



Get started

Astra

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Get started

Intro to Astra

Astra is a Kubernetes application data lifecycle management service that simplifies operations for stateful applications. Easily back up Kubernetes apps, migrate data to a different cluster, and instantly create working application clones.

Features

Astra offers critical capabilities for Kubernetes application data lifecycle management:

- Create a protection policy for each of your apps
- Migrate applications and data from one Kubernetes cluster to another
- Easily clone an application from production to staging
- Create on-demand snapshots and backups
- Clone and back up across clouds
- Identify the health of your apps

Supported Kubernetes deployments

Astra can manage apps that are running on a managed Kubernetes cluster in Google Kubernetes Engine (GKE) and Azure Kubernetes Service (AKS).

- [Learn how to set up Google Cloud for Astra.](#)
- [Learn how to set up Microsoft Azure for Astra.](#)

Supported apps

Astra supports all applications running on your Kubernetes clusters. For GKE clusters, note that there is a [known limitation with apps deployed from the Google Marketplace](#).

NetApp has validated some apps to ensure the safety and consistency of the snapshots and backups. [Learn the difference between a validated app and a standard app](#).

No matter which type of app that you use with Astra, you should always test the backup and restore workflow yourself to ensure that you can meet your disaster recovery requirements.

How Astra works

Astra is a NetApp-managed cloud service that is always on and updated with the latest capabilities. It utilizes several components to enable application data lifecycle management.

At a high level, Astra works like this:

- You get started with Astra by setting up your cloud provider and by registering for an Astra account.
 - For GKE clusters, Astra uses [NetApp Cloud Volumes Service for Google Cloud](#) as the backend storage for your persistent volumes.

- For AKS clusters, Astra uses [Azure NetApp Files](#) as the backend storage for your persistent volumes.
- You add your first Kubernetes compute to Astra. Astra then does the following:
 - Creates an object store in your cloud provider account, which is where backup copies are stored.
 - Creates a new admin role and Kubernetes service account on the cluster.
 - Uses that new admin role to install [NetApp's Trident](#) on the cluster and to create one or more storage classes.

Astra uses Trident to provision persistent volumes for your apps.

- At this point, you can add apps to your cluster. Persistent volumes will be provisioned on the new default storage class.
 - [Learn about storage classes for GKE clusters.](#)
 - [Learn about storage classes for AKS clusters.](#)
- You then use Astra to manage these apps, and start creating snapshots, backups, and clones.

Note that Astra continually watches your compute for state changes, so it's aware of any new apps that you add along the way.

Pricing

There are two types of costs associated with using Astra: charges from NetApp for the Astra service and charges from your cloud provider for persistent volumes and object storage.

Astra billing

Astra offers three plans:

Free Plan

Manage up to 10 apps for free.

Premium PayGo

Manage an unlimited amount of apps at a rate of \$.005 per minute, per app.

Premium Subscription

Pre-pay at a discounted rate with an annual subscription that enables you to manage up to 10 apps per *application pack*. Contact NetApp Sales to purchase as many packs as needed for your organization—for example, purchase 3 packs to manage 30 apps from Astra. If you manage more apps than allowed by your annual subscription, then you'll be charged at the overage rate of \$0.005 per minute, per application (the same as Premium PayGo).

If you don't have an Astra account yet, purchasing the Premium Subscription automatically creates an Astra account for you. If you have an existing Free Plan, then you're automatically converted to the Premium Subscription.

When you create an Astra account, you're automatically signed up for the Free Plan. You can [upgrade to a Premium Plan at any time](#). After you upgrade, Astra starts charging you for *all* managed apps in the account. The first 10 apps don't stay in the Free Plan.

Google Cloud billing

When you manage GKE clusters with Astra, persistent volumes are backed by NetApp Cloud Volumes Service and backups of your apps are stored in a Google Cloud Storage bucket.

- [View pricing details for Cloud Volumes Service.](#)

Note that Astra supports all service types and service levels. The service type that you use depends on your [Google Cloud region](#).

- [View pricing details for Google Cloud storage buckets.](#)

Microsoft Azure billing

When you manage AKS clusters with Astra, persistent volumes are backed by Azure NetApp Files and backups of your apps are stored in an Azure Blob container.

- [View pricing details for Azure NetApp Files.](#)
- [View pricing details for Microsoft Azure Blob storage.](#)

Quick start for Astra

This page provides a high-level overview of the steps that you need to complete to get started with Astra. The links within each step take you to a page that provides more details.



Set up your cloud provider

a. Google Cloud:

- Review GKE cluster requirements.
- Purchase Cloud Volumes Service for Google Cloud from the Google Cloud Marketplace.
- Enable the required APIs.
- Create a service account and service account key.
- Set up network peering from your VPC to Cloud Volumes Service for Google Cloud.

