Astra Documentation

Astra

NetApp
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Table of Contents

Astra Documentation . . . 1
Get started . . . 2
- Set up Microsoft Azure . . . 2
- Register for an Astra account . . . 6
- Start managing Kubernetes compute from Astra . . . 8
- What's next? . . . 9

Use Astra . . . 10
- Log in to Astra . . . 10
- Manage and protect apps . . . 10
- View app and compute health . . . 23
- Manage your account . . . 26
- Unmanage apps and compute . . . 32

Automation using the Astra REST API . . . 35
Learn . . . 36
- Storage classes and PV size for AKS clusters . . . 36
- Validated vs standard apps . . . 36
- Define a custom app . . . 37

Knowledge and support . . . 40
- Register for support . . . 40
- Get help . . . 43

Legal notices . . . 45
- Copyright . . . 45
- Trademarks . . . 45
- Patents . . . 45
- Privacy policy . . . 45
- Astra API license . . . 45
- Open source . . . 45

Astra Documentation

Get started

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.

1. **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.

2. **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.

3. **Create a NetApp account**

In the Azure portal, go to Azure NetApp Files and create a NetApp account. Learn more about this step.

4. **Set up capacity pools**

Set up one or more capacity pools for your persistent volumes. Learn more about this step.

5. **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.

6. **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:

  - 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.
  - You can submit a request for a limit increase. Contact your NetApp representative if you need help.

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

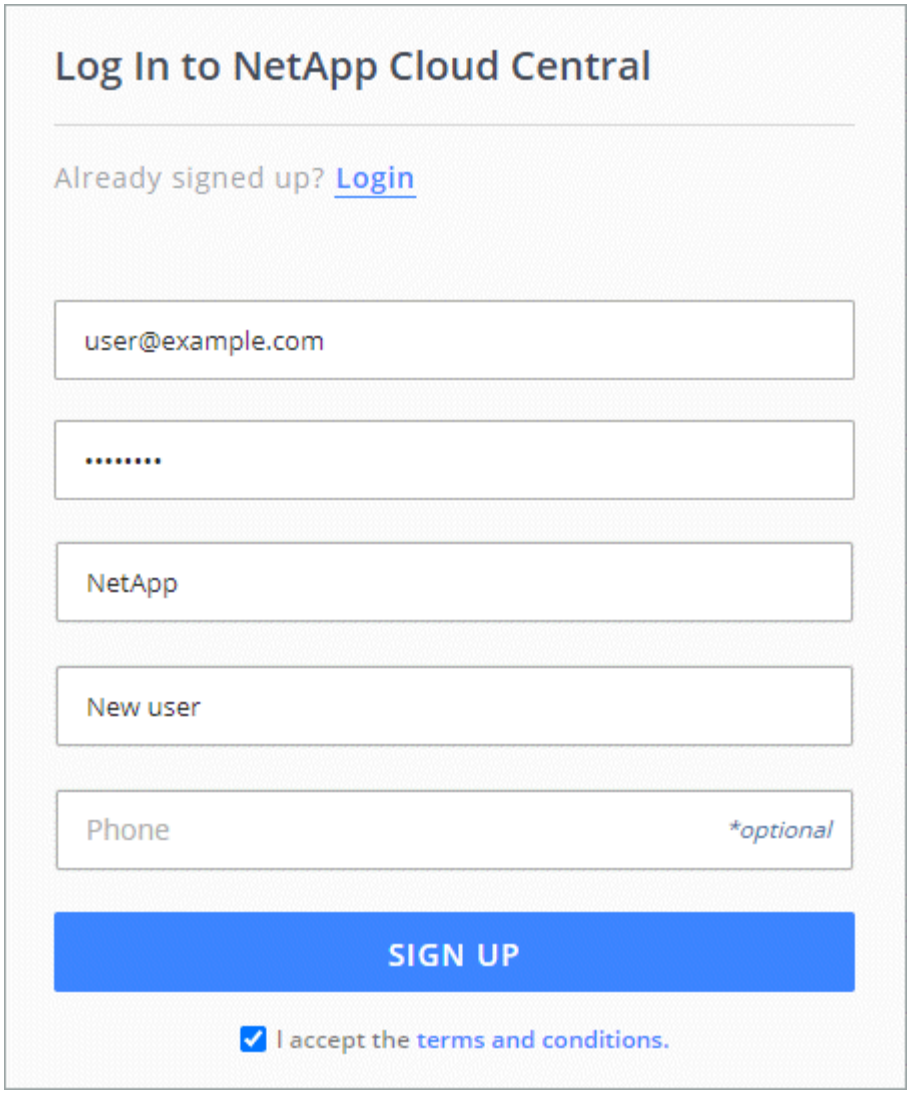
Astra is integrated within NetApp Cloud Central's authentication service. Sign up to Cloud Central so you can access Astra and NetApp's other cloud services.

> 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.



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 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 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.

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

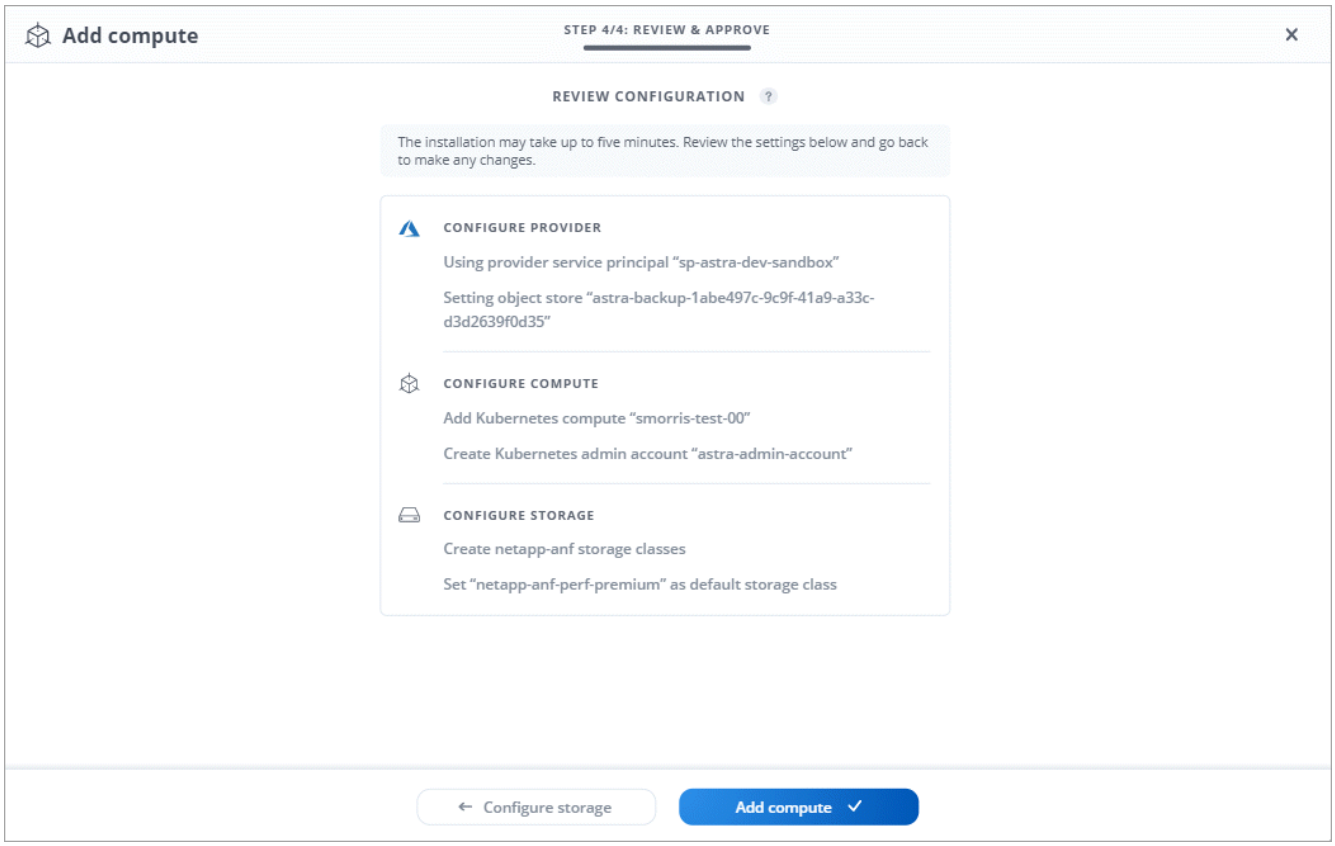
   Pay careful attention to the Eligible tab. If a warning appears, hover over the warning to determine if there's an issue with the compute. For example, it might identify that the cluster doesn't have a worker node.

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

Each storage class utilizes Azure NetApp Files.

- Learn about storage classes for AKS clusters.

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



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

Use Astra

Log in to Astra

Astra is accessible through a SaaS-based user interface by going to https://astra.netapp.io.

> You can use single sign-on to log in 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**.

What you'll need

- A Cloud Central user ID.
- A new Astra account or an invitation to an existing account.
- A supported web browser.

  Astra supports recent versions of Firefox, Safari, and Chrome with a minimum resolution of 1280 x 720.

Steps

1. Open a web browser and go to https://astra.netapp.io.
2. Log in using your NetApp Cloud Central credentials.

Manage and protect apps

Start managing apps

After you add Kubernetes compute to Astra, you can install apps on the cluster (outside of Astra), and then go to the Apps page in Astra to start managing the apps.

Install apps on your cluster

Now that you've added your compute to Astra, you can install apps on the cluster. Persistent volumes will be provisioned on the new storage classes by default. After the pods are online, you can manage the app with Astra.

Astra will manage stateful apps only if the storage is on a storage class installed by Astra.

Learn about storage classes for AKS clusters

For help with deploying common applications from Helm charts, refer to the following:

- Deploy MariaDB from a Helm chart
- Deploy MySQL from a Helm chart
- Deploy Postgres from a Helm chart
- Deploy Jenkins from a Helm chart

Manage apps

Astra enables you to manage your apps at the namespace level or by Kubernetes label.

Manage apps by namespace

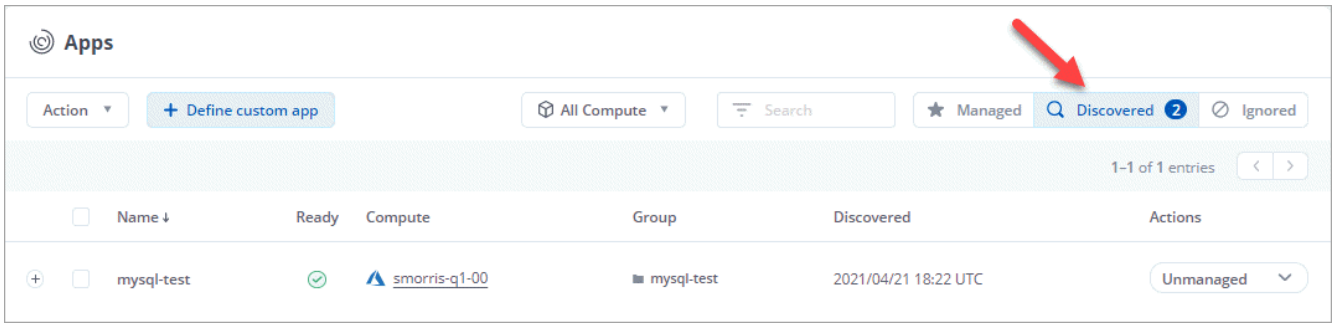
The **Discovered** section of the Apps page shows namespaces and the Helm-installed apps or custom-labeled apps in those namespaces. You can choose to manage each app individually or at the namespace level. It all comes down to the level of granularity that you need for data protection operations.

For example, you might want to set a backup policy for "maria" that has a weekly cadence, but you might need to back up "mariadb" (which is in the same namespace) more frequently than that. Based on those needs, you would need to manage the apps separately and not under a single namespace.

While Astra allows you to separately manage both levels of the hierarchy (the namespace and the apps in that namespace), the best practice is to choose one or the other. Actions that you take in Astra can fail if the actions take place at the same time at both the namespace and app level.

Steps

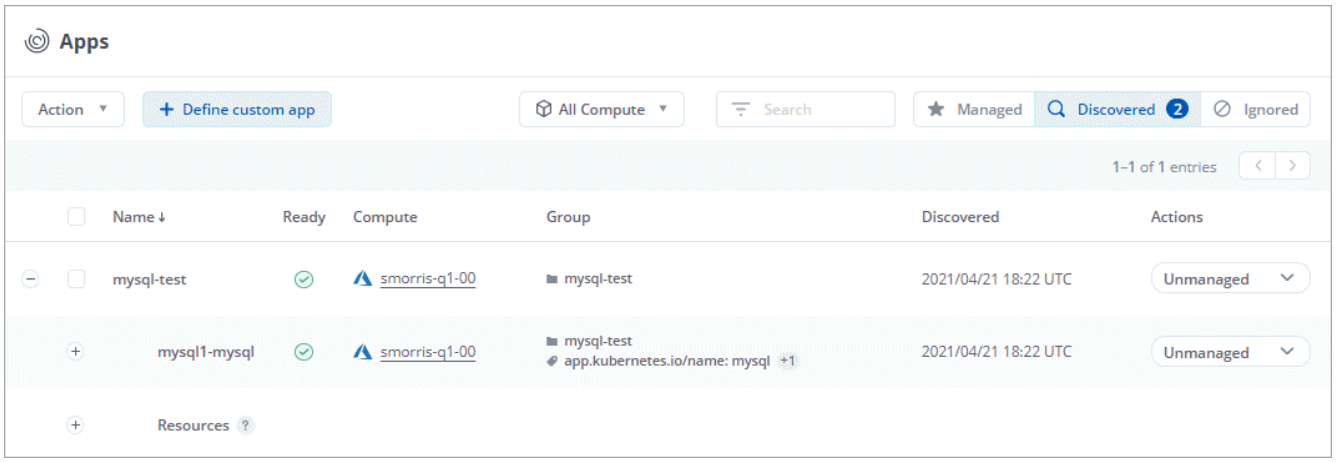
1. Click **Apps** and then click **Discovered**.



2. View the list of discovered namespaces and expand a namespace to view the apps and associated resources.

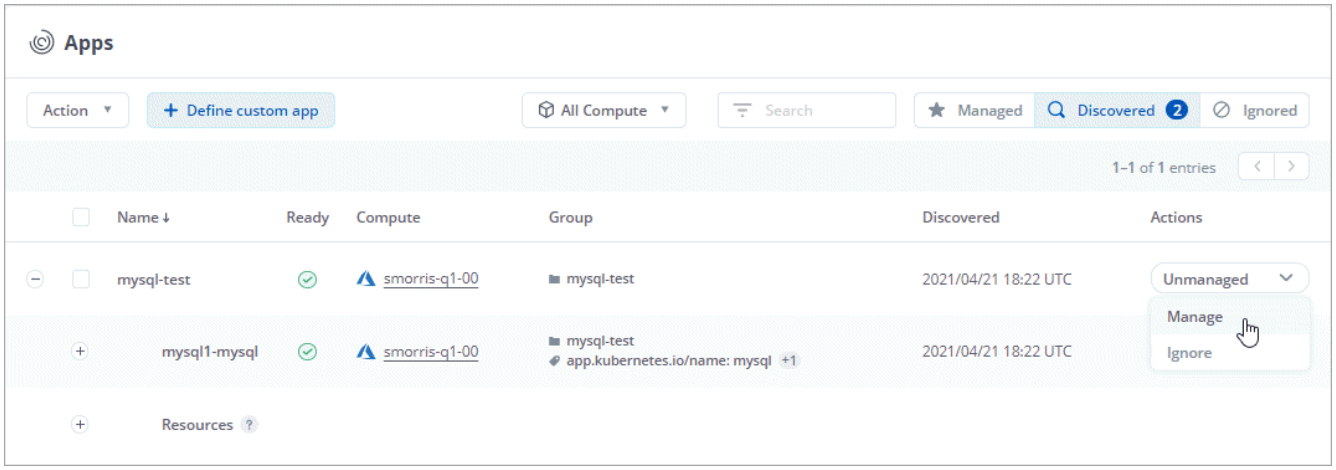
   Astra shows you Helm apps and custom-labeled apps in namespace. If Helm labels are available, they're designated with a tag icon.

