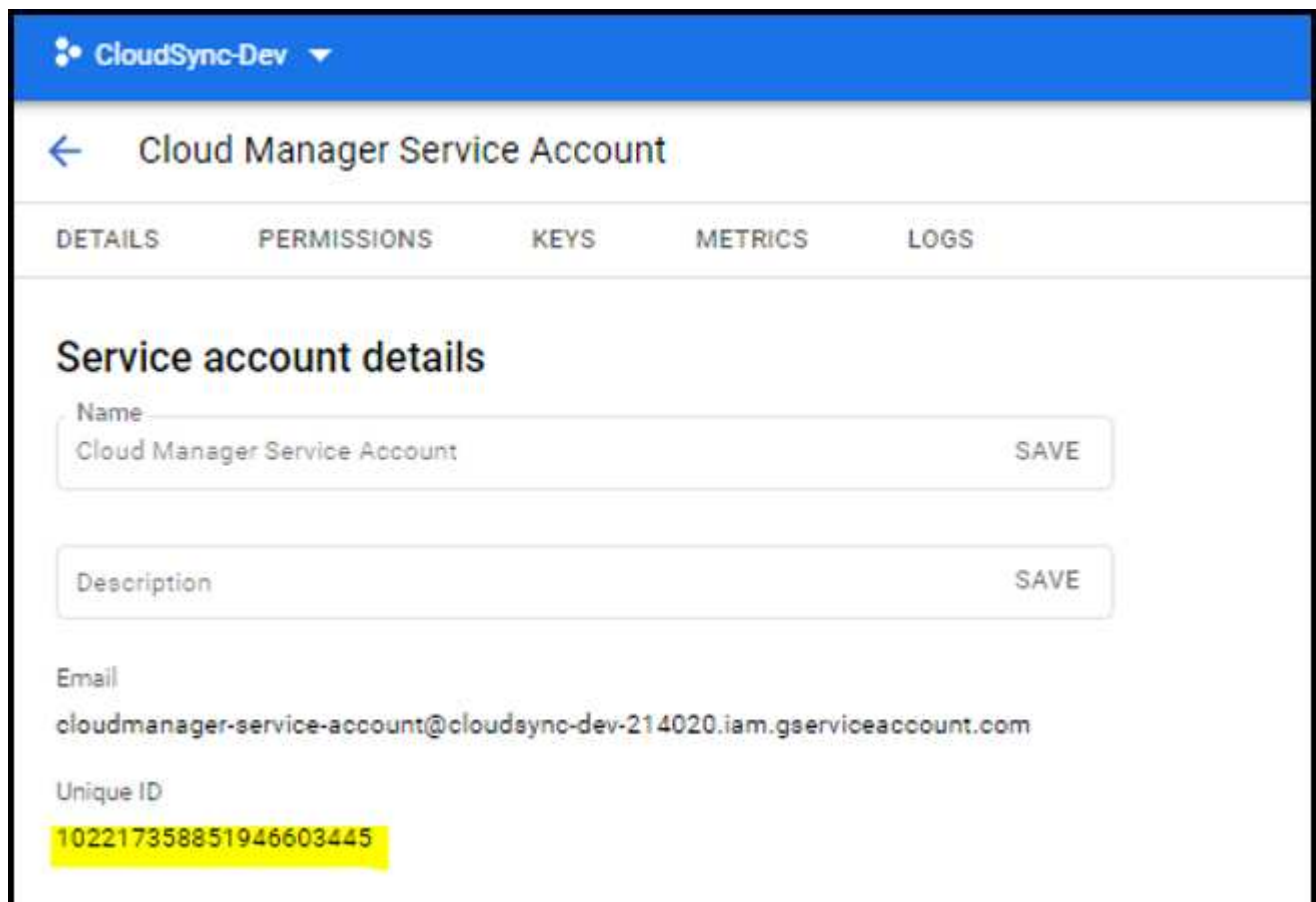
To configure `subjects: name:` in the YAML file, you need to know the Cloud Manager Unique ID.

You can find the unique ID one of two ways:

- Using the command:

```
gcloud iam service-accounts list
gcloud iam service-accounts describe <service-account-email>
```

- In the Service Account Details on the [Cloud Console](#).



Steps

Create a cluster role and role binding.