[Learn more about Google Cloud requirements.](#)

b. Microsoft Azure:

- Review AKS cluster requirements.
- Register for Azure NetApp Files.
- Create a NetApp account.
- Set up a capacity pool.
- Delegate a subnet to Azure NetApp Files.
- Create an Azure service principal that has the Contributor role.

[Learn more about Microsoft Azure requirements.](#)



Complete the Astra registration

- a. Create a [NetApp Cloud Central](#) account.
- b. Specify your NetApp Cloud Central email ID when creating your Astra account [from the Astra product page](#).

[Learn more about the registration process.](#)



Add compute to Astra

After you log in, click **Add Compute** to start managing your compute with Astra.

[Learn more about adding compute.](#)

Set up your cloud provider

Set up Google Cloud

A few steps are required to prepare your Google Cloud project before you can manage Google Kubernetes Engine clusters with Astra.

Quick start for setting up Google Cloud

Get started quickly by following these steps or scroll down to the remaining sections for full details.



Review Astra requirements for Google Kubernetes Engine

Ensure that clusters are healthy and running Kubernetes version 1.17 or later, that worker nodes are online and running **Ubuntu**, and more. [Learn more about this step.](#)



Purchase Cloud Volumes Service for Google Cloud

Go to the NetApp Cloud Volumes Service page in the Google Cloud Marketplace and click Purchase. [Learn more about this step.](#)



Enable APIs in your Google Cloud project

Enable the following Google Cloud APIs:

- Google Kubernetes Engine
- Cloud Storage
- Cloud Storage JSON API
- Service Usage

- Cloud Resource Manager API
- NetApp Cloud Volumes Service
- Service Consumer Management API
- Service Networking API
- Service Management API

[Follow step-by-step instructions.](#)



Create a service account that has the required permissions

Create a Google Cloud service account that has the following permissions:

- Kubernetes Engine Admin
- NetApp Cloud Volumes Admin
- Storage Admin
- Service Usage Viewer
- Compute Network Viewer

[Read step-by-step instructions.](#)



Create a service account key

Create a key for the service account and save the key file in a secure location. [Follow step-by-step instructions.](#)



Set up network peering for your VPC

Set up network peering from your VPC to Cloud Volumes Service for Google Cloud. [Follow step-by-step instructions.](#)

The following image depicts each of these steps that you'll need to complete.

GKE cluster requirements

A Kubernetes cluster must meet the following requirements so you can discover and manage it from Astra.

Kubernetes version

A cluster must be running Kubernetes version 1.17 or later.

Image type

The image type for each worker node must be Ubuntu.

Cluster state

Clusters must be running in a healthy state and have at least one online worker node with no worker nodes in a failed state.

Google Cloud region

Clusters must be running in a [Google Cloud region where Cloud Volumes Service for Google Cloud is supported](#). Note that Astra supports both service types: CVS and CVS-Performance.

Networking

The cluster must reside in a VPC that is peered with Cloud Volumes Service for Google Cloud. [This step is described below](#).

Private clusters

If the cluster is private, it must have the [master authorized network](#) set to allow the Astra IP addresses:

- 54.164.233.140/32
- 3.218.120.204/32
- 34.193.99.138/32

Mode of operation for a GKE cluster

You should use the Standard mode of operation. The Autopilot mode hasn't been tested at this time. [Learn more about modes of operation](#).

Purchase Cloud Volumes Service for Google Cloud

Astra uses Cloud Volumes Service for Google Cloud as the backend storage for your persistent volumes. You need to purchase Cloud Volumes Service for Google Cloud from the Google Cloud Marketplace to enable billing for persistent volumes.

Step

1. Go to the [NetApp Cloud Volumes Service page](#) in the Google Cloud Marketplace, click **Purchase**, and follow the prompts.

[Follow step-by-step instructions in the Google Cloud documentation to purchase and enable the service.](#)

Enable APIs in your project

Your project needs permissions to access specific Google Cloud APIs. APIs are used to interact with Google Cloud resources, such as Google Kubernetes Engine (GKE) clusters and NetApp Cloud Volumes Service storage.

Step

1. [Use the Google Cloud console or gcloud CLI to enable the following APIs](#):
 - Google Kubernetes Engine
 - Cloud Storage
 - Cloud Storage JSON API
 - Service Usage
 - Cloud Resource Manager API
 - NetApp Cloud Volumes Service

- Service Consumer Management API
- Service Networking API
- Service Management API

The following video shows how to enable the APIs from the Google Cloud console.

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-enable-gcp-apis.mp4> (video)

Create a service account

Astra uses a Google Cloud service account to facilitate Kubernetes application data management on your behalf.