   Here's an example with one app in a namespace:



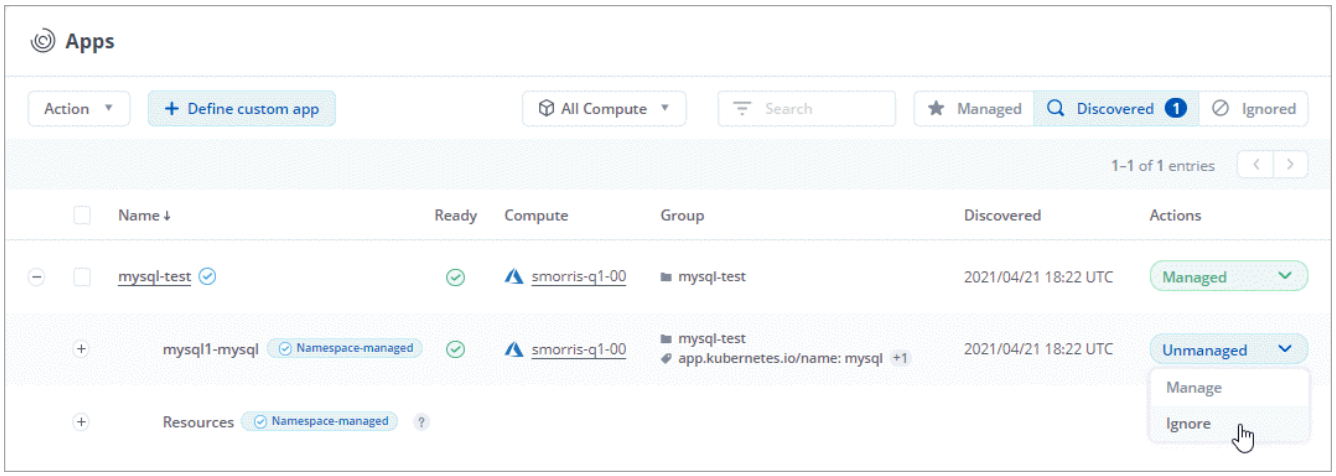
3. Decide whether you want to manage each app individually or at the namespace level.

4. At the desired level in the hierarchy, click the drop-down list in the **Actions** column and click **Manage**.



5. If you don't want to manage an app, click the drop-down list in the **Actions** column for the desired app and click **Ignore**.

   For example, if you wanted to manage all apps under the "mysql-test" namespace together so that they have the same snapshot and backup policies, you would manage the namespace and ignore the apps in the namespace:



Result

Apps that you chose to manage are now available from the **Managed** tab. Any ignored apps will move to the **Ignored** tab. Ideally, the Discovered tab will show zero apps, so that as new apps are installed, they are easier to find and manage.

Manage apps by Kubernetes label

Astra includes an action at the top of the Apps page named **Define custom app**. You can use this action to manage apps that are identified with a Kubernetes label. Learn more about defining apps by Kubernetes label.

Steps

1. Click **Apps > Define custom app**.
2. In the **Define Custom Application** dialog box, provide the required information to manage the app:
   a. **New App**: Enter the display name of the app.

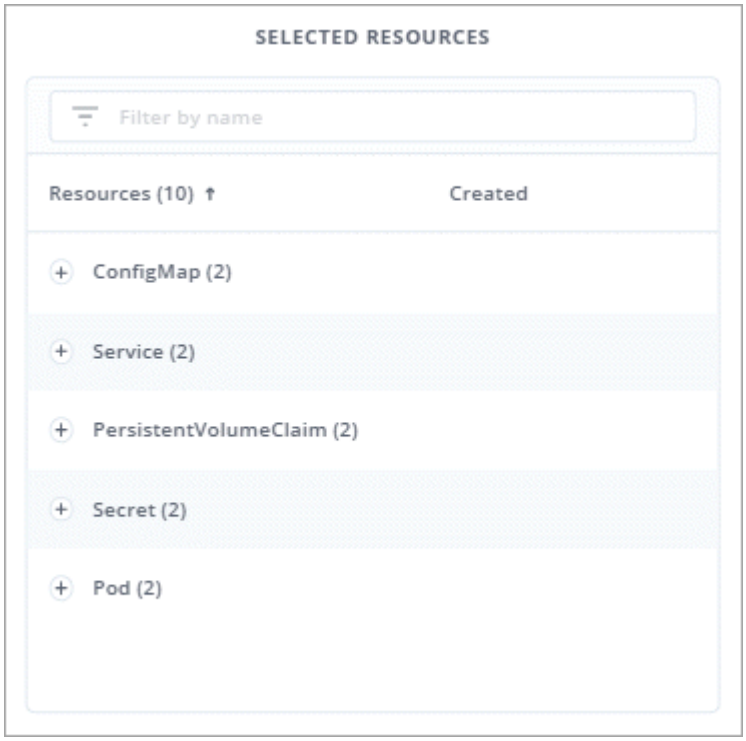
b. **Compute**: Select the compute where the app resides.

c. **Namespace:** Select the namespace for the app.

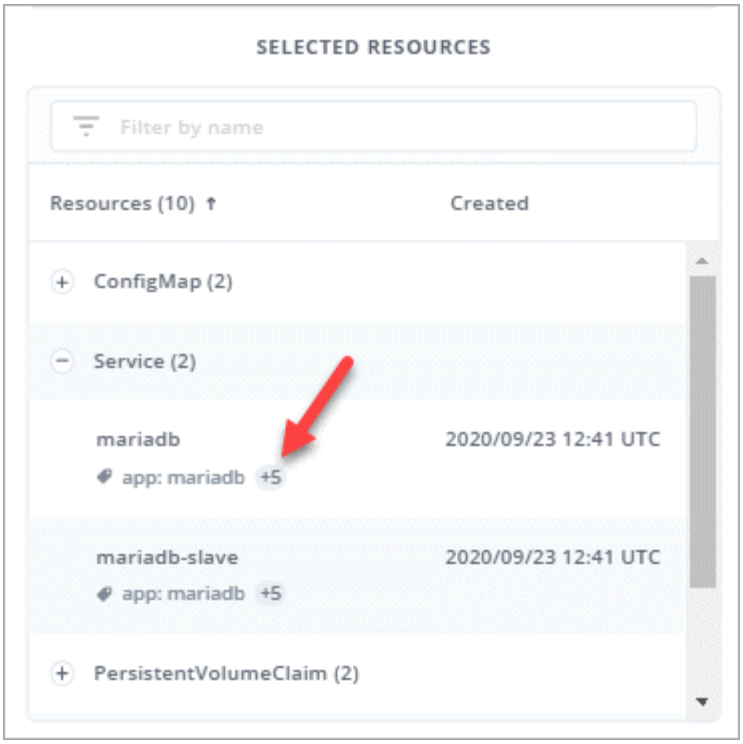
d. **Label:** Enter a label or select a label from the resources below.

e. **Selected Resources**: View and manage the selected Kubernetes resources that you'd like to protect (pods, secrets, persistent volumes, and more).

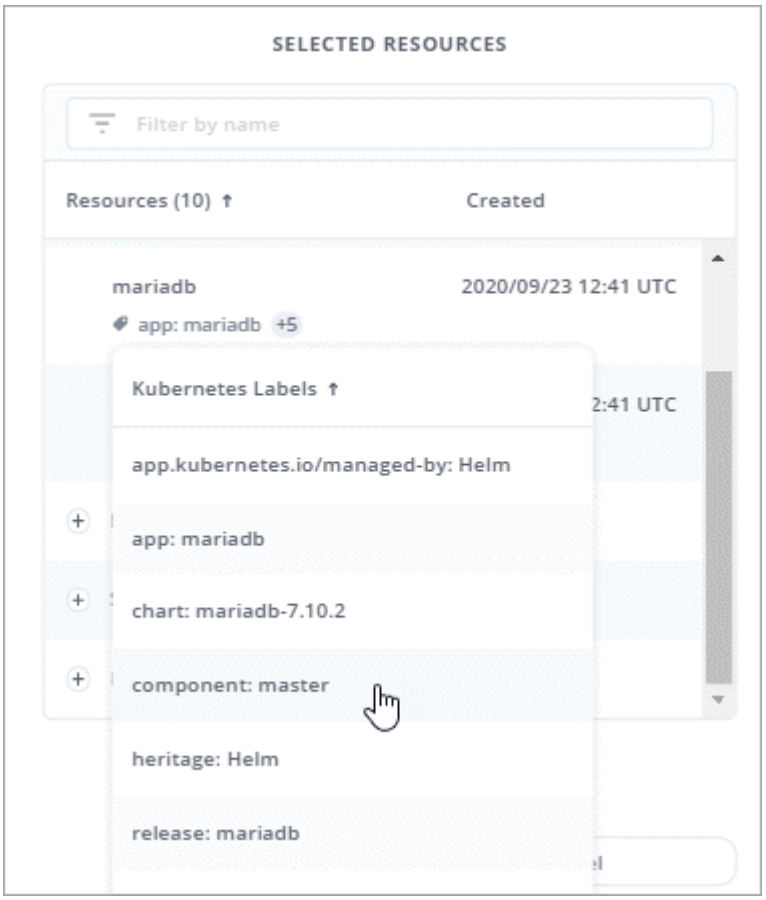
   Here's an example:



   - View the available labels by expanding a resource and clicking the number of labels.

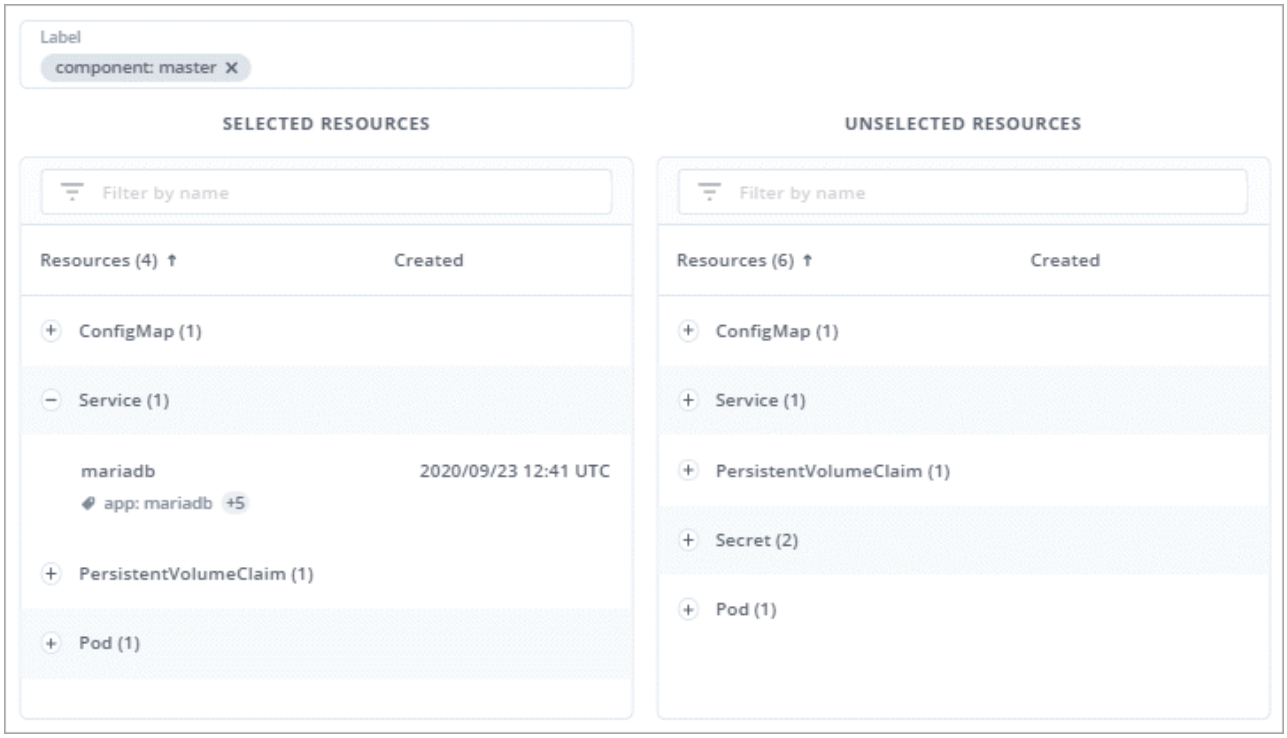


- Select one of the labels.



After you choose a label, it displays in the **Label** field. Astra also updates the **Unselected Resources** section to show the resources that don't match the selected label.

f. **Unselected Resources**: Verify the app resources that you don't want to protect.



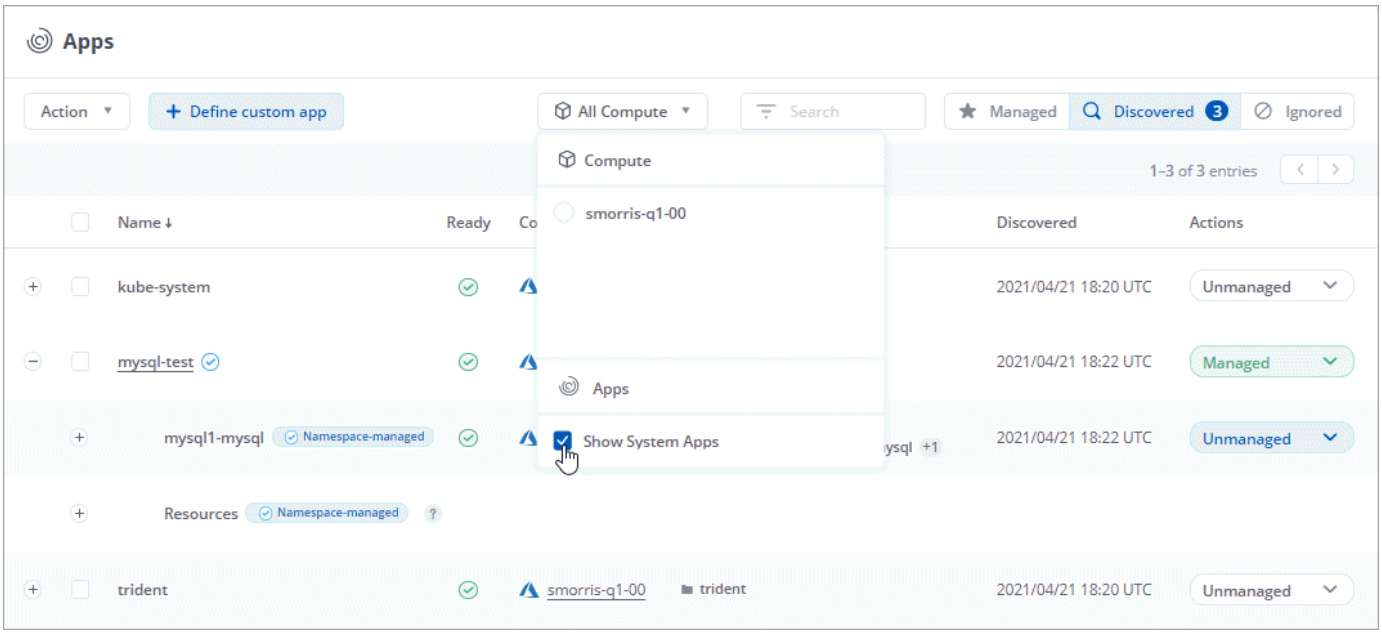
3. Click **Define Custom App**.