1. Create a YAML file that includes the following text. Replace the `subjects: kind: variable` with your

username and subjects: user: with the unique ID for the authorized service account.

```

apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRole
metadata:
  name: cloudmanager-access-clusterrole
rules:
  - apiGroups:
      - ''
    resources:
      - secrets
      - namespaces
      - persistentvolumeclaims
      - persistentvolumes
    verbs:
      - get
      - list
      - create
  - apiGroups:
      - storage.k8s.io
    resources:
      - storageclasses
    verbs:
      - get
      - list
  - apiGroups:
      - trident.netapp.io
    resources:
      - tridentbackends
      - tridentorchestrators
    verbs:
      - get
      - list
---
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
  name: k8s-access-binding
subjects:
  - kind: User
    name: "uniqueID"
    apiGroup: rbac.authorization.k8s.io
roleRef:
  kind: ClusterRole
  name: cloudmanager-access-clusterrole
  apiGroup: rbac.authorization.k8s.io

```

2. Apply the configuration to a cluster.

```
kubectl apply -f <file-name>
```

Add Kubernetes clusters

Add an Amazon Kubernetes cluster to Cloud Manager

You can discover or import Kubernetes clusters to Cloud Manager so you can back up persistent volumes to Amazon S3.

Discover a cluster

You can discover a fully-managed or self-managed Kubernetes cluster. Managed clusters must be discovered; they cannot be imported.

Steps

1. On the **Canvas**, click **Add Working Environment**.
2. Select **Amazon Web Services > Kubernetes Cluster** and click **Next**.

The screenshot shows the 'Add Working Environment' wizard in Cloud Manager. The first step is 'Choose a Location', where 'Microsoft Azure' is selected with a blue checkmark. Below this, the 'Choose Type' section shows four options: 'Cloud Volumes ONTAP Single Node', 'Cloud Volumes ONTAP HA High Availability', 'Azure NetApp Files High Availability', and 'Kubernetes Cluster Any'. The 'Kubernetes Cluster Any' option is selected with a blue checkmark. A blue 'Next' button is at the bottom.

3. Select **Discover Cluster** and click **Next**.
4. Choose an AWS region, select a Kubernetes cluster, and then click **Next**.



Result

Cloud Manager adds the Kubernetes cluster to the Canvas.



Import a Cluster

You can import a self-managed Kubernetes cluster using a Kubernetes configuration file.

Steps

1. On the **Canvas**, click **Add Working Environment**.
2. Select **Amazon Web Services > Kubernetes Cluster** and click **Next**.
3. Select **Import Cluster** and click **Next**.
4. Upload a Kubernetes configuration file in YAML format.

Add Existing Kubernetes Cluster

Import Kubernetes Cluster

Upload a Kubernetes configuration file that's in YAML format

Kubernetes configuration file

minicubeconfig.txt

Upload

1 Cluster

	Kubernetes Cluster Name	Kubernetes Type	Kubernetes Version
✓	test2	Self Managed	v1.24.0

5. Select the Kubernetes cluster and click **Next**.

Result

Cloud Manager adds the Kubernetes cluster to the Canvas.

Add an Azure Kubernetes cluster to Cloud Manager

You can discover or import Kubernetes clusters to Cloud Manager so that you can back up persistent volumes to Azure.

Discover a cluster

You can discover a fully-managed or self-managed Kubernetes cluster. Managed clusters must be discovered; they cannot be imported.

Steps

1. On the **Canvas**, click **Add Working Environment**.
2. Select **Microsoft Azure > Kubernetes Cluster** and click **Next**.