Steps

1. Go to Google Cloud and [create a service account by using the console, gcloud command, or another preferred method](#).
2. Grant the service account the following roles:
 - **Kubernetes Engine Admin** - Used to list clusters and create admin access to manage apps.
 - **NetApp Cloud Volumes Admin** - Used to manage persistent storage for apps.
 - **Storage Admin** - Used to manage buckets and objects for backups of apps.
 - **Service Usage Viewer** - Used to check if the required Cloud Volumes Service for Google Cloud APIs are enabled.
 - **Compute Network Viewer** - Used to check if the Kubernetes VPC is allowed to reach Cloud Volumes Service for Google Cloud.

If you'd like to use gcloud, you can follow steps from within the Astra user interface. Click **Account > Credentials > Add Credentials**, and then click **Instructions**.

If you'd like to use the Google Cloud console, the following video shows how to create the service account from the console.

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-create-gcp-service-account.mp4> (video)

Create a service account key

Instead of providing a user name and password to Astra, you'll provide a service account key when you add your first cluster. Astra uses the service account key to establish the identity of the service account that you just set up.

The service account key is plaintext stored in the JavaScript Object Notation (JSON) format. It contains information about the GCP resources that you have permission to access.

You can only view or download the JSON file when you create the key. However, you can create a new key at any time.

Steps

1. Go to Google Cloud and [create a service account key by using the console, gcloud command, or another preferred method](#).
2. When prompted, save the service account key file in a secure location.

The following video shows how to create the service account key from the Google Cloud console.

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-create-gcp-service-account-key.mp4> (video)

Set up network peering for your VPC

The final step is to set up networking peering from your VPC to Cloud Volumes Service for Google Cloud.

The easiest way to set up network peering is by obtaining the gcloud commands directly from Cloud Volumes Service. The commands are available from Cloud Volumes Service when creating a new file system.

Steps

1. [Go to NetApp Cloud Central's Global Regions Maps](#) and identify the service type that you'll be using in the Google Cloud region where your cluster resides.

Cloud Volumes Service provides two service types: CVS and CVS-Performance. [Learn more about these service types.](#)

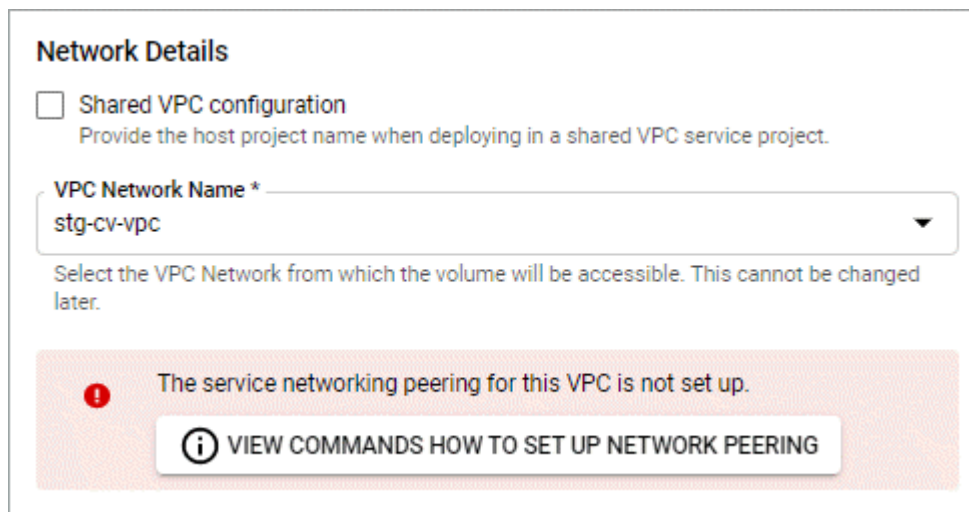
2. [Go to Cloud Volumes in Google Cloud Platform.](#)
3. On the **Volumes** page, click **Create**.
4. Under **Service Type**, select either **CVS** or **CVS-Performance**.

You need to choose the correct service type for your Google Cloud region. This is the service type that you identified in step 1. After you select a service type, the list of regions on the page updates with the regions where that service type is supported.

After this step, you'll only need to enter your networking information to obtain the commands.

5. Under **Region**, select your region and zone.
6. Under **Network Details**, select your VPC.

If you haven't set up network peering, you'll see the following notification:



Network Details

Shared VPC configuration
Provide the host project name when deploying in a shared VPC service project.

VPC Network Name *
stg-cv-vpc

Select the VPC Network from which the volume will be accessible. This cannot be changed later.

The service networking peering for this VPC is not set up.

VIEW COMMANDS HOW TO SET UP NETWORK PEERING

7. Click the button to view the network peering set up commands.
8. Copy the commands and run them in Cloud Shell.

For more details about using these commands, refer to the [Quickstart for Cloud Volumes Service for GCP](#).