Result

Astra enables management of the app. You can now find it in the **Managed** tab.

What about system apps?

Astra also discovers the system apps running on a Kubernetes cluster. You can view them by filtering the Apps list.



We don't show you these system apps by default because it's rare that you'd need to back them up.

Protect apps with snapshots and backups

Protect your apps by taking snapshots and backups using an automated protection policy or on an ad-hoc basis.

Snapshots and backups

A *snapshot* is a point-in-time copy of an app that's stored on the same provisioned volume as the app. They are usually fast. Local snapshots are used to restore the application to an earlier point in time.

A *backup* is stored on object storage in the cloud. A backup can be slower to take compared to the local snapshots. But they can be accessed across regions in the cloud to enable app migrations. You can also choose a longer retention period for backups.

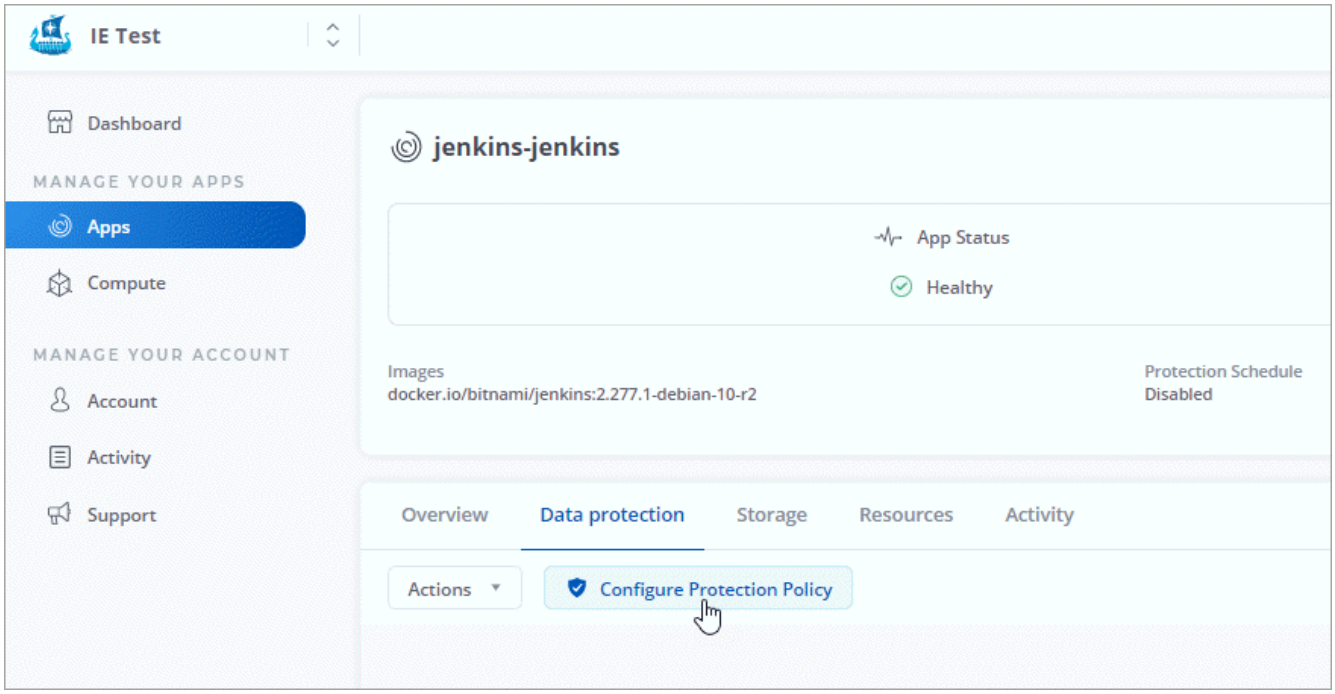
> *You can't be fully protected until you have a recent backup*. This is important because backups are stored in an object store away from the persistent volumes. If a failure or accident wipes out the cluster and it's persistent storage, then you need a backup to recover. A snapshot wouldn't enable you to recover.

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.

Steps

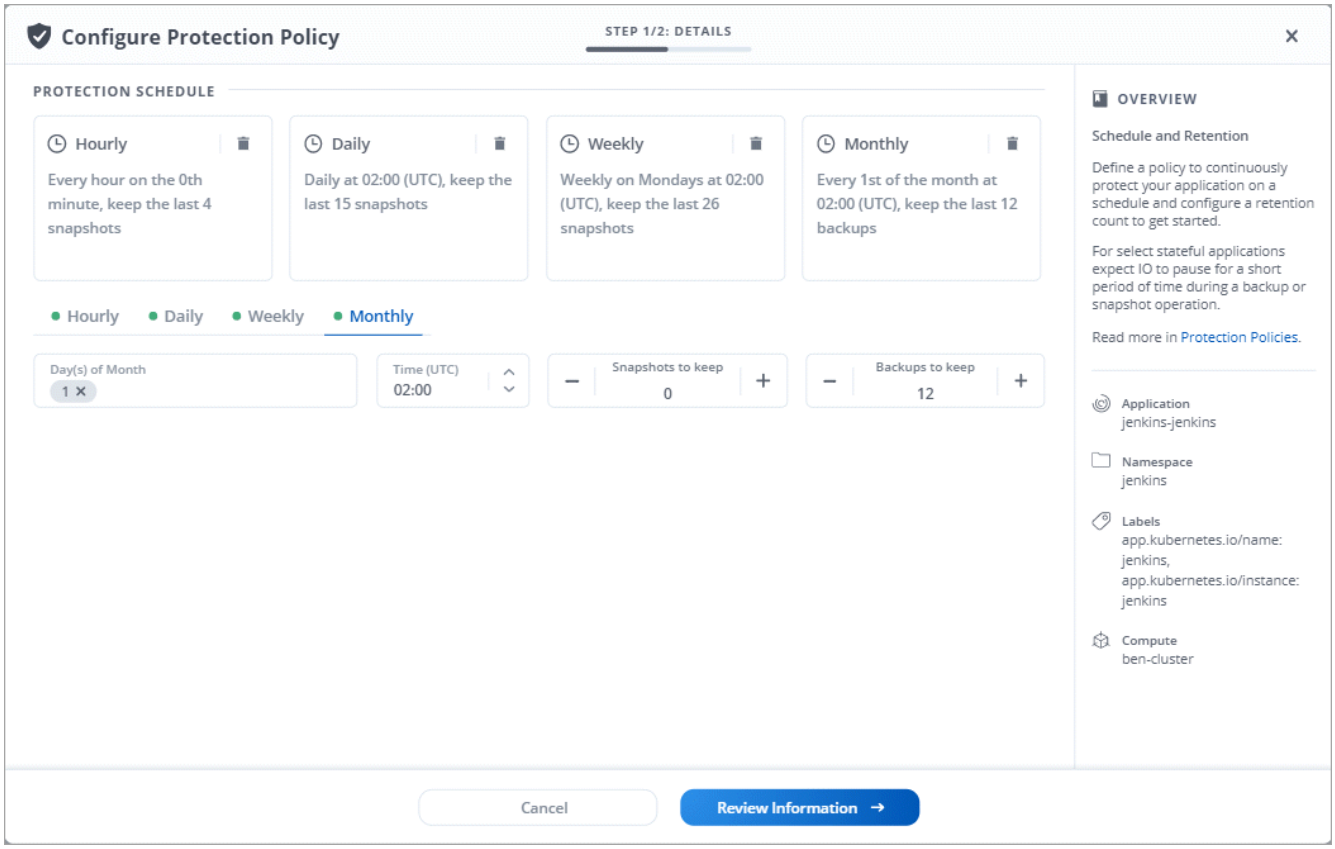
1. Click **Apps** and then click the name of a managed app.
2. Click **Data Protection**.
3. Click **Configure Protection Policy**.



4. Define a protection schedule by choosing the number of snapshots and backups to keep hourly, daily, weekly, and monthly.

You can define the hourly, daily, weekly, and monthly schedules concurrently. A schedule won't turn active until you set a retention level.

The following example sets four protection schedules: hourly, daily, weekly, and monthly for snapshots and backups.



5. Click **Review Information**.
6. Click **Set Protection Policy.**

Result

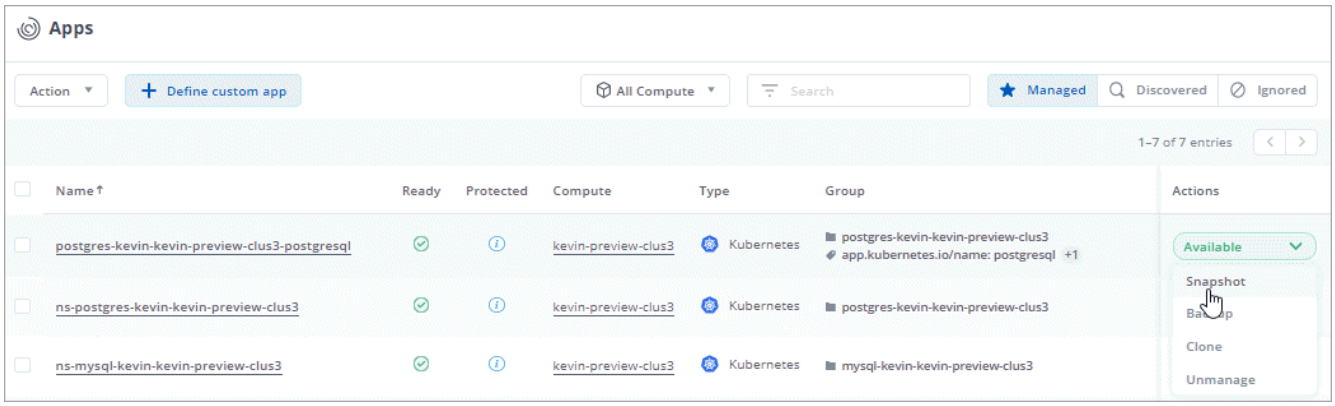
Astra implements the data protection policy by creating and retaining snapshots and backups using the schedule and retention policy that you defined.

Create a snapshot

You can create an on-demand snapshot at any time.

Steps

1. Click **Apps**.
2. Click the drop-down list in the **Actions** column for the desired app.
3. Click **Snapshot**.



4. Customize the name of the snapshot and then click **Review Information**.
5. Review the snapshot summary and click **Snapshot App**.

Result

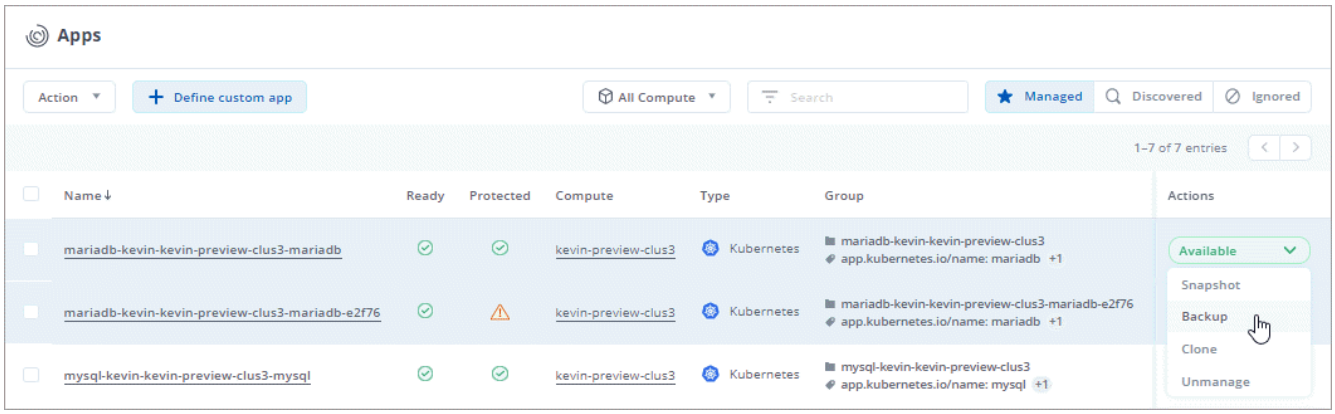
Astra creates a snapshot of the apps.

Create a backup

You can also back up an app at any time.

Steps

1. Click **Apps**.
2. Click the drop-down list in the **Actions** column for the desired app.
3. Click **Backup**.



4. Customize the name of the backup, choose whether to back up the app from an existing snapshot, and then click **Review Information**.
5. Review the backup summary and click **Backup App**.

Result

Astra creates a backup of the app.

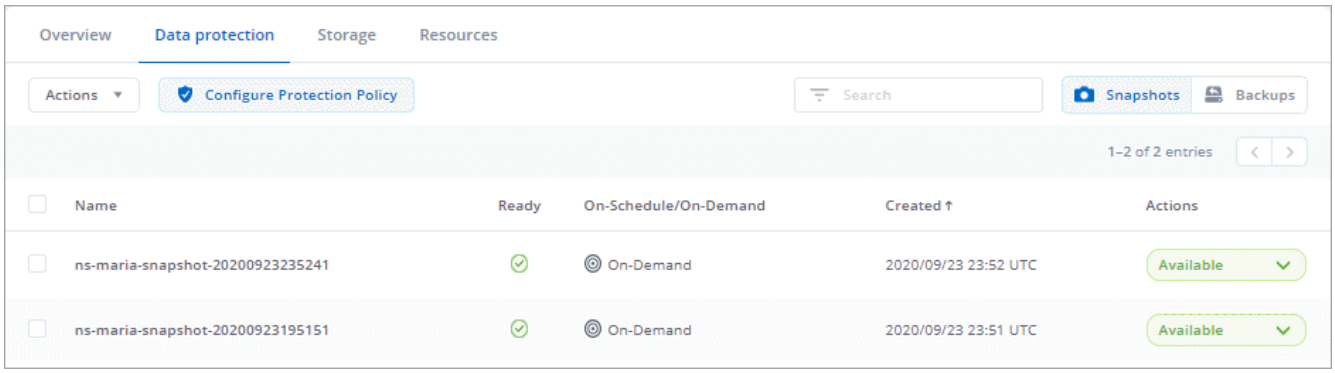
View snapshots and backups

You can view the snapshots and backups of an app from the Data Protection tab.

Steps

1. Click **Apps** and then click the name of a managed app.
2. Click **Data Protection**.

   The snapshots display by default.



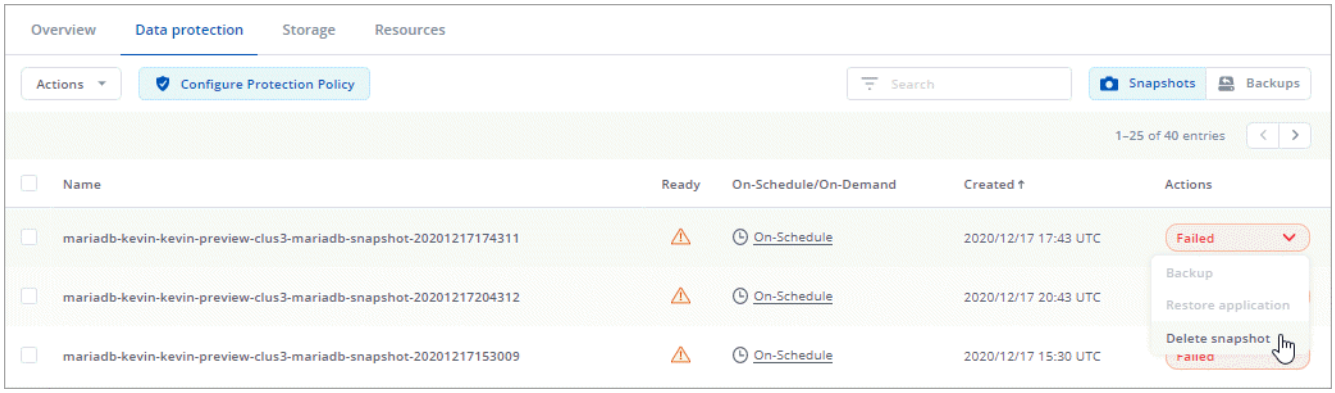
3. Click **Backups** to see the list of backups.