Add Working Environment

Choose a Location

Microsoft Azure

Amazon Web Services

Google Cloud Platform

On-Premises

Choose Type

Cloud Volumes ONTAP

Single Node

Cloud Volumes ONTAP HA

High Availability

Azure NetApp Files

High Availability

Kubernetes Cluster

Any

Next

3. Select **Discover Cluster** and click **Next**.
4. Select a Kubernetes cluster and click **Next**.

Add Existing Kubernetes Cluster

Discover a Kubernetes Cluster

AzureKeys

Credential Name

Subscription1

Azure Subscription

Switch Azure Subscription

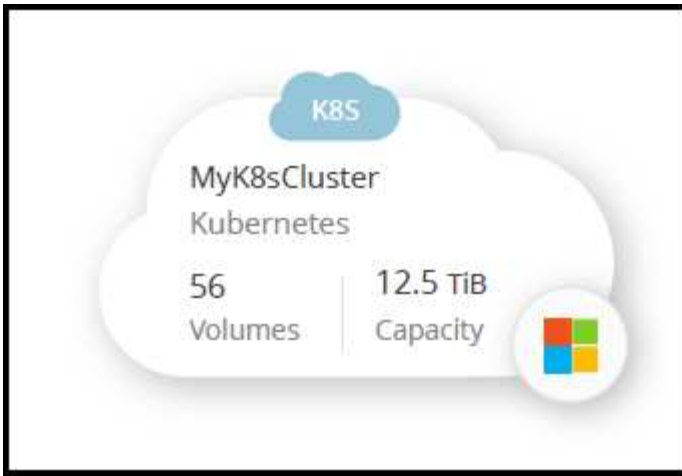
Select a Kubernetes cluster.

3 Kubernetes Clusters

Kubernetes Cluster Name	Status	Kubernetes Version	Resource Group	Location
<input checked="" type="radio"/> Cluster_1	Active	10.2.23.36	Cell text	Cell text
<input type="radio"/> Cluster_2	Active	10.2.23.36	Cell text	Cell text
<input type="radio"/> Cluster_2	Active	10.2.23.36	Cell text	Cell text

Result

Cloud Manager adds the Kubernetes cluster to the Canvas.



Import a Cluster

You can import a self-managed Kubernetes cluster using a Kubernetes configuration file.

Before you get started

You will need Certificate Authority, Client Key, and Client Certificate certificates for the user specified in the cluster role YAML file to import Kubernetes clusters. The Kubernetes cluster administrator receives these certifications when creating users on the Kubernetes cluster.

Steps

1. On the **Canvas**, click **Add Working Environment**.
2. Select **Microsoft Azure > Kubernetes Cluster** and click **Next**.
3. Select **Import Cluster** and click **Next**.
4. Upload a Kubernetes configuration file in YAML format.

Add Existing Kubernetes Cluster

Import Kubernetes Cluster

Upload a Kubernetes configuration file that's in YAML format

Kubernetes configuration file

minicubeconfig.txt Upload

1 Cluster

Kubernetes Cluster Name	Kubernetes Type	Kubernetes Version
test2	Self Managed	v1.24.0

5. Upload the cluster certificates provided by your Kubernetes cluster administrator.

Result

Cloud Manager adds the Kubernetes cluster to the Canvas.

Add a Google Cloud Kubernetes cluster to Cloud Manager

You can discover or import Kubernetes clusters to Cloud Manager so that you can back up persistent volumes to Google Cloud.