[Learn more about configuring private services access and setting up network peering.](#)

9. After you're done, you can click cancel on the **Create File System** page.

We started creating this volume only to get the commands for network peering.

Set up Microsoft Azure

A few steps are required to prepare your Microsoft Azure subscription before you can manage Azure Kubernetes Service clusters with Astra.

Quick start for setting up Azure

Get started quickly by following these steps or scroll down to the remaining sections for full details.



Review Astra requirements for Azure Kubernetes Service

Ensure that clusters are healthy and running Kubernetes version 1.17 or later, that worker nodes are online and running **Ubuntu**, and more. [Learn more about this step.](#)



Register for Azure NetApp Files

Request access to the Azure NetApp Files service and then register the NetApp Resource Provider. [Learn more about this step.](#)



Create a NetApp account

In the Azure portal, go to Azure NetApp Files and create a NetApp account. [Learn more about this step.](#)



Set up capacity pools

Set up one or more capacity pools for your persistent volumes. [Learn more about this step.](#)



Delegate a subnet to Azure NetApp Files

Delegate a subnet to Azure NetApp Files so that Astra can create persistent volumes in that subnet. [Learn more about this step.](#)



Create an Azure service principal

Create an Azure service principal that has the Contributor role. [Read step-by-step instructions.](#)

AKS cluster requirements

A Kubernetes cluster must meet the following requirements so you can discover and manage it from Astra.

Kubernetes version

Clusters must be running Kubernetes version 1.17 or later.

Image type

The image type for each worker node must be Ubuntu.

Cluster state

Clusters must be running in a healthy state and have at least one online worker node with no worker nodes in a failed state.

Azure region

Clusters must reside in a region where Azure NetApp Files is available. [View Azure products by region.](#)

Subscription

Clusters must reside in a subscription where Azure NetApp Files is enabled. You'll choose a subscription when you [register for Azure NetApp Files](#).

VNet

- Clusters must reside in a VNet that has direct access to an Azure NetApp Files delegated subnet. [Learn how to set up a delegated subnet.](#)
- If your Kubernetes clusters are in a VNet that's peered to the Azure NetApp Files delegated subnet that's in another VNet, then both sides of the peering connection must be online.
- Be aware that the default limit for the number of IPs used in a VNet (including immediately peered VNets) with Azure NetApp Files is 1,000. [View Azure NetApp Files resource limits.](#)

If you're close to the limit, you have two options:

- You can [submit a request for a limit increase](#). Contact your NetApp representative if you need help.
- When creating a new AKS cluster, specify a new network for the cluster. Once the new network is created, provision a new subnet and delegate the subnet to Azure NetApp Files.

Private networking

Private networking must not be enabled on a cluster.

External volume snapshot controller

Clusters must have a CSI volume snapshot controller installed. This controller is installed by default starting with K8s version 1.20, but you'll need to check on clusters running versions 1.17, 1.18, or 1.19. [Learn more about an external snapshot controller for on-demand volume snapshots.](#)

Register for Azure NetApp Files

Get access to Azure NetApp Files by submitting a waitlist request. After you're approved, you'll need to register the NetApp Resource Provider.

Steps

1. [Submit a waitlist request to access Azure NetApp Files.](#)
2. Wait for a confirmation email from the Azure NetApp Files team.

3. [Follow Azure NetApp Files documentation to register the NetApp Resource Provider.](#)

Create a NetApp account

After you've been granted access, create a NetApp account in Azure NetApp Files.

Step

1. [Follow Azure NetApp Files documentation to create a NetApp account from the Azure portal.](#)

Set up a capacity pool

One or more capacity pools are required so that Astra can provision persistent volumes in a capacity pool. Astra doesn't create capacity pools for you.

Take the following into consideration as you set up capacity pools for your Kubernetes apps:

- A capacity pool can have an Ultra, Premium, or Standard service level. Each of these service levels are designed for different performance needs. Astra supports all three.

You need to set up a capacity pool for each service level that you want to use with your Kubernetes clusters.

[Learn more about service levels for Azure NetApp Files.](#)

- Before you create a capacity pool for the apps that you intend to protect with Astra, choose the required performance and capacity for those apps.

Provisioning the right amount of capacity ensures that users can create persistent volumes as they are needed. If capacity isn't available, then the persistent volumes can't be provisioned.

- An Azure NetApp Files capacity pool can use the manual or auto QoS type. Astra supports auto QoS capacity pools. Manual QoS capacity pools aren't supported.

Step

1. [Follow Azure NetApp Files documentation to set up an auto QoS capacity pool.](#)

Delegate a subnet to Azure NetApp Files

You need to delegate a subnet to Azure NetApp Files so that Astra can create persistent volumes in that subnet. Note that Azure NetApp Files enables you to have only one delegated subnet in a VNet.