Delete snapshots

Delete the scheduled or on-demand snapshots that you no longer need.

Steps

1. Click **Apps** and then click the name of a managed app.
2. Click **Data Protection**.
3. Click the drop-down list in the **Actions** column for the desired snapshot.
4. Click **Delete snapshot**.



5. Type the name of the snapshot to confirm deletion and then click **Yes, Delete snapshot**.

Result

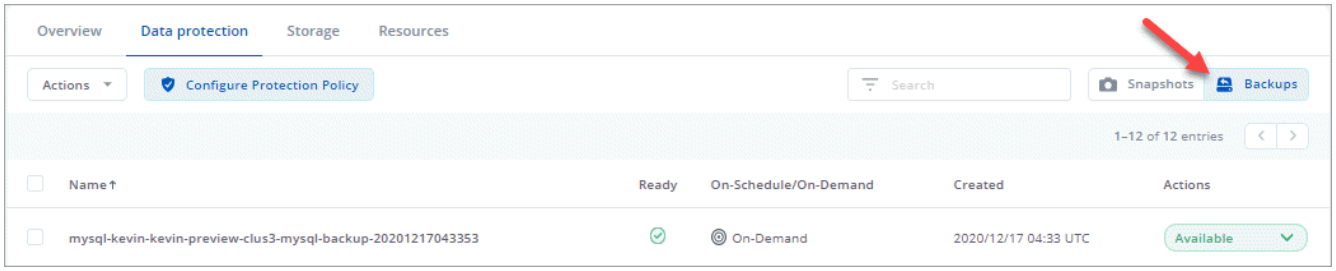
Astra deletes the snapshot.

Delete backups

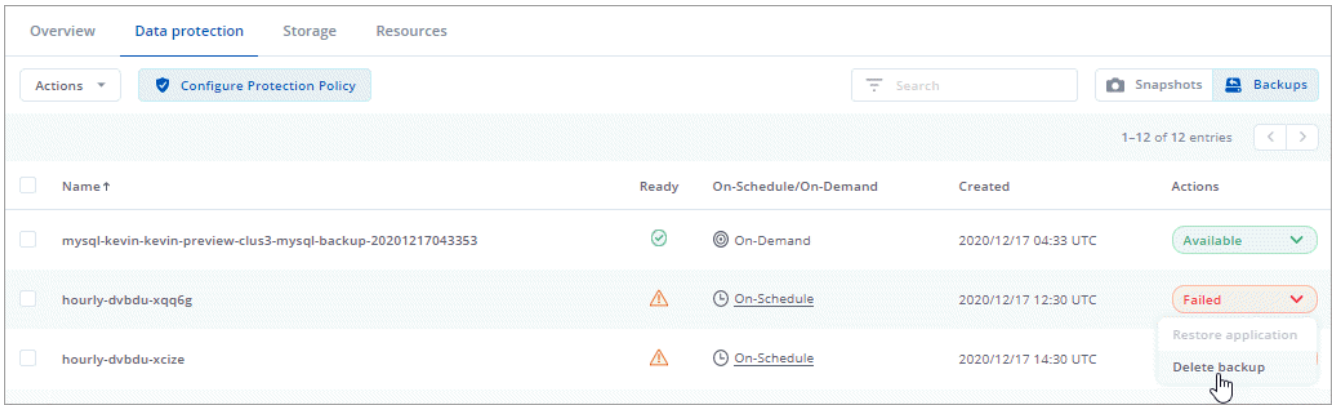
Delete the scheduled or on-demand backups that you no longer need.

1. Click **Apps** and then click the name of a managed app.
2. Click **Data Protection**.

3. Click **Backups**.



4. Click the drop-down list in the **Actions** column for the desired backup.
5. Click **Delete backup**.



6. Type the name of the backup to confirm deletion and then click **Yes, Delete backup**.

Result

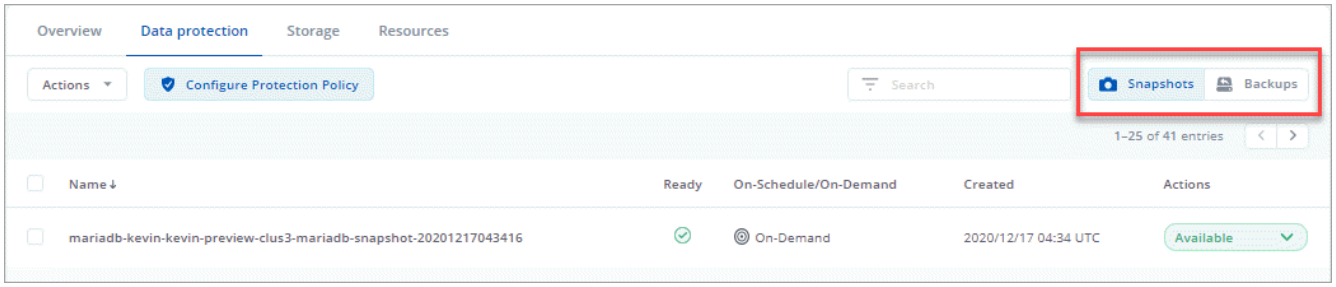
Astra deletes the backup.

Restore apps

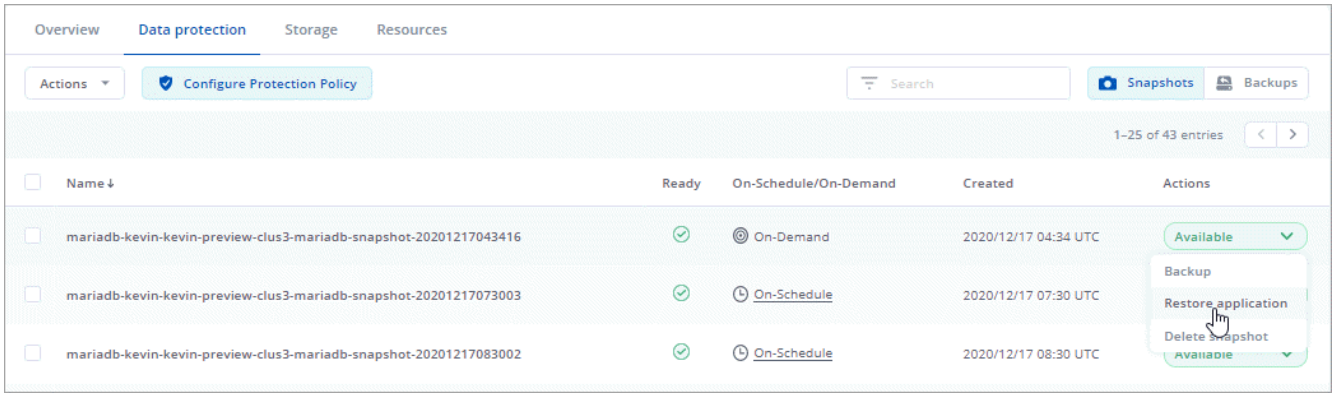
Astra can restore your application configuration and persistent storage from a snapshot or backup. Persistent storage backups are transferred from your object store, so restoring from an existing backup will complete the fastest.

Steps

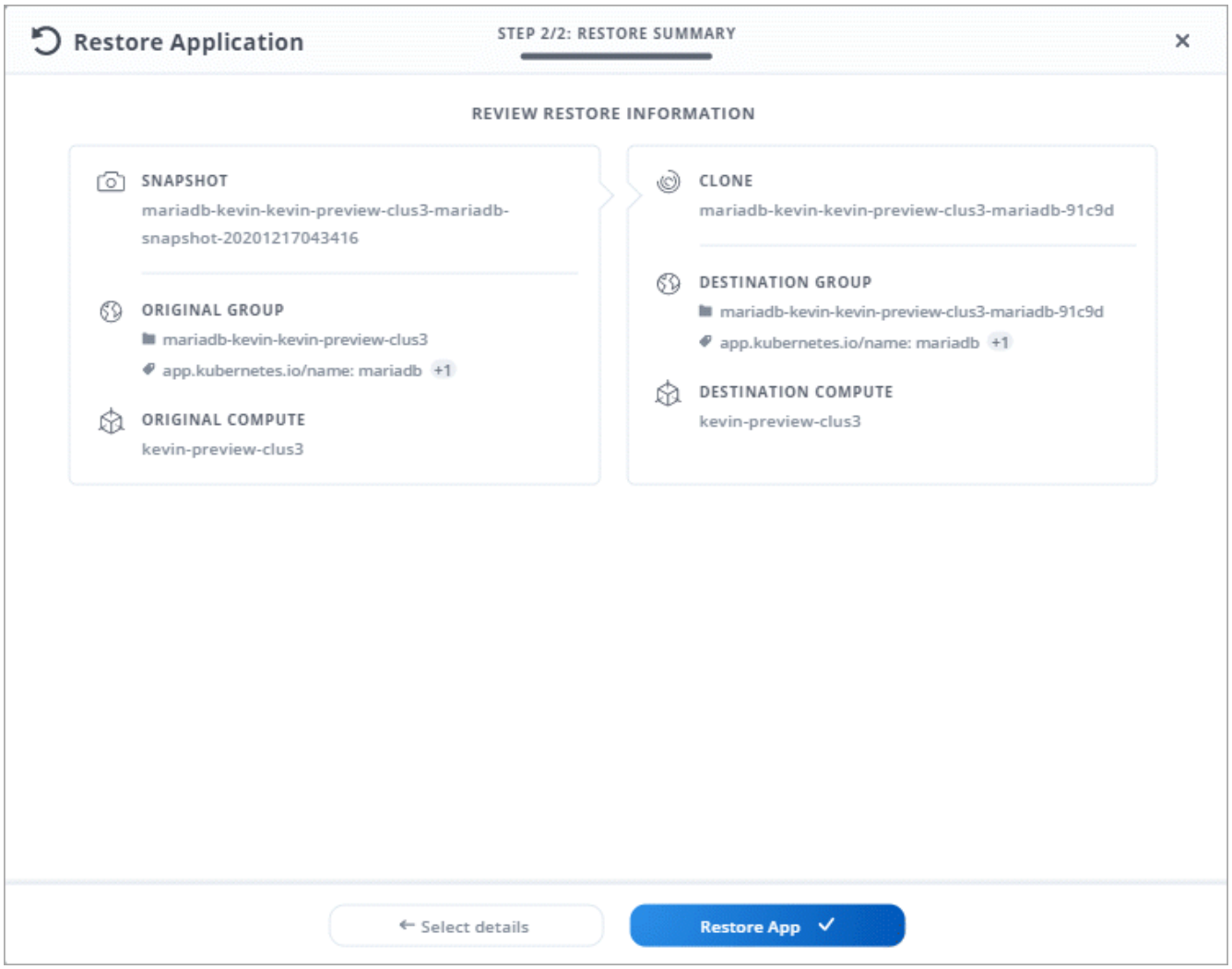
1. Click **Apps** and then click the name of a managed app.
2. Click **Data protection**.
3. If you want to restore from a snapshot, keep **Snapshots** selected. Otherwise, click **Backups** to restore from a backup.



4. Click the drop-down list in the **Actions** column for the snapshot or backup from which you want to restore.
5. Click **Restore application**.



6. **Restore details**: Specify details for the clone:
   - Enter a name and namespace for the app.
   - Choose the destination compute for the app.
   - Click **Review information**.
7. **Restore Summary**: Review details about the restore action and click **Restore App**.



Result

Astra restores the app based on the information that you provided.

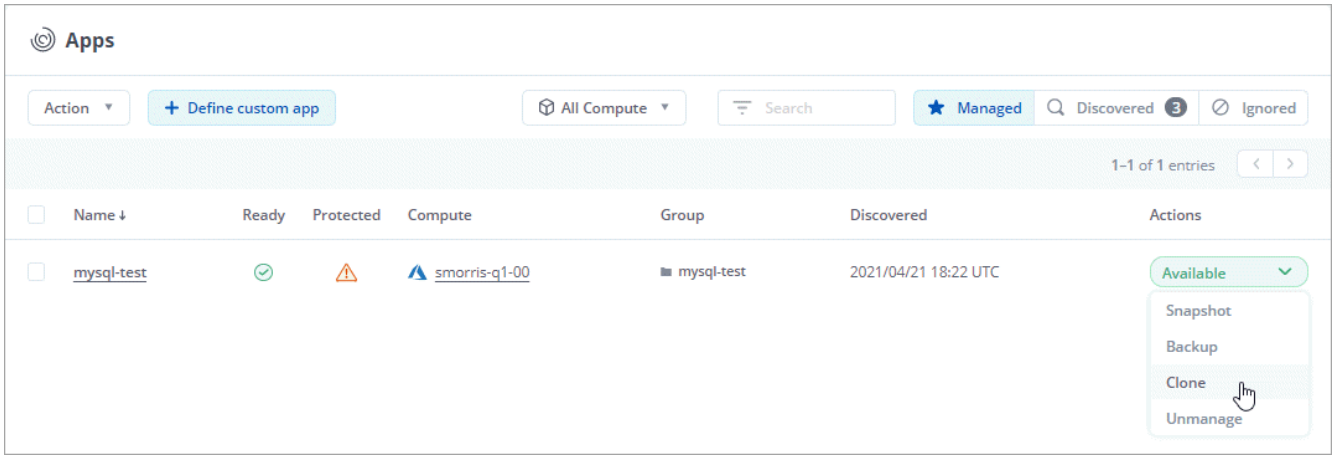
Clone and migrate apps

Clone an existing app to create a duplicate app on the same Kubernetes cluster or on another cluster. Cloning can help if you need to move applications and storage from one Kubernetes cluster to another. For example, you might want to move workloads through a CI/CD pipeline and across Kubernetes namespaces.

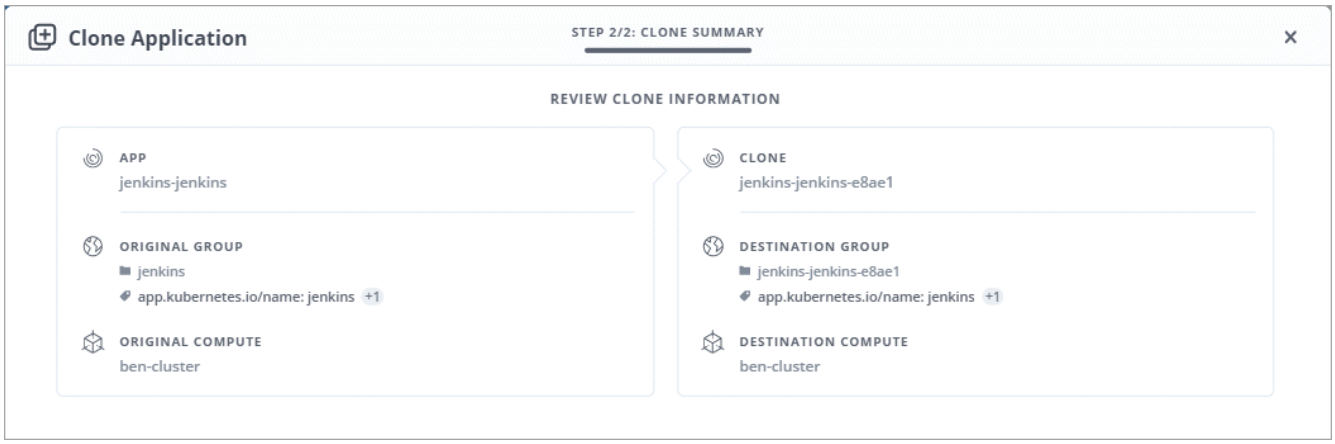
When Astra clones an app, it creates a clone of your application configuration and persistent storage.