Discover a cluster

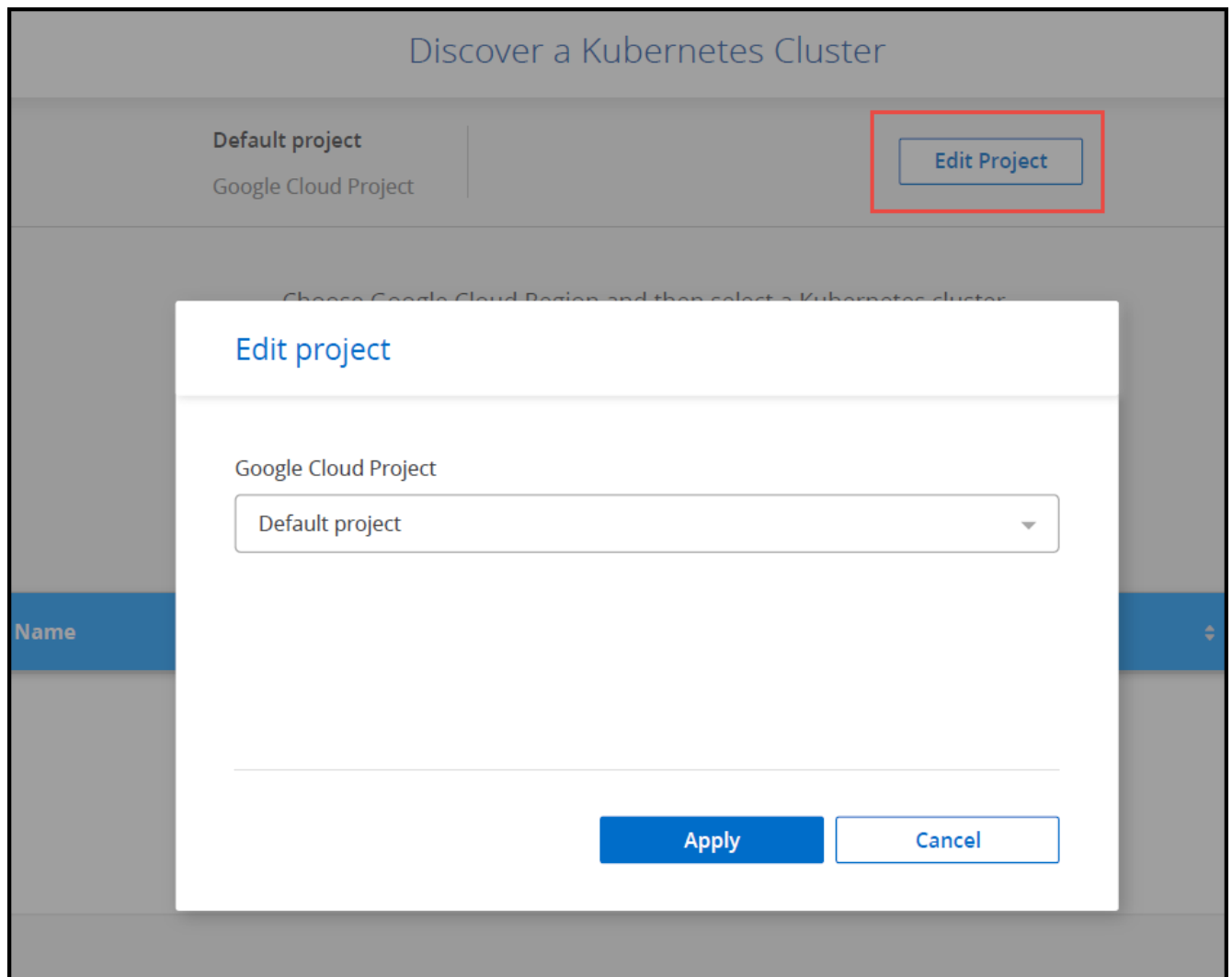
You can discover a fully-managed or self-managed Kubernetes cluster. Managed clusters must be discovered; they cannot be imported.

Steps

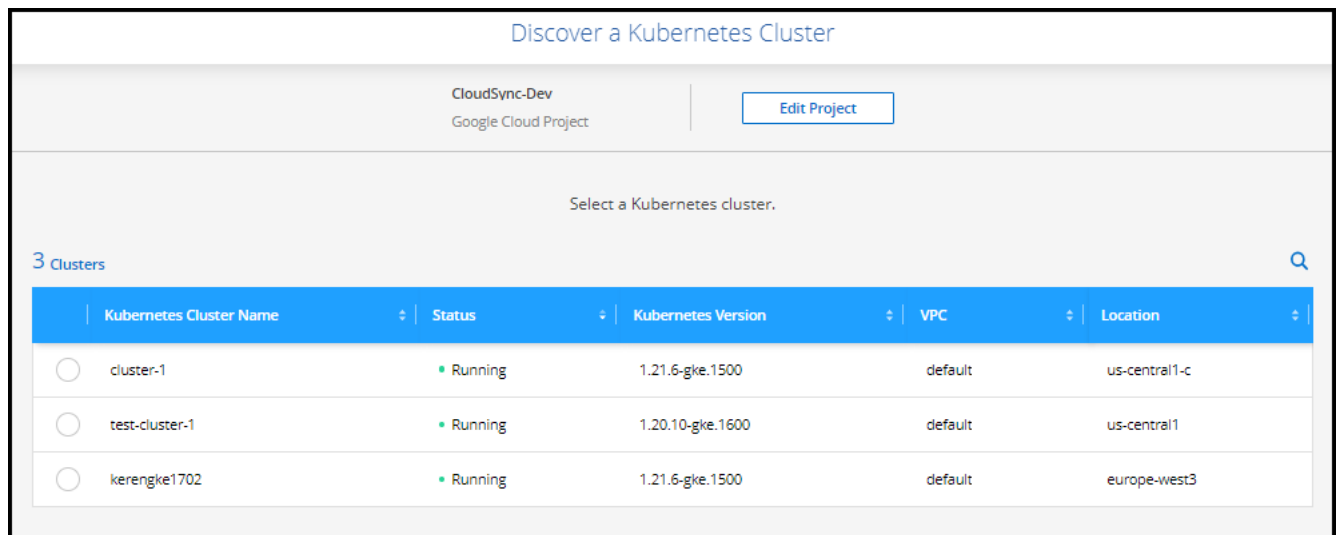
1. On the **Canvas**, click **Add Working Environment**.
2. Select **Google Cloud Platform > Kubernetes Cluster** and click **Next**.