If you're using peered VNets, then both sides of the peering connection must be online: the VNet where your Kubernetes clusters reside and the VNet that has the Azure NetApp Files delegated subnet.

Step

1. [Follow the Azure NetApp Files documentation to delegate a subnet to Azure NetApp Files.](#)

Create an Azure service principal

Astra requires a Azure service principal that is assigned the Contributor role. Astra uses this service principal to facilitate Kubernetes application data management on your behalf.

A service principal is an identity created specifically for use with applications, services, and tools. Assigning a role to the service principal restricts access to specific Azure resources.

Follow the steps below to create a service principal using the Azure CLI. You'll need to save the output in a JSON file and provide it to Astra later on. [Refer to Azure documentation for more details about using the CLI.](#)

The following steps assume that you have permission to create a service principal and that you have the Microsoft Azure SDK (az command) installed on your machine.

Requirements

- The service principal must use regular authentication. Certificates aren't supported.
- The service principal must be granted Contributor or Owner access to your Azure subscription.
- The Azure subscription must contain the AKS clusters and your Azure NetApp Files account.

Steps

1. Identify the subscription and tenant ID where your AKS clusters reside (these are the clusters that you want to manage in Astra).

```
az configure --list-defaults
az account list --output table
```

2. Create the service principal, assign the Contributor role, and specify the scope to the entire subscription where the clusters reside.

```
az ad sp create-for-rbac --name http://sp-astra-service-principal --role
contributor --scopes /subscriptions/SUBSCRIPTION-ID
```

3. Store the resulting Azure CLI output as a JSON file.

You'll need to provide this file to Astra so that Astra can discover your AKS clusters and manage Kubernetes data management operations. [Learn about managing credentials in Astra.](#)

4. Optional: Add the subscription ID to the JSON file so that Astra automatically populates the ID when you select the file.

Otherwise, you'll need to enter the subscription ID in Astra when prompted.

Example

```
{
  "appId": "0db3929a-bfb0-4c93-baee-aaf8",
  "displayName": "sp-example-dev-sandbox",
  "name": "http://sp-example-dev-sandbox",
  "password": "mypassword",
  "tenant": "011cdf6c-7512-4805-aaf8-7721afd8ca37",
  "subscriptionId": "99ce999a-8c99-99d9-a9d9-99cce99f99ad"
}
```

5. Optional: Test your service principal.

```
az login --service-principal --username APP-ID-SERVICEPRINCIPAL
--password PASSWORD --tenant TENANT-ID
az group list --subscription SUBSCRIPTION-ID
az aks list --subscription SUBSCRIPTION-ID
az storage container list --subscription SUBSCRIPTION-ID
```

Register for an Astra account

Sign up to NetApp Cloud Central and then complete the registration process to obtain an Astra account.

Sign up to Cloud Central

Astra is integrated within NetApp Cloud Central's authentication service. Sign up to Cloud Central so you can access Astra and NetApp's other cloud services.



You can use single sign-on to log in to Cloud Central using credentials from your corporate directory (federated identity). To learn more, go to the [Cloud Central Help Center](#) and then click **Cloud Central sign-in options**.

Steps

1. Open your web browser and go to [NetApp Cloud Central](#).
2. In the top right, click **Sign up**.
3. Fill out the form and click **Sign up**.



The email address that you enter in this form is for your NetApp Cloud Central user ID. Use this Cloud Central user ID when you sign up for a new Astra account, or when an Astra admin invites you to an existing Astra account.

Log In to NetApp Cloud Central

Already signed up? [Login](#)

user@example.com

NetApp

New user

Phone **optional*

SIGN UP

I accept the [terms and conditions](#).

4. Wait for an email from NetApp Cloud Central.
5. Click the link in the email to verify your email address.

Result

You now have an active Cloud Central user login.

Register for an account

Before you can log in to Astra, you need to complete a registration process to obtain an Astra account.

When you use Astra, you'll manage your apps from within an account. An account includes users who can view and manage the apps within the account, as well as your billing details.

Steps

1. [Go to the Astra page on Cloud Central](#).
2. Click **Sign up for the Free Plan**.
3. Provide the required information in the form.

A few important things to note as you fill out the form:

- Your business name and address must be accurate because we verify them to meet the requirements of Global Trade Compliance.
- The **Astra Account Name** is the name of your business's Astra account. You'll see this name in the Astra user interface. Note that you can create additional accounts (up to 5), if that's required for your needs.

4. Click **Submit**.

If you're logged in to Cloud Central already, you'll see a registration status and then you'll be redirected to the Astra Dashboard. Otherwise, you'll be prompted to log in first.

Now that you're registered, you can access Astra directly from <https://astra.netapp.io>.

Start managing Kubernetes compute from Astra

After you set up your environment, you're ready to create a Kubernetes cluster and then add it to Astra.