Steps

1. Click **Apps**.
2. Click the drop-down list in the **Action** column for the desired app.
3. Click **Clone**.



4. **Clone details**: Specify details for the clone:
   - Keep the default name and namespace, or edit them.
   - Choose a destination compute for the clone.
   - Choose whether you want to create the clone from an existing snapshot or backup. If you don't select this option, Astra creates the clone from the app's current state.
5. **Clone Summary**: Review the details about the clone and click **Clone App**.



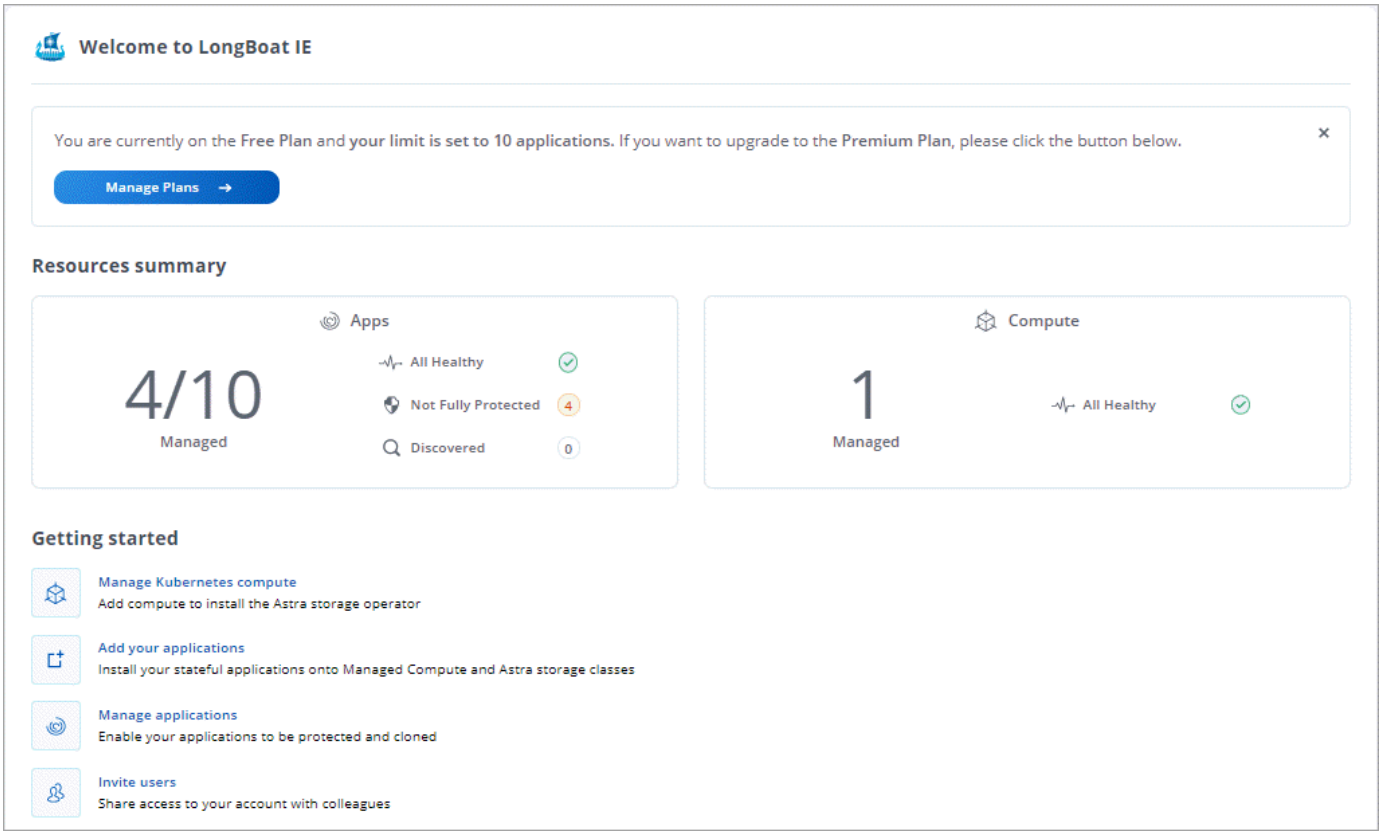
Result

Astra clones that app based on the information that you provided.

View app and compute health

View a summary of app and compute health

Click the **Dashboard** to see a high-level view of your apps, compute, and their health.



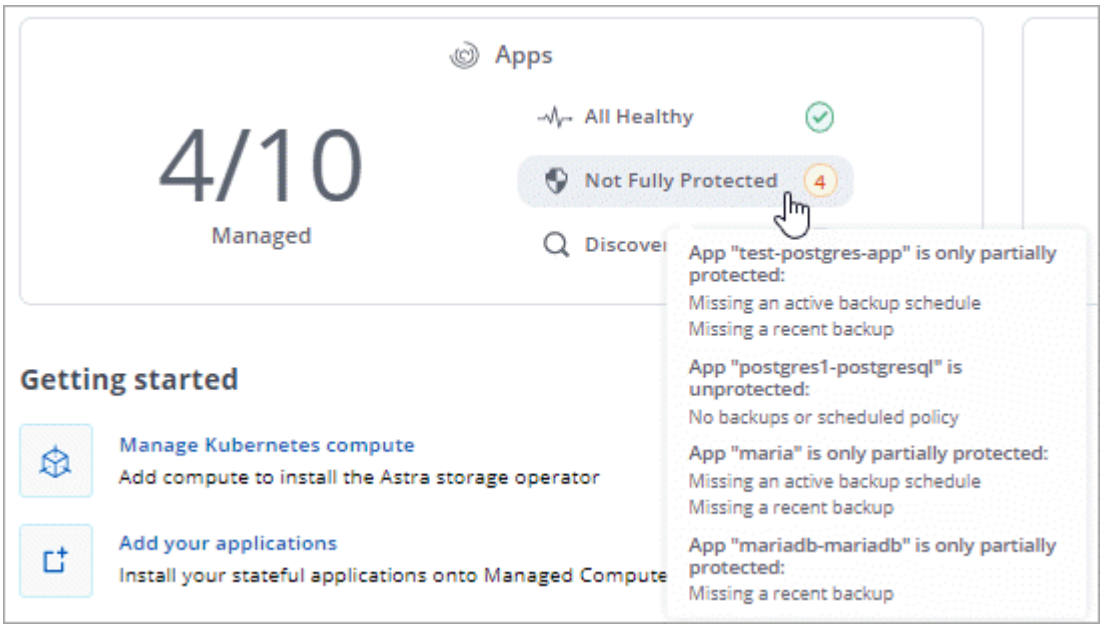
The Apps tile helps you identify the following:

- How many apps you're currently managing with Astra.
- Whether those managed apps are healthy.

- Whether the apps are fully protected (they're protected if recent backups are available).
- The number of apps that were discovered, but are not yet managed.

  Ideally, this number would be zero because you would either manage or ignore apps after they're discovered. And then you would monitor the number of discovered apps on the Dashboard to identify when developers add new apps to a cluster.

Note that these aren't just numbers or statuses—you can drill down from each of these. For example, if apps aren't fully protected, you can hover over the icon to identify which apps aren't fully protected, which includes a reason why.



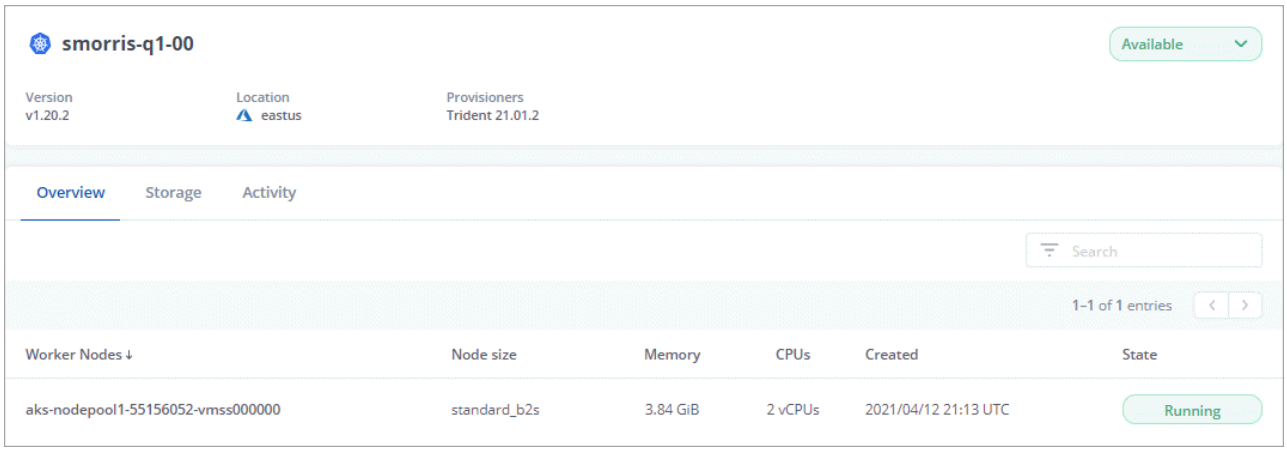
The Compute tile provides similar details about the health of the compute and you can drill down to get more details just like you can with an app.

View the health and details of compute

After you add Kubernetes compute to Astra, you can view details about the compute, such as its location, the worker nodes, persistent volumes, and storage classes.

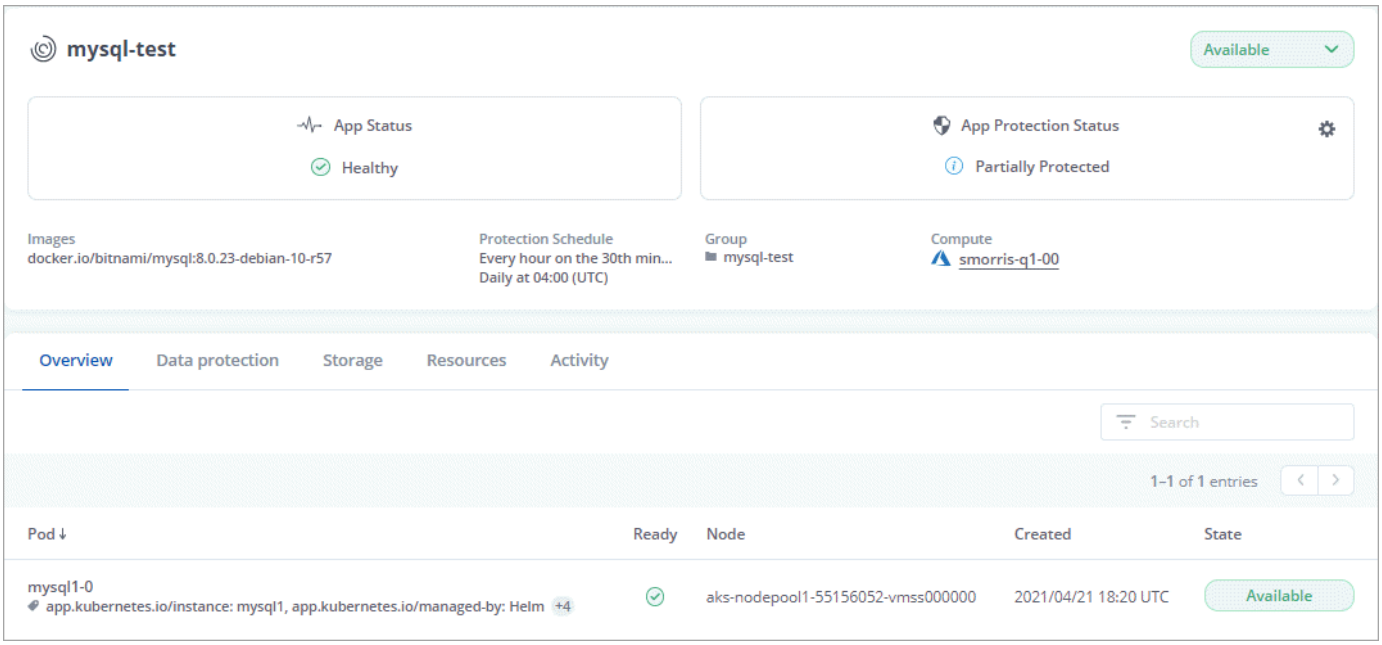
Steps

1. Click **Compute**.
2. Click the compute name.
3. View the information in the **Overview** and **Storage** tabs to find the information that you're looking for.
   - **Overview**: Details about the worker nodes, including their state.
   - **Storage**: The persistent volumes associated with the compute, including the storage class and state.
   - **Activity**: The Astra activities related to the compute.



View the health and details of an app

After you start managing an app, Astra provides details about the app that enables you to identify its status (whether it's healthy), its protection status (whether it's fully protected in case of failure), the pods, persistent storage, and more.



Steps

1. Click **Apps** and then click the name of an app.
2. Click around to find the information that you're looking for:

   App Status

   Provides a status that reflects the app's state in Kubernetes. For example, are pods and persistent volumes online? If an app is unhealthy, you'll need to go and troubleshoot the issue on the cluster by looking at Kubernetes logs. Astra doesn't provide information to help you fix a broken app.

   App Protection Status

   Provides a status of how well the app is protected:

- **Fully protected**: The app has an active backup schedule and a successful backup that's less than a week old
- **Partially protected**: The app has an active backup schedule, an active snapshot schedule, or a successful backup or snapshot
- **Unprotected**: Apps that are neither fully protected or partially protected.

  You can't be fully protected until you have a recent backup. This is important because backups are stored in an object store away from the persistent volumes. If a failure or accident wipes out the cluster and it's persistent storage, then you need a backup to recover. A snapshot wouldn't enable you to recover.

Overview

Information about the state of the pods that are associated with the app.

Data protection

Enables you to configure a data protection policy and to view the existing snapshots and backups.

Storage

Shows you the app-level persistent volumes. The state of a persistent volume is from the perspective of the Kubernetes cluster.

Resources

Enables you to verify which resources are being backed up and managed.

Activity

The Astra activities related to the app.

Manage your account

Set up billing

Astra's Free Plan enables you to manage up to 10 apps in your account. If you want to manage more than 10 apps, then you'll need to set up billing by upgrading from the Free Plan to the Premium Plan.

Billing overview

Astra offers three plans:

Free Plan

Manage up to 10 apps for free.