The screenshot shows a two-step selection process. The first step, 'Choose Location & Type', has four options: Microsoft Azure, Amazon Web Services, Google Cloud Platform (selected with a blue checkmark), and OnPrem. The second step, 'Choose Type', has four options: Cloud Volumes ONTAP (Single Node), Cloud Volumes ONTAP HA (High Availability), Cloud Volumes Service (High Availability), and Kubernetes Cluster (Any) (selected with a blue checkmark).

3. Select **Discover Cluster** and click **Next**.
4. To select a Kubernetes cluster in a different Google Cloud Project, click **Edit project** and choose an available project.

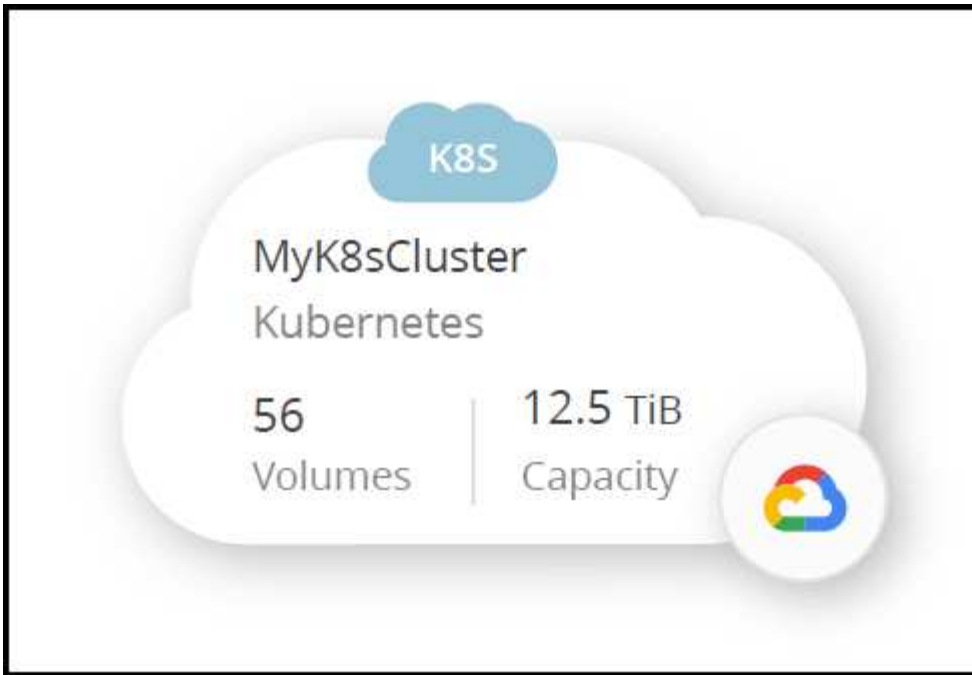


5. Select a Kubernetes cluster and click **Next**.



Result

Cloud Manager adds the Kubernetes cluster to the Canvas.



Import a Cluster

You can import a self-managed Kubernetes cluster using a Kubernetes configuration file.

Before you get started

You will need Certificate Authority, Client Key, and Client Certificate certificates for the user specified in the cluster role YAML file to import Kubernetes clusters. The Kubernetes cluster administrator receives these certifications when creating users on the Kubernetes cluster.

Steps

1. On the **Canvas**, click **Add Working Environment**.
2. Select **Google Cloud Platform > Kubernetes Cluster** and click **Next**.
3. Select **Import Cluster** and click **Next**.
4. Upload a Kubernetes configuration file in YAML format.