Create a Kubernetes cluster

If you don't have a cluster yet, create one that meets [Astra requirements for Google Kubernetes Engine \(GKE\)](#) or [Astra requirements for Azure Kubernetes Service \(AKS\)](#).

Start managing Kubernetes compute

After you log in to Astra, your first step is to start managing compute.

What you'll need

- For GKE, you should have the service account key file for a service account that has the required permissions. [Learn how to set up a service account](#).
- For AKS, you should have the JSON file that contains the output from the Azure CLI when you created the service principal. [Learn how to set up a service principal](#).

You'll also need your Azure subscription ID, if you didn't add it to the JSON file.

Steps

1. On the Dashboard, click **Manage Kubernetes compute**.

Follow the prompts to add the compute.

2. **Provider:** Select your cloud provider and then provide the required credentials.
 - a. **Microsoft Azure:** Provide Astra with details about your Azure service principal by uploading a JSON file or by pasting the contents of that JSON file from your clipboard.

The JSON file should contain the output from the Azure CLI when you created the service principal. It can also include your subscription ID so it's automatically added to Astra. Otherwise, you need to manually enter the ID after providing the JSON.

- b. **Google Cloud Platform:** Provide the service account key file either by uploading the file or by pasting the contents from your clipboard.

Astra uses the service account to discover compute running in Google Kubernetes Engine.

3. **Compute:** Select the compute that you'd like to add.

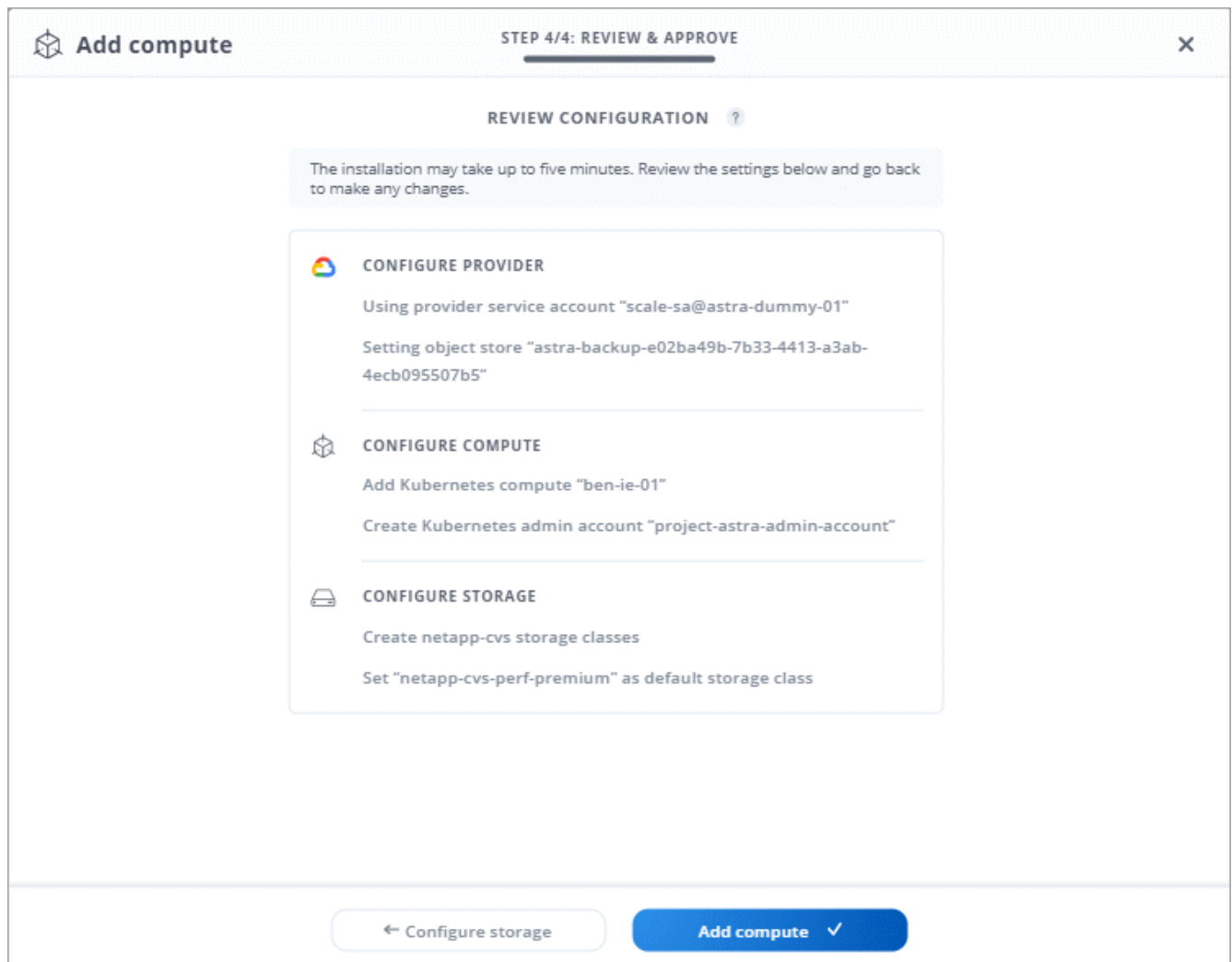
Pay careful attention to the Eligible tab. If a warning appears, hover over the warning to determine if there's an issue with the compute. For example, it might identify that the cluster doesn't have a worker node.