Premium PayGo

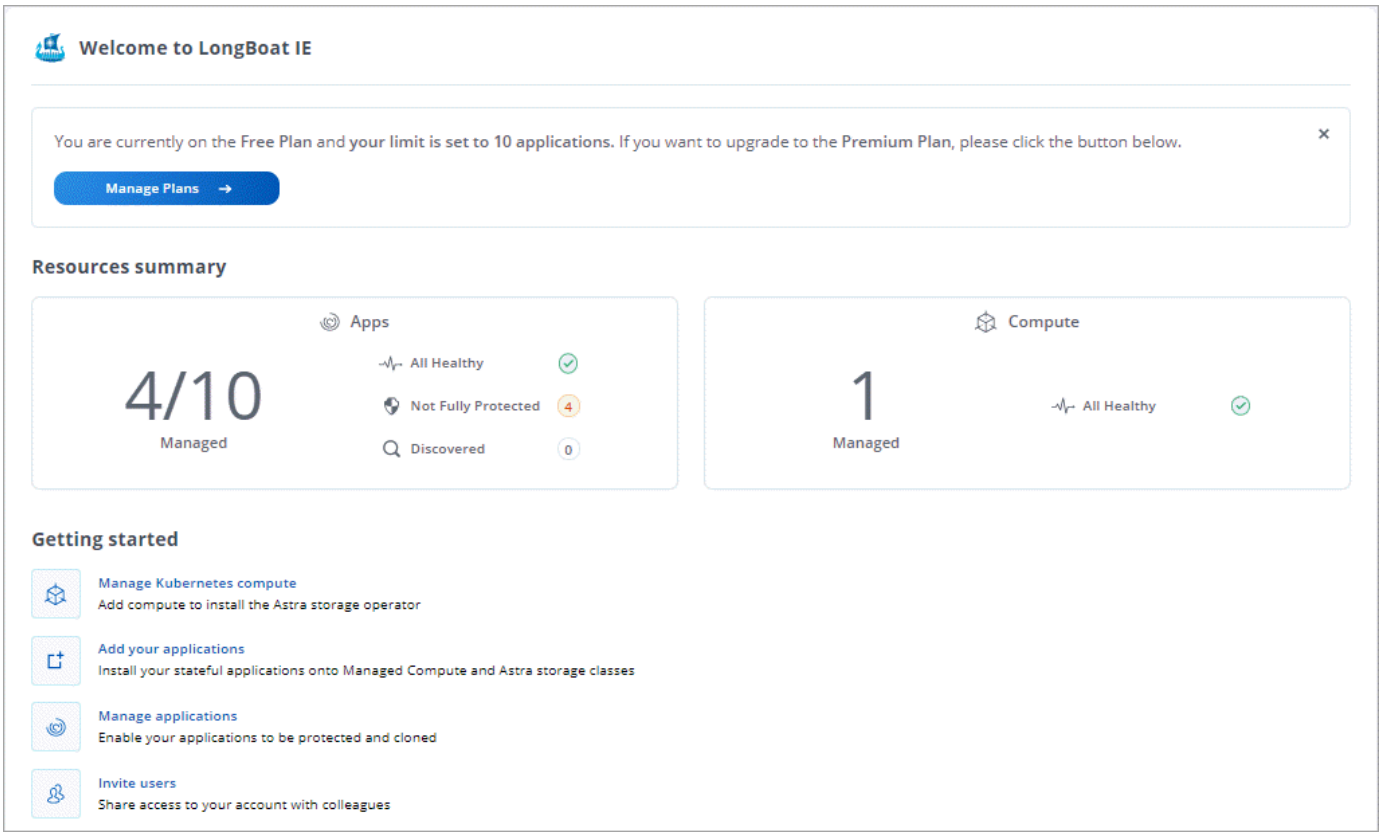
Manage an unlimited amount of apps at a rate of $.005 per minute, per app.

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. Astra's Dashboard shows you how many apps you're currently managing out of the 10 free apps that you're allowed:



When you try to manage an 11th app, Astra notifies you that you've reached the limit of the Free Plan. It then prompts you to upgrade from the Free Plan to a Premium Plan.

Learn more about Astra pricing.

Important notes

- Your billing plan is per Astra account.

  If you have multiple accounts, then each has its own billing plan.

- Your Astra bill includes charges for managing your Kubernetes apps. You're charged separately by your cloud provider for the backend storage for persistent volumes.

  Learn more about Astra pricing.

- Each billing period ends on the last day of the month.
- You can't downgrade from a Premium Plan to the Free Plan.

Upgrade from the Free Plan to the Premium PayGo Plan

Upgrade your billing plan at any time to start managing more than 10 apps from Astra by paying as you go. All

you need is a valid credit card.

Steps

1. Click **Account** and then click **Billing**.
2. Under **Plans**, go to **Premium PayGo** and click **Upgrade Now**.
3. Provide payment details for a valid credit card and click **Upgrade to Premium Plan**.

> Astra will email you if the credit card is nearing expiration.

Result

You can now manage more than 10 apps. Astra starts charging you for *all* apps that you're currently managing.

Upgrade from the Free Plan to the Premium Subscription

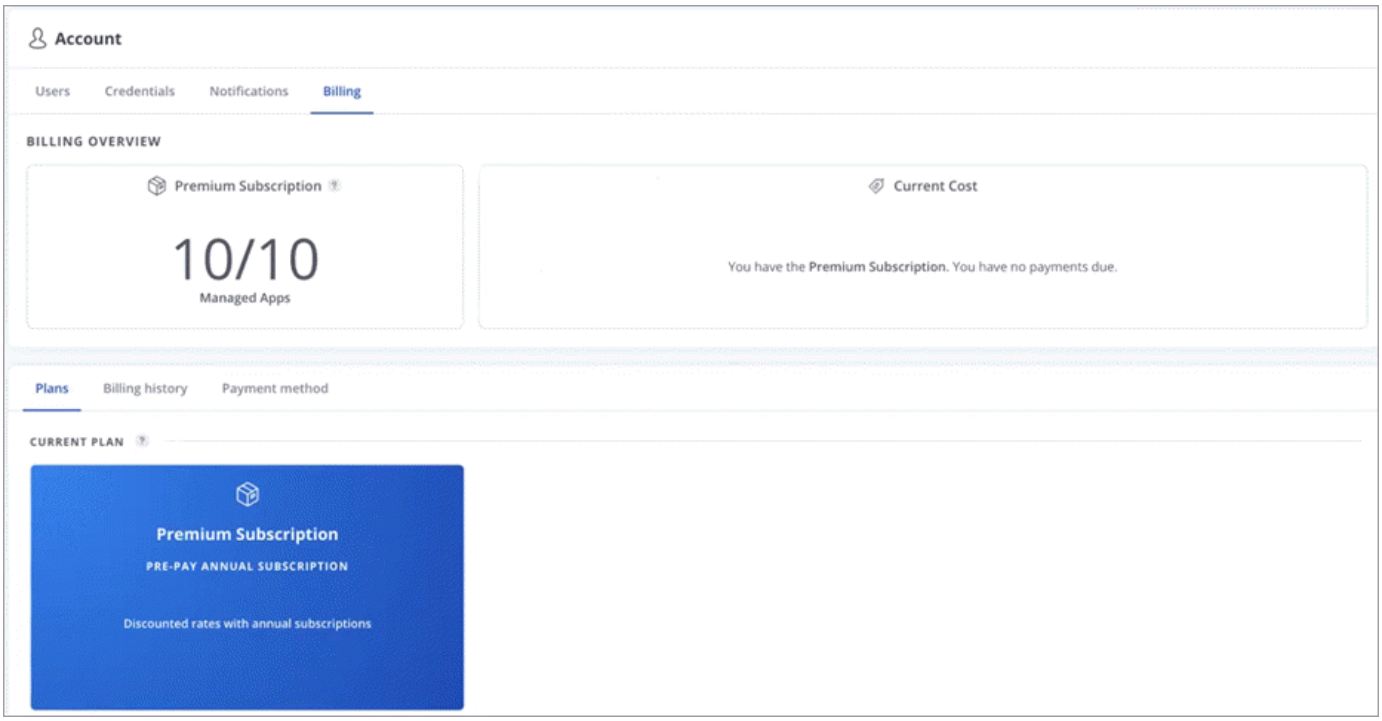
Contact NetApp Sales to pre-pay at a discounted rate with an annual subscription.

Steps

1. Click **Account** and then click **Billing**.
2. Under **Plans**, go to **Premium Subscription** and click **Contact Sales**.
3. Provide details to the sales team to start the process.

Result

A NetApp Sales representative will contact you to process your purchase order. After the order is complete, Astra will reflect your current plan on the Billing tab.



View your current costs and billing history

Astra shows you your current monthly costs, as well as a detailed billing history by app.

Steps

1. Click **Account** and then click **Billing**.

   Your current costs appear under the billing overview.

2. To view the billing history by app, click **Billing history**.

   Astra shows you the usage minutes and cost for each app. A usage minute is how many minutes Astra managed your app during a billing period.

3. Click the drop-down list to select a previous month.

Change the credit card for Premium PayGo

If needed, you can change the credit card that Astra has on file for billing.

Steps

1. Click **Account > Billing > Payment method**.
2. Click the configure icon.
3. Modify the credit card.

Invite and remove users

Invite users to join your Astra account and remove users that should no longer have access to the account.

Invite users

Account Owners and Admins can invite other users to join the Astra account.

Steps

1. Make sure that the user has a Cloud Central login.
2. Click **Account**.
3. In the **Users** tab, click **+ Invite users**.
4. Enter the user's name, email address, and their role.

   Note the following:

   - The email address must match the email address that the user used to sign up to Cloud Central.
   - Each role provides the following permissions:
     - An **Owner** has Admin permissions and can delete accounts.
     - An **Admin** has Member permissions and can invite other users.
     - A **Member** can fully manage apps and compute.
     - A **Viewer** can view resources.

5. Click **Send invite(s)**.

Result

The user will receive an email that invites them to join your account.

Change a user's role

An Account Owner can change the role of all users, while an Account Admin can change the role of users who have the Admin, Member, or Viewer role.

Steps

1. Click **Account**.
2. In the **Users** tab, select the drop-down list in the **Role** column for the user.
3. Select a new role and then click **Change Role** when prompted.

Result

Astra updates the user's permissions based on the new role that you selected.

Remove users

An Account Owner can remove other users from the account at any time.

Steps

1. Click **Account**.
2. In the **Users** tab, select the users that you want to remove.
3. Click **Actions** and select **Remove user/s**.
4. When you're prompted, confirm deletion by typing the user's name and then click **Yes, Remove User**.

Result

Astra removes the user from the account.

View account activity

You can view details about the activities in your Astra account. For example, when new users were invited, when compute was added, or when a snapshot was taken. You also have the ability to export your account activity to a CSV file.

Steps to view all account activity in Astra

1. Click **Activity**.
2. Use the filters to narrow down the list of activities or use the search box to find exactly what you're looking for.
3. Click **Export to CSV** to download your account activity to a CSV file.

Steps to view account activity for a specific app

1. Click **Apps** and then click the name of an app.
2. Click **Activity**.

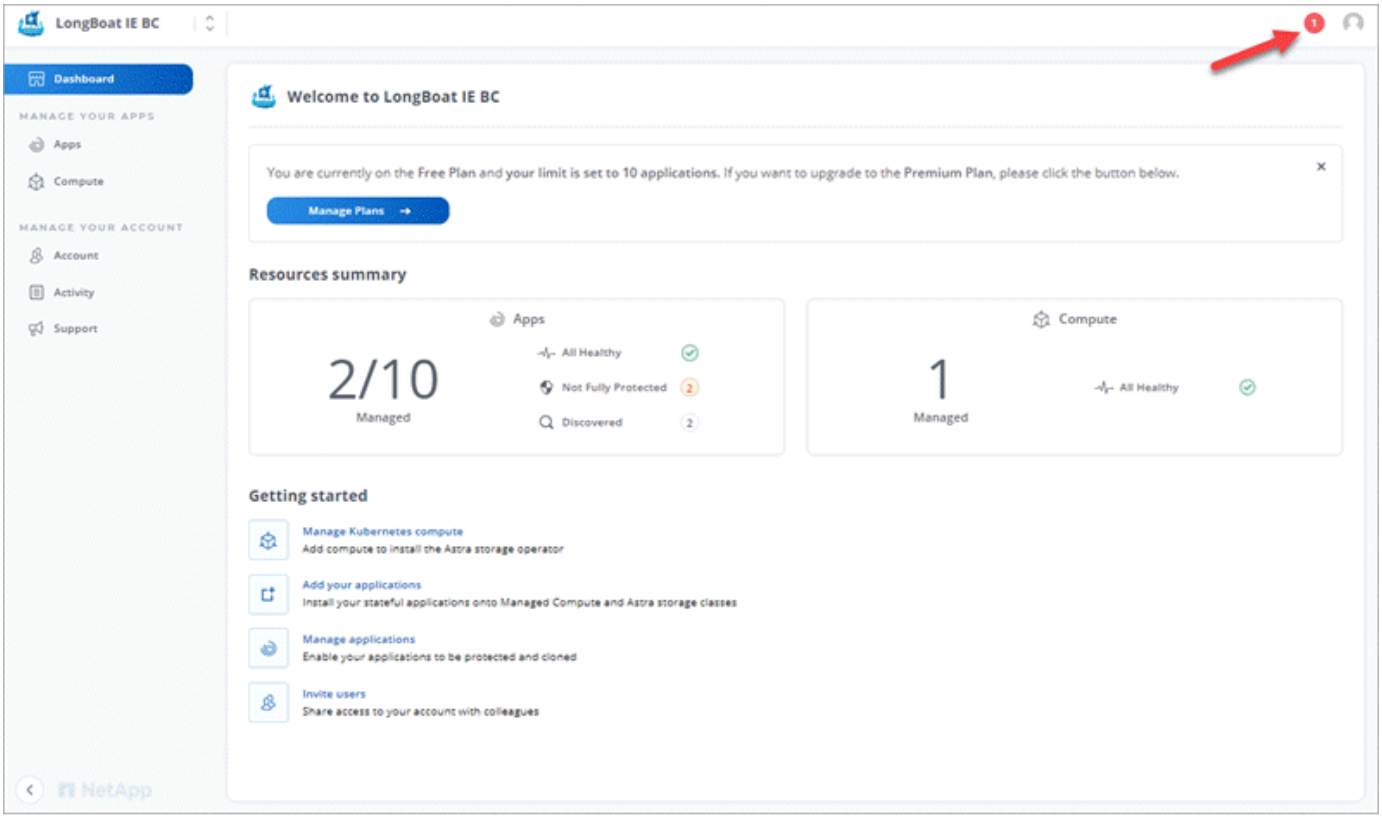
Steps to view account activity for compute

1. Click **Compute** and then click the name of the compute.
2. Click **Activity**.

View and manage notifications

Astra notifies you when actions have completed or failed. For example, you'll see a notification if a backup of an app completed successfully.