Add Existing Kubernetes Cluster

Import Kubernetes Cluster

Upload a Kubernetes configuration file that's in YAML format and has the extension ".txt", ".kubeconfig", or ".config"

Kubernetes configuration file

KubConfig.txt

Upload

3 Kubernetes Clusters

	Kubernetes Cluster Name	Kubernetes Type	Kubernetes Version
<input checked="" type="radio"/>	Cluster_1	???	10.2.23.36
<input type="radio"/>	Cluster_2	???	10.2.23.36
<input type="radio"/>	Cluster_2	???	10.2.23.36

Result

Cloud Manager adds the Kubernetes cluster to the Canvas.

Use NetApp's cloud data services with Kubernetes clusters

After you add a managed-Kubernetes cluster to the Canvas, you can use NetApp's 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.


[Go to the Cloud Backup docs to learn how to back up persistent volumes.](#)


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	
 eks1 On	pvc-1704aa1f-af1d-49e9-87fd-6edd86125855 Online	default	Nov 25 2021, 14:56:3	2	 Enabled	...
 eks1 On	pvc-d1f839c1-d932-4f49-b620-33321dbe939e Online	trident	Nov 25 2021, 14:56:3	2	 Enabled	...
 eks1 On	pvc-f615f0a8-2d5d-44d0-b4e4-f365cc3fb4a6 Online	default	Nov 25 2021, 14:56:3	2	 Enabled	...
 eks1 On	pvc-1615f0a8-2d5d-44d0-b4e4-f365cc3fb4a6 Online	default	Nov 25 2021, 14:56:3	2	 Enabled	...
 eks1 On	pvc-05881c70-cf5f-4edc-8537-a0a5ce36f9a1 Online	default	Nov 25 2021, 14:56:3	2	 Enabled	...

Knowledge and support

Register for support

Before you can open a support case with NetApp technical support, you need to add a NetApp Support Site account to Cloud Manager and then register for support.

Add an NSS account

The Support Dashboard enables you to add and manage all of your NetApp Support Site accounts from a single location.

Steps

1. If you don't have a NetApp Support Site account yet, [register for one](#).
2. In the upper right of the Cloud Manager console, click the Help icon, and select **Support**.

[A screenshot of the Help menu where Support is the first option listed]

3. Click **NSS Management > Add NSS Account**.
4. When you're prompted, click **Continue** to be redirected to a Microsoft login page.

NetApp uses Microsoft Azure Active Directory as the identity provider for authentication services specific to support and licensing.

5. At the login page, provide your NetApp Support Site registered email address and password to perform the authentication process.

This action enables Cloud Manager to use your NSS account.

Note the following requirements for the account:

- The account must be a customer-level account (not a guest or temp account).
- If you plan to deploy a node-based BYOL system:
 - The account must be authorized to access the serial numbers of the BYOL systems.
 - If you purchased a secure BYOL subscription, then a secure NSS account is required.

Register your account for support

Support registration is available from Cloud Manager in the Support Dashboard.

Steps

1. In the upper right of the Cloud Manager console, click the Help icon, and select **Support**.

[A screenshot of the Help menu where Support is the first option listed]

2. In the **Resources** tab, click **Register for Support**.
3. Select the NSS credentials that you want to register and then click **Register**.

Get help

NetApp provides support for Cloud Manager and its cloud services in a variety of ways. Extensive free self-support options are available 24x7, such as knowledgebase (KB) articles and a community forum. Your support registration includes remote technical support via web ticketing.

Self support

These options are available for free, 24 hours a day, 7 days a week:

- [Knowledge base](#)

Search through the Cloud Manager knowledge base to find helpful articles to troubleshoot issues.

- [Communities](#)

Join the Cloud Manager community to follow ongoing discussions or create new ones.

- Documentation

The Cloud Manager documentation that you're currently viewing.

- [Feedback email](#)

We value your input. Submit feedback to help us improve Cloud Manager.

NetApp support

In addition to the self-support options above, you can work with a NetApp Support Engineer to resolve any issues after you activate support.

Steps

1. In Cloud Manager, click **Help > Support**.
2. Choose one of the available options under Technical Support:
 - a. Click **Call Us** to find phone numbers for NetApp technical support.
 - b. Click **Open an Issue**, select one the options, and then click **Send**.

A NetApp representative will review your case and get back to you soon.

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