4. **Storage:** Select the storage class that you'd like Kubernetes applications deployed to this compute to use by default.

Each storage class utilizes [Cloud Volumes Service for Google Cloud](#) or [Azure NetApp Files](#).

- [Learn about storage classes for GKE clusters.](#)
- [Learn about storage classes for AKS clusters.](#)

5. **Review & Approve:** Review the configuration details and click **Add compute**.



The following video shows each of these steps for a GKE cluster.

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-manage-cluster.mp4> (video)

Result

Astra creates an object store for application backups, creates an admin account on the cluster, and sets the

default storage class that you specified. This process can take up to 5 minutes.

What's next?

Now that you've logged in and added compute to Astra, you're ready to start using Astra's application data management features.

- [Start managing apps](#)
- [Protect apps](#)
- [Clone apps](#)
- [Set up billing](#)
- [Invite and manage users](#)
- [Manage cloud provider credentials](#)
- [Manage notifications](#)

Astra videos

Many of the pages on this doc site include videos that show you how to complete a task for Astra. If you're just interested in videos, we've made it easy for you by collecting all of the videos on this single page (kind of like a playlist).

Videos for setting up Google Cloud

The following videos show how to complete set up requirements in Google Cloud before you can discover Kubernetes clusters running in GCP.

Enable APIs

Your project needs permissions to access specific Google Cloud APIs. The following video shows how to enable the APIs from the Google Cloud console. [Learn more about enabling APIs.](#)

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-enable-gcp-apis.mp4> (video)

Create a service account

Astra uses a Google Cloud service account to facilitate Kubernetes application data management on your behalf. The following video shows how to create the service account from the Google Cloud console. [Learn more about creating a service account.](#)

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-create-gcp-service-account.mp4> (video)

Create a service account key

Astra uses a service account key to establish the identity of the service account that you just set up. The following video shows how to create the service account key from the Google Cloud console. [Learn more about creating a service account key.](#)

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-create-gcp-service-account-key.mp4> (video)

Videos for using Astra

The following videos show how to complete common tasks using Astra.

Manage compute from Astra

After you log in to Astra, your first step is to add Kubernetes compute. [Learn more about managing compute.](#)

▶ <https://docs.netapp.com/us-en/astra/media/get-started/video-manage-cluster.mp4> (video)

Configure a protection policy

A protection policy protects an app by creating snapshots, backups, or both at a defined schedule. You can choose to create snapshots and backups hourly, daily, weekly, and monthly, and you can specify the number of copies to retain. [Learn more about configuring protection policies.](#)

▶ <https://docs.netapp.com/us-en/astra/media/use/video-set-protection-policy.mp4> (video)

Frequently asked questions for Astra

This FAQ can help if you're just looking for a quick answer to a question.

Overview

Astra aims to simplify your application data lifecycle management operations for Kubernetes native applications. Astra supports Kubernetes clusters running on Google Kubernetes Engine (GKE) and Azure Kubernetes Service (AKS).

The following sections provide answers to some additional questions that you might come across as you use Astra. For any additional clarifications, please reach out to astra.feedback@netapp.com

Access to Astra

Why do I need to provide so many details when registering for Astra?

Astra requires accurate customer information when registering. This information is required to go through a Global Trade Compliance (GTC) check.

Why am I getting a "Registration Failed" error when registering for Astra?

Astra requires you to provide accurate customer information in the onboarding section. You will get a "Registration Failed" error if you provided incorrect information. Other accounts that you are a member of also get locked.

What's the Astra URL?

You can access Astra at <https://astra.netapp.io>.

I sent an email invitation to a colleague, but they haven't received it. What should I do?

Ask them to check their spam folder for an email from do-not-reply@netapp.com, or search their inbox for "invitation." You can also remove the user and attempt to re-add them.

I upgraded to the Premium PayGO Plan from the Free Plan. Will I get charged for the first 10

applications?

Yes. After upgrading to the Premium Plan, Astra starts charging you for all managed applications in your account.

I upgraded to the Premium PayGO Plan in the middle of a month. Will I get charged for the entire month?

No, billing starts from the time that you upgraded to the Premium Plan.

I am using the Free Plan, will I get charged for the Persistent Volume Claims?