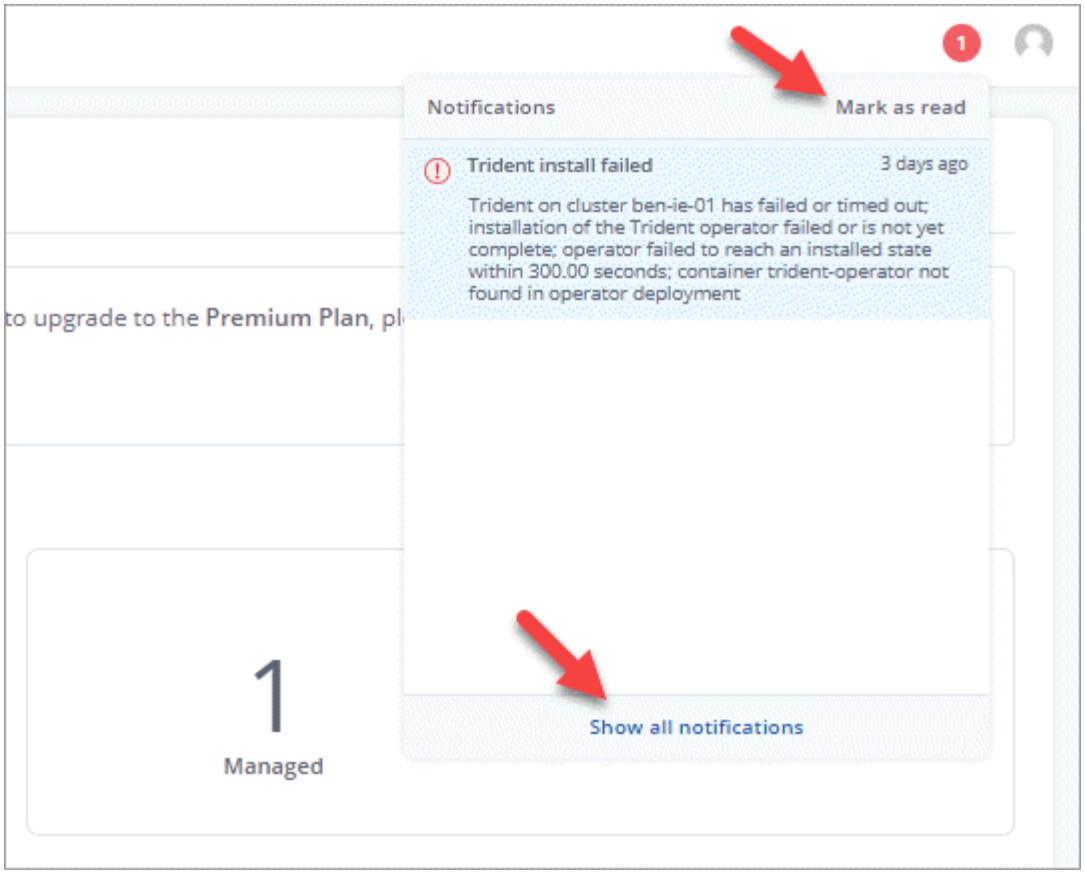
The number of unread notifications is available in the top right of the interface:



You can view these notifications and mark them as read (this can come in handy if you like to clear unread notifications like we do).

Steps

1. Click the number of unread notifications in the top right.



2. Review the notifications and then click **Mark as read** or **Show all notifications**.

   If you clicked **Show all notifications**, the Notifications page loads.

3. On the **Notifications** page, view the notifications, select the ones that you want to mark as read, click **Action** and select **Mark as read**.

Close your account

If you no longer need your Astra account, you can close it at any time.

Steps

1. Unmanage all apps and compute.
2. Remove credentials from Astra.
3. Click **Account > Billing > Payment method**.
4. Click **Close Account**.
5. Enter your account name and confirm to close the account.

Unmanage apps and compute

Remove any apps or compute that you no longer want to manage from Astra.

Stop managing an app

Stop managing apps that you no longer want to back up, snapshot, or clone from Astra.

- Any existing backups and snapshots will be deleted.
- Applications and data remain available.

Steps

1. Click **Apps**.
2. Click the checkbox for the apps that you no longer want to manage.
3. Click the **Action** drop-down and select **Unmanage application/s**.
4. Confirm that you want to unmanage the apps and then click **Yes, Unmanage Applications**.

Result

Astra stops managing the app.

Stop managing compute

Stop managing the compute that you no longer want to manage from Astra. As a best practice, we recommend that you remove compute from Astra before you delete it through your cloud provider.

- This action stops your compute from being managed by Astra. It doesn't make any changes to the cluster's configuration and it doesn't delete the cluster.
- Trident won't be uninstalled from the cluster. Learn how to uninstall Trident.

Steps

1. Click **Compute**.
2. Click the checkbox for the compute that you no longer want to manage.
3. Click the **Actions** drop-down and select **Unmanage compute/s**.
4. Confirm that you want to unmanage the compute and then click **Yes, Unmanage Compute**.

Result

Astra stops managing the compute.

Deleting clusters from your cloud provider

Before you delete a Kubernetes cluster that has persistent volumes (PV) residing on NetApp storage classes, you need to first delete the persistent volume claims (PVC) following one of the methods below. Deleting the PVC and PV before deleting the cluster ensures that you don't receive unexpected bills from your cloud provider.

- **Method #1**: Delete the application workload namespaces from the cluster. Do *not* delete the Trident namespace.
- **Method #2**: Delete the PVCs and the pods, or the deployment where the PVs are mounted.

When you manage a Kubernetes cluster from Astra, applications on that cluster use Cloud Volumes Service or Azure NetApp Files as the backend storage for persistent volumes. If you delete the cluster from your cloud provider without first removing the PVs, the backend volumes are *not* deleted along with the cluster.

Using one of the above methods will delete the corresponding PVs from your cluster. Make sure that there are no PVs residing on NetApp storage classes on the cluster before you delete it.

If you didn't delete the persistent volumes before you deleted the cluster, then you'll need to manually delete

the backend volumes from Azure NetApp Files.

Automation using the Astra REST API

Astra has a REST API that enables you to directly access the Astra functionality using a programming language or utility such as Curl. You can also manage Astra deployments using Ansible and other automation technologies.

To learn more, go to the Astra automation docs.

Learn

Storage classes and PV size for AKS clusters

Astra uses Azure NetApp Files as the backend storage for Azure Kubernetes Service (AKS) clusters. You should understand how choosing a storage class and persistent volume size can help you meet your performance objectives.

Service levels and storage classes

Azure NetApp Files supports three service levels: Ultra storage, Premium storage, and Standard storage. Each of these service levels are designed for different performance needs:

Ultra storage
: Provides up to 128 MiB/s of throughput per 1 TiB.

Premium storage
: Provides up to 64 MiB/s of throughput per 1 TiB.

Standard storage
: Provides up to 16 Mib/s of throughput per 1 TiB.

These service levels are an attribute of a capacity pool. You need to set up a capacity pool for each service level that you want to use with your Kubernetes clusters. Learn how to set up capacity pools.

Astra uses these service levels as storage classes for your persistent volumes. When you add Kubernetes compute to Astra, you're prompted to choose either Ultra, Premium, or Standard as the default storage class. The names of the storage classes are *netapp-anf-perf-ultra*, *netapp-anf-perf-premium*, and *netapp-anf-perf-standard*.

Learn more about these service levels in the Azure NetApp Files docs.

Persistent volume size and performance

As described above, the throughput for each service level is per 1 TiB of provisioned capacity. That means larger volumes provide better performance. So you should take both capacity and performance needs into consideration when provisioning volumes.

Minimum volume size

Astra provisions persistent volumes using a minimum volume size of 100 GiB, even if the PVC asks for a smaller volume size. For example, if the PVC in a Helm chart asks for 6 GiB, Astra automatically provisions a 100 GiB volume.

Validated vs standard apps

There are two types of applications you can bring to Astra: Validated and Standard. Learn the difference between these two categories, and the potential impacts on your projects and strategy.

It’s tempting to think of these two categories as "supported" and "unsupported." But as you will see, there is no such thing as an "unsupported" app in Astra. You can add any app to Astra, although validated apps have more infrastructure built around their Astra workflows compared to standard apps.

Validated Apps

Validated apps for Astra include the following:

- MySQL 0.3.22
- MariaDB 14.14
- PostgreSQL 11.7
- Jenkins 2.249.1 LTS

The short list of validated apps represents applications that Astra recognizes. The Astra QA team has analyzed and confirmed these apps to be fully tested to restore.

Validated apps have also been checked by the Astra Development team, which creates custom workflows to help ensure the safety and consistency of your data. For example, when Astra takes a backup of a PostgreSQL database, it first quiesces the database. After the backup is complete, Astra restores the database to normal operation.

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

Let us know what apps you would like to see validated in the future. Contact us through the Feedback email address on the Support page.

Standard Apps

Any other app, including custom programs, is considered a standard app. You can add and manage standard apps through Astra. You can also create basic crash-consistent Snapshots and Backups of a standard app. However, these have not been QA-tested to restore the app to its original state.

Define a custom app

Creating a custom app lets you group elements of your Kubernetes cluster into a single app.

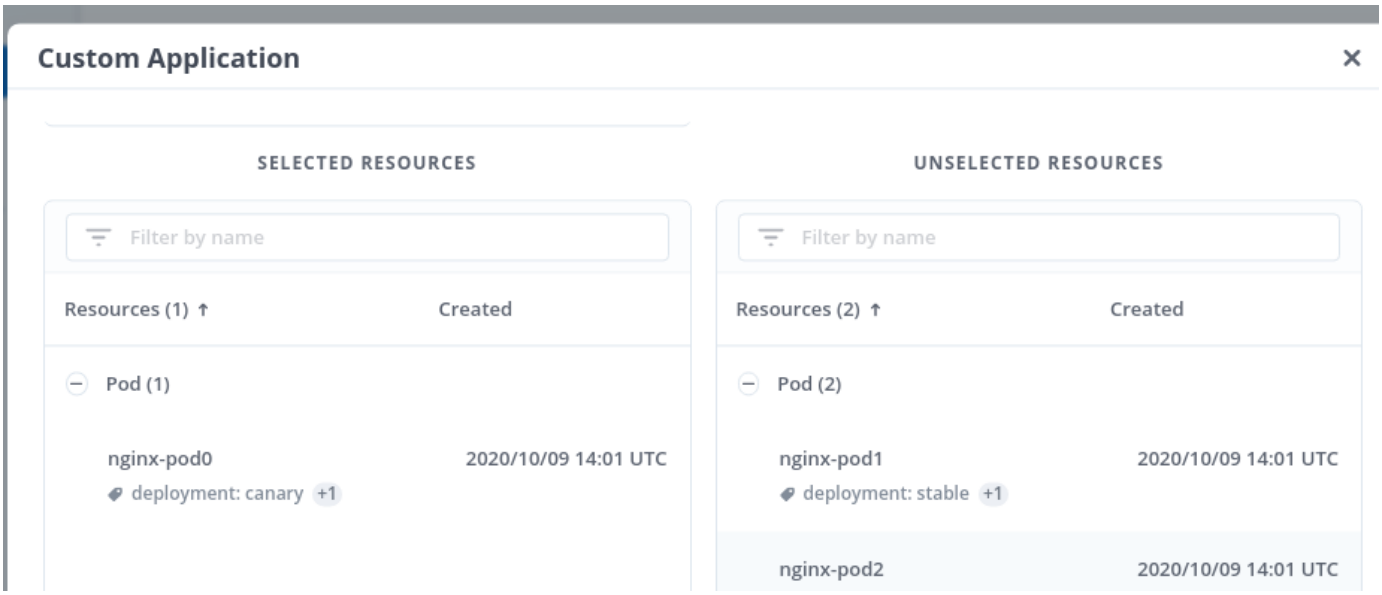
A custom app gives you more granular control over what to include in a Astra operation, including:

- Clone
- Snapshot
- Backup
- Protection Policy

In most cases you will want to use Astra’s features on your entire app. However, you can also create a custom app to use these features by the labels you assign to Kubernetes objects in a namespace.

To create a custom app, go to the Apps page and click **+ Define custom app**.

As you make your selections, the Custom App window will show you which resources will be included or excluded from your custom app. This helps you make sure you are choosing the correct criteria for defining your custom app.



In the above example, one resource (the pod `nginx-pod0` labeled `deployment:canary`) will be included in the custom app. Two pods (`nginx-pod` and `nginx-pod2` both labeled `deployment:stable`) will be excluded.

> Custom apps can only be created within a specified namespace on a single cluster. Astra does not support the ability for a custom app to span multiple namespaces or clusters.

A label is a key/value pair you can assign to Kubernetes objects for identification. Labels make it easier to sort, organize, and find your Kubernetes objects. To learn more about Kubernetes labels, see the official Kubernetes documentation.

> Overlapping policies for the same resource under different names can cause data conflicts. If you create a custom app for a resource, be sure it's not being cloned or backed up under any other policies.

Example: Separate Protection Policy for canary release

In this example, the devops team is managing a canary release deployment. Their cluster has three pods running NginX. Two of the pods are dedicated to the stable release. The third pod is for the canary release.

The devops team's Kubernetes admin adds the label `deployment=stable` to the stable release pods. She adds the label `deployment=canary` to the canary release pod.

```
:~$ kubectl get pods --namespace=nginx-app --show-labels
NAME         READY   STATUS    RESTARTS   AGE   LABELS
nginx-pod0   1/1     Running   0          50s   deployment=canary,run=nginx-pod0
nginx-pod1   1/1     Running   0          45s   deployment=stable,run=nginx-pod1
nginx-pod2   1/1     Running   0          41s   deployment=stable,run=nginx-pod2
:~$
```

The team's stable release includes a requirement for hourly snapshots and daily backups. The canary release

is more ephemeral, so they want to create a less aggressive, short-term Protection Policy for anything labeled `deployment=canary`.

In order to avoid possible data conflicts, the admin will create two custom apps: one for the canary release, and one for the stable release. This keeps the backups, snapshots, and clone operations separate for the two groups of Kubernetes objects.

After she adds the cluster to Astra, her next step is to define a custom app. To do this, she clicks the **+ Define custom app** button on the Apps page.

In the pop-up window which appears, she sets `devops-canary-deployment` as the app name. She chooses the cluster in the **Compute** drop-down, then the app's namespace from the **Namespace** drop-down.

At this point, she can either type `deployment=canary` in the **Labels** field, or select that label from the resources listed below.

After defining the custom app for the canary deployment, she repeats the process for the stable deployment.

When she has finished creating the two custom apps, she can treat these resources as any other Astra application. She can clone them, create backups and snapshots, and create a custom Protection Policy for each group of resources based on her Kubernetes labels.

Knowledge and support

Register for support

Astra attempts to automatically register your account for support when you set up your account. If it can't, then you can manually register for support yourself. Support registration is required to obtain help from NetApp technical support.

Verify your support registration

Astra includes a Support Status field that enables you to confirm your support registration.

Steps

1. Click **Support**.
2. Take a look at the Support Status field.

   The Support Status starts off as "Not Registered" but then moves to "In-Progress" and finally to "Registered" once complete.

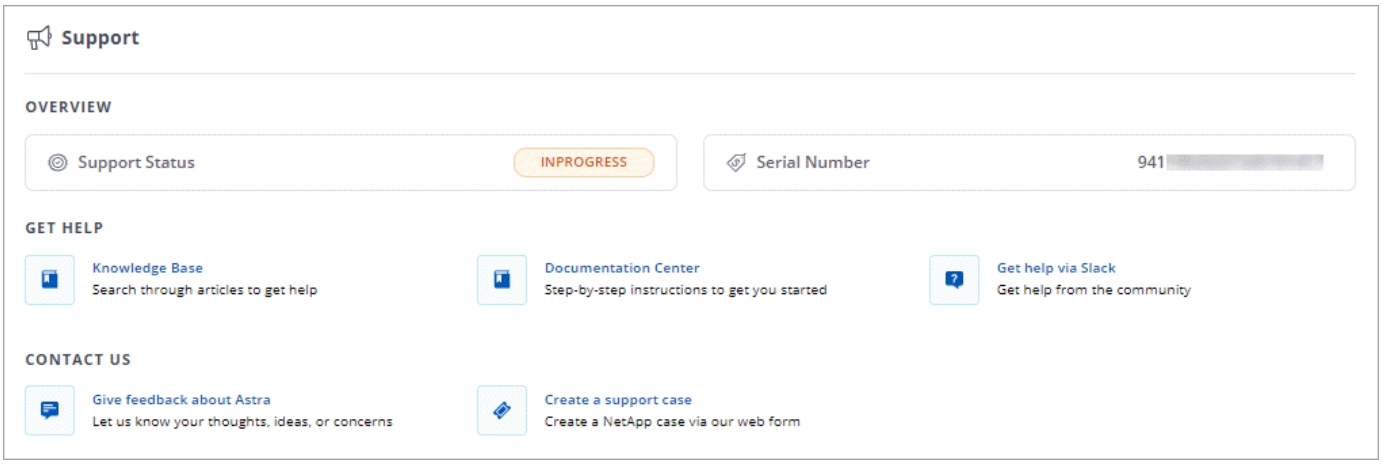
   This support registration status is polled every 15 minutes. New NetApp customers could take up to next business day to complete onboarding and support registration. If the serial number doesn't show "Registered" within 48 hours, you can reach out to NetApp using astra.feedback@netapp.com or register manually from https://register.netapp.com.

