



## **Service type, storage classes, and PV size for GKE clusters**

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# Service type, storage classes, and PV size for GKE clusters

Astra Control Service uses Cloud Volumes Service for Google Cloud as the backend storage for persistent volumes. You should understand how choosing a service type, storage class, and persistent volume size can help you meet your performance objectives.

## Overview

Cloud Volumes Service for Google Cloud provides two service types: *CVS* and *CVS-Performance*. These service types are supported in specific Google Cloud regions. [Go to NetApp Cloud Central's Global Regions Maps](#) to identify the service type that's supported in the Google Cloud region where your clusters reside.

If your Kubernetes clusters must reside in a specific region, then you'll be using the service type supported in that region.

But if you have the flexibility to choose between Google Cloud regions, then we recommend the following based on your performance requirements:

- For K8s applications that have medium-to-high performance storage needs, choose a Google Cloud region that supports CVS-Performance and use the Premium or Extreme storage class. Such workloads include AI/ML pipelines, CI/CD pipelines, media processing, and databases including relational, noSQL, time series, etc.
- For K8s applications that have low-to-medium storage performance needs (web apps, general purpose file storage, etc.), choose a Google Cloud region that supports either CVS or CVS-Performance, with the Standard storage class.

The following table provides a quick comparison of the information described on this page.

Service type	Use case	Supported regions	Storage classes	Min volume size
CVS-Performance	Apps with medium-to-high storage performance needs	<a href="#">View supported Google Cloud regions</a>	<ul style="list-style-type: none"><li>• netapp-cvs-standard</li><li>• netapp-cvs-premium</li><li>• netapp-cvs-extreme</li></ul>	100 GiB
CVS	Apps with low-to-medium storage performance needs	<a href="#">View supported Google Cloud regions</a>	netapp-cvs-standard	300 GiB

## CVS-Performance service type

Learn more about the CVS-Performance service type before you choose a storage class and create persistent volumes.

## Storage classes

Three service levels are supported with the CVS-Performance service type: Standard, Premium, and Extreme. When you add compute to Astra Control Service, you're prompted to choose either Standard, Premium, or Extreme as the default storage class for persistent volumes. Each of these service levels are designed for different capacity and bandwidth needs.

The names of the storage classes are *netapp-cvs-standard*, *netapp-cvs-premium*, and *netapp-cvs-extreme*.

[Learn more about these service levels in the Cloud Volumes Service for Google Cloud docs.](#)

## Persistent volume size and performance

[As the Google Cloud docs explain](#), the allowed bandwidth for each service level is per GiB of provisioned capacity. That means larger volumes will provide better performance.

Be sure to read through the Google Cloud page linked to above. It includes cost comparisons and examples that can help you better understand how to couple a service level with volume size to meet your performance objectives.

## Minimum volume size

Astra Control Service provisions persistent volumes using a minimum volume size of 100 GiB with the CVS-Performance service type, even if the PVC requests a smaller volume size. For example, if the PVC in a Helm chart asks for 6 GiB, Astra Control Service automatically provisions a 100 GiB volume.

## CVS service type

Learn more about the CVS service type before you choose a storage class and create persistent volumes.

## Storage class

One service level is supported with the CVS service type: Standard. When you manage clusters in regions where the CVS service type is supported, Astra Control Service uses the Standard service level as the default storage class for persistent volumes. The storage class is named *netapp-cvs-standard*.

[Learn more about the Standard service level in the Cloud Volumes Service for Google Cloud docs.](#)

## Persistent volume size and performance

The allowed bandwidth for the CVS service type is per GiB of provisioned capacity. That means larger volumes will provide better performance.

## Minimum volume size

Astra Control Service provisions persistent volumes using a minimum volume size of 300 GiB with the CVS service type, even if the PVC asks for a smaller volume size. For example, if 20 GiB is requested, Astra Control Service automatically provisions a 300 GiB volume.

Due to a limitation, if a PVC requests a volume between 700-999 GiB, Astra Control Service automatically provisions a volume size of 1000 GiB.

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