Yes, you will be charged for the Persistent Volumes used by GKE clusters from Cloud Volumes Service for Google Cloud or by AKS clusters from Azure NetApp Files.

Registering Kubernetes clusters

Do I need to install CSI drivers on my cluster before adding it to Astra?

No. When your cluster is added to Astra, the service will automatically install NetApp's Trident Container Storage Interface (CSI) driver on the Kubernetes cluster. This CSI driver is used to provision persistent volumes for GKE clusters backed by NetApp Cloud Volumes Service for Google Cloud, and for AKS clusters backed by Azure NetApp Files.

I need to add worker nodes to my cluster after adding to Astra. What should I do?

New worker nodes can be added to existing pools, or new pools can be created as long as they are the Ubuntu image type. These will be automatically discovered by Astra. If the new nodes are not visible in Astra, check if the new worker nodes are running the supported image type. You can also verify the health of the new worker nodes by using the `kubectl get nodes` command.

Registering GKE clusters

Can I add a private GKE cluster to Astra?

Yes, you can add private clusters to Astra. To create a Google Kubernetes Engine (GKE) private cluster, [follow the instructions in this knowledgebase article](#).

Private clusters must have the [master authorized network](#) set to allow the Astra IP addresses:

- 54.164.233.140/32
- 3.218.120.204/32
- 34.193.99.138/32

Can my GKE cluster reside on a shared VPC?

No, Astra can't manage clusters that reside in a shared VPC. This is a known limitation.

Where can I find my service account credentials on GCP?

After you log in to the [Google Cloud Console](#), your service account details will be in the **IAM and Admin** section. For more details, refer to [how to set up Google Cloud for Astra](#).

I would like to add different GKE clusters from different GCP projects. Is this supported in Astra?

No, this isn't a supported configuration. Only a single GCP project is supported.

Removing clusters

How do I properly unregister, bring down a cluster, and delete the associated volumes?

1. [Unmanage the applications from Astra.](#)
2. [Unregister the cluster from Astra.](#)
3. [Delete the persistent volume claims.](#)
4. Delete the cluster.

What happens to my applications and data after removing the cluster from Astra?

Removing a cluster from Astra will not make any changes to the cluster's configuration (applications and persistent storage). Any Astra snapshots or backups taken of applications on that cluster will be unavailable to restore. Volume snapshot data stored within the backend storage will not be removed. Persistent Storage backups created by Astra will remain within your cloud provider's object store, but they are unavailable for restore.



Always remove a cluster from Astra before you delete it through GCP. Deleting a cluster from GCP while it's still being managed by Astra can cause problems for your Astra account.

Will NetApp Trident be uninstalled when I remove a cluster from Astra?

Trident will not be uninstalled from a cluster when you remove it from Astra.

Managing applications

Can Astra deploy an application?

Astra doesn't deploy applications. Applications must be deployed outside of Astra.

My application is not showing up on the Discovered Apps list. What can I check to identify the problem?

When applications are not listed in **Discovered Apps**, check the status and health of the Kubernetes pod by running `kubectl get pod -A |grep [pod name]`. If the pods are healthy and running, check to see if the application is listed under **Ignored Apps**.

Can Astra manage an application that is on non-NetApp storage?

No. While Astra can discover applications that are using non-NetApp storage, it can't manage an application that's using non-NetApp storage.

I don't see any of my application's PVCs bound to GCP CVS. What's wrong?

The NetApp Trident operator sets the default storage class to `netapp-cvs-premium` after it's successfully added to Astra. When an application's PVCs are not bound to Cloud Volumes Service for Google Cloud, there are a few steps that you can take:

- Run `kubectl get sc` and check the default storage class.
- Check the yaml file or Helm chart that was used to deploy the application and see if a different storage

class is defined.

- Check to make sure that the worker node image type is Ubuntu and the NFS mount succeeded.

What happens to applications after I stop managing them from Astra?

Any existing backups or snapshots will be deleted. Applications and data remain available. Data management operations will not be available for unmanaged applications or any backups or snapshots that belong to it.

Data management operations

Where is my object bucket created?

The geography of the first managed cluster will determine the location of the object store. For example, if you add a cluster in a European zone, then remove that cluster and add one in the US, all future object stores will be created in EU. If you need to change this zone, please contact our support department.

There are snapshots in my account that I didn't create. Where did they come from?

In some situations, Astra will automatically create a snapshot as part of performing another process. If these snapshots are more than a few minutes old, you can safely delete them.

My application uses several PVs. Will Astra take snapshots and backups of all these PVCs?

Yes. A snapshot operation on an application by Astra includes snapshot of all the PVs that are bound to the application's PVCs.

Can I manage snapshots taken by Astra directly through my cloud provider?

No. Snapshots and backups taken by Astra can only be managed with Astra.

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