Obtain your serial number

When you register for an account, Astra uses the information that you provided about your company to generate a 20-digit NetApp serial number that starts with "941."

The NetApp serial number represents your Astra account. You'll need to use this serial number when opening a web ticket.

You can find your serial number in the Astra interface from the **Support** page.



Activate support entitlement

If Astra was unable to automatically register your account for support, then you must register the NetApp serial

number associated with Astra to activate support entitlement. We offer 2 options for support registration:

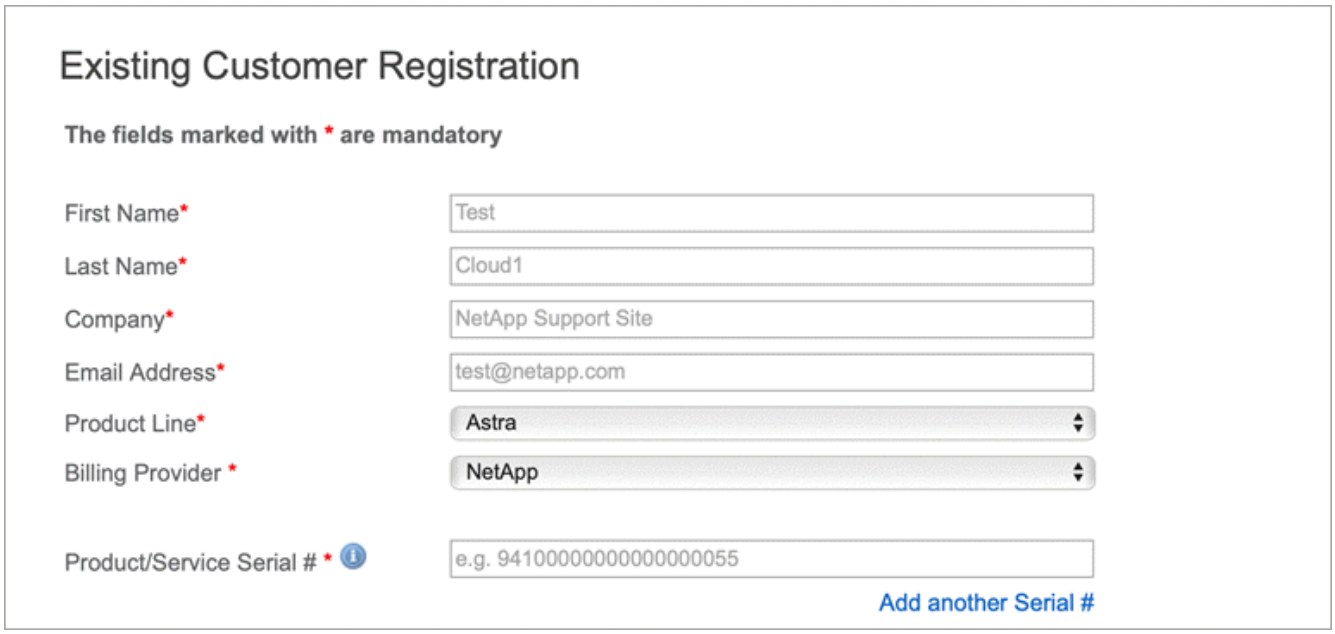
1. Current NetApp customer with existing NetApp Support Site (NSS) SSO account
2. New NetApp customer with no existing NetApp Support Site (NSS) SSO account

Option 1: Current NetApp customer with an existing NetApp Support Site (NSS) account

Steps

1. Navigate to the Cloud Data Services Support Registration page to create an NSS account.
2. Click **I am already registered as a NetApp customer**.
3. Enter your NetApp Support Site credentials to log in.

   The Existing Customer Registration page displays.



4. Complete the required information on the form:
   a. Enter your name, company, and email address.
   b. Select **Astra** as the product line.
   c. Enter your serial number.
   d. Click **Submit Registration**.

Result

You should be redirected to a "Registration Submitted Successfully" page. The email address associated with your registration will receive an email within a couple minutes stating that "your product is now eligible for support."

This is a one-time support registration for the applicable serial number.

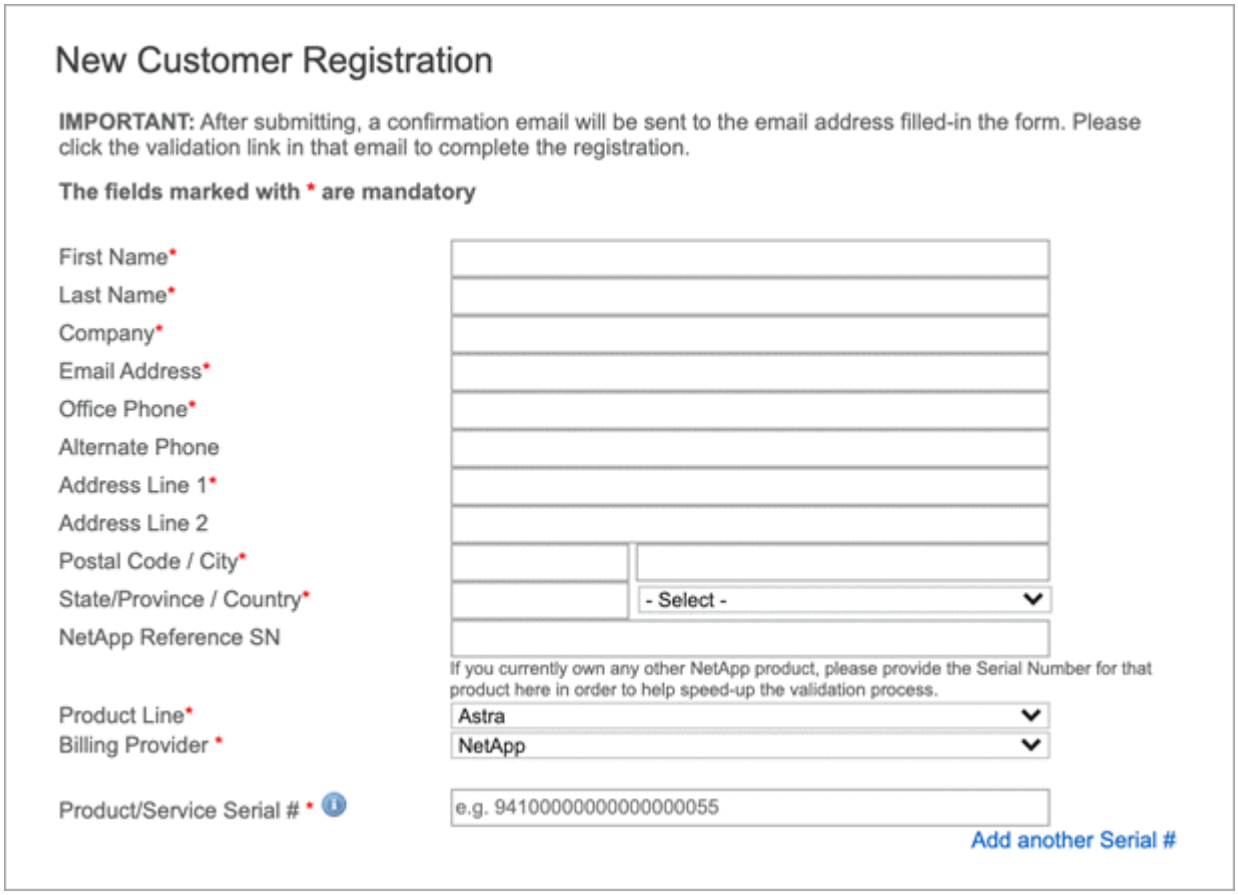
Option 2: New NetApp customer with no existing NetApp Support Site (NSS) account

Steps

1. Navigate to the Cloud Data Services Support Registration page to create an NSS account.

2. Click **I am not a registered NetApp Customer**.

   The New Customer Registration page displays.



3. Complete the required information on the form:
   a. Enter your name and company information.
   b. Select **Astra** as the Product Line.
   c. Enter your serial number.
   d. Click **Submit Registration**.

      You will receive a confirmation email from your submitted registration. If no errors occur, you will be re-directed to a "Registration Submitted Successfully" page. You will also receive an email within an hour stating that "your product is now eligible for support".

      This is a one-time support registration for the applicable serial number.

4. As a new NetApp customer, you also need to create a NetApp Support Site (NSS) user account for future support activations and for access to the support portal for technical support chat and web ticketing.

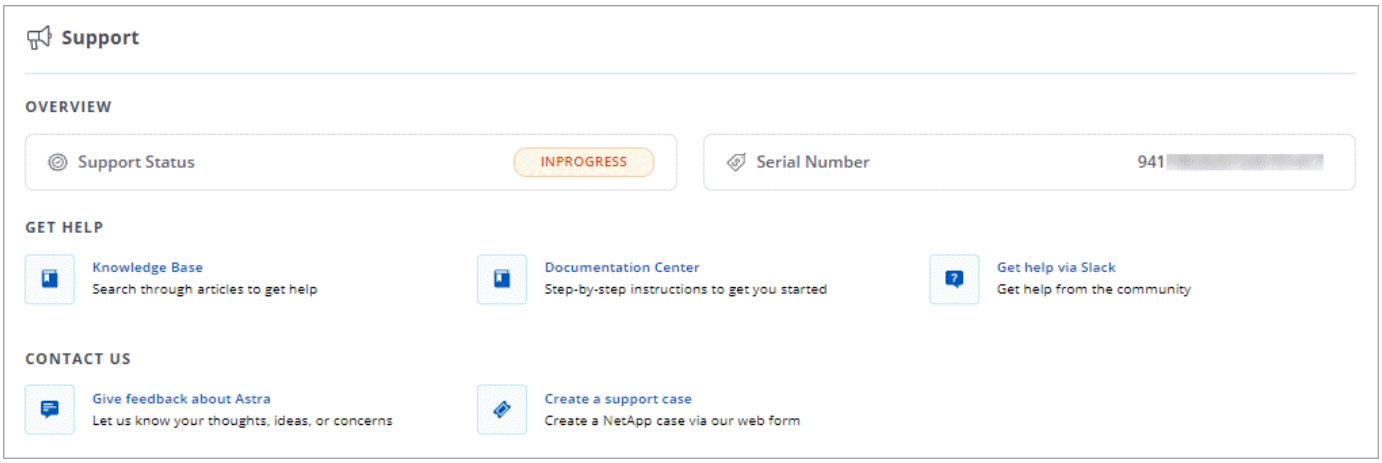
   Go to the NetApp Support Registration site to perform this task. You can provide your newly registered Astra serial number to expedite the process.

Get help

NetApp provides support for Astra in a variety of ways. Extensive free self-support options are available 24x7, such as knowledgebase (KB) articles and a Slack channel. Your Astra account includes remote technical support via web ticketing.

You must first activate support for your NetApp serial number in order to use these non self-service support options. A NetApp Support Site (NSS) SSO account is required for chat and web ticketing along with case management.

You can access support options from the Astra UI by selecting the **Support** tab from the main menu.



Self support

These options are available for free 24x7:

- Knowledge base

  Search for articles, FAQ's, or Break Fix information related to Astra.

- Documentation

  This is the doc site that you're currently viewing.

- Slack

  Go to the containers channel in thePub workspace to connect with peers and experts.

- Feedback email

  Send an email to astra.feedback@netapp.com to let us know your thoughts, ideas, or concerns.

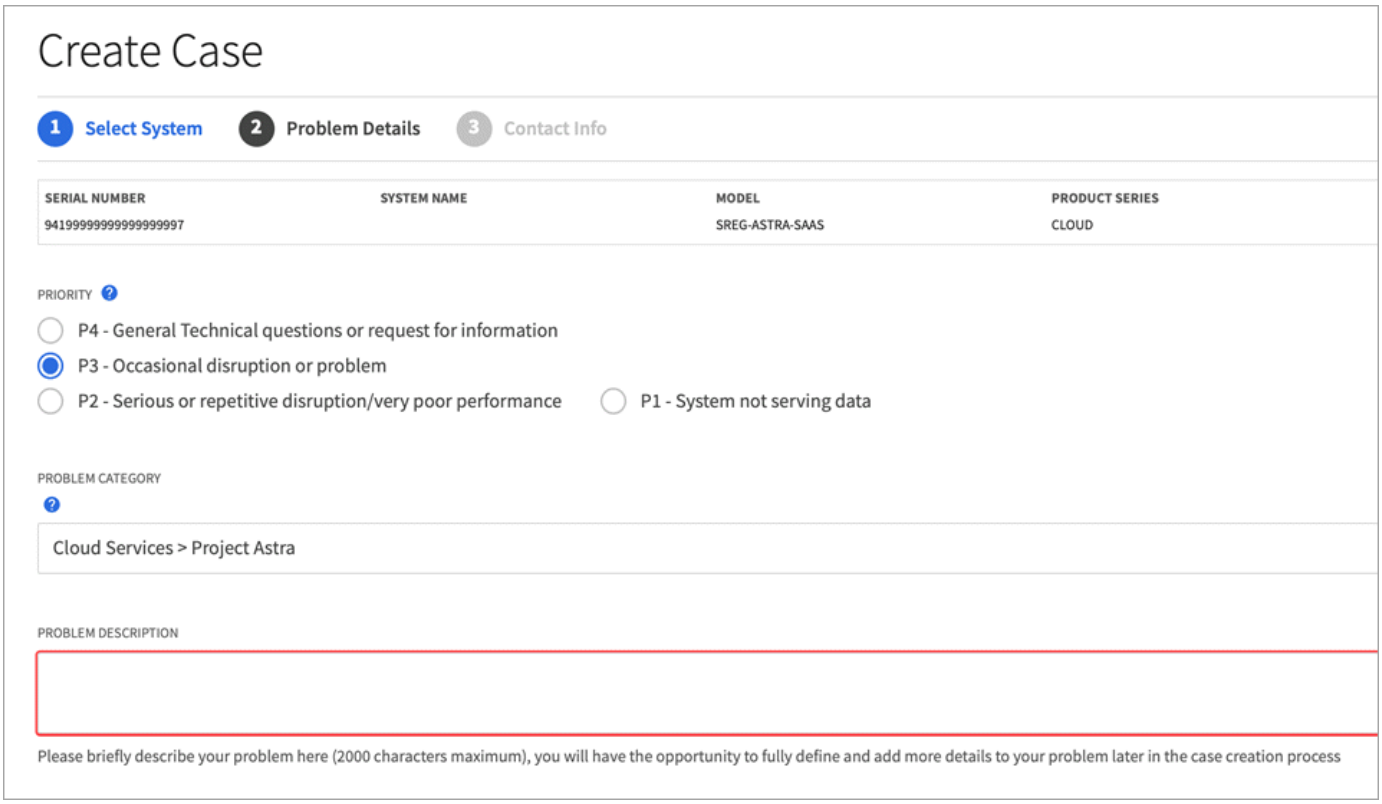
Subscription support

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

Once your Astra serial number is activated, you can access NetApp technical support resources by creating a Support ticket.

Select **Cloud Data Services > Astra**.

Use your "941" serial number to open the web ticket. Learn more about your serial number.



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