Get started

BlueXP disaster recovery

NetApp
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Get started

Learn about BlueXP disaster recovery for VMware

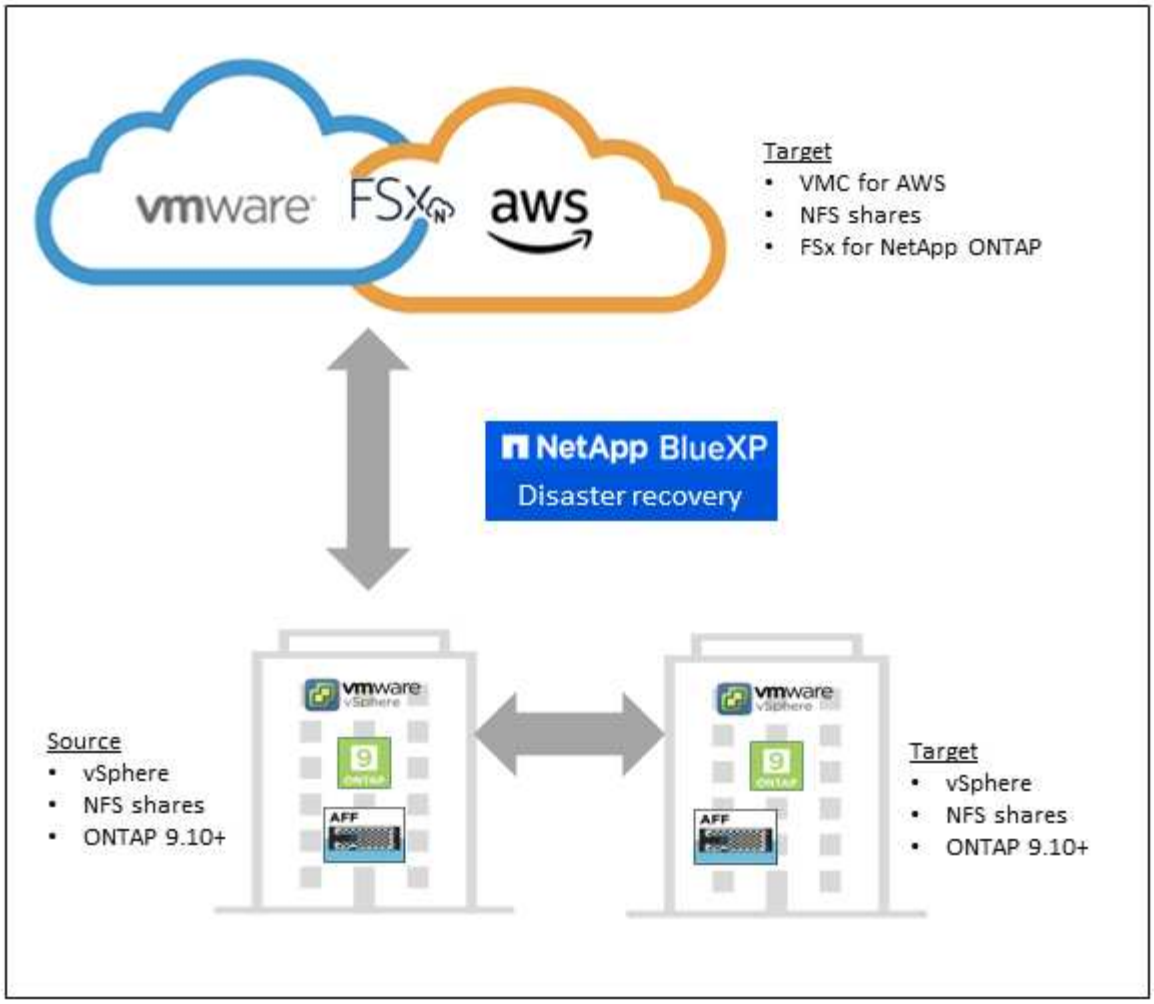
Disaster recovery to the cloud is a resilient and cost-effective way of protecting workloads against site outages and data corruption events. With BlueXP disaster recovery for VMware, you can replicate your on-premises VMware workloads running ONTAP storage to a VMware software-defined data center in a public cloud using NetApp cloud storage or to another on-premises VMware environment with ONTAP storage as a disaster recovery site.

BlueXP disaster recovery is a cloud-based disaster recovery service that automates disaster recovery workflows. Initially, with the BlueXP disaster recovery service you can protect your on-premises, NFS-based workloads and in a technology preview, VMware vSphere virtual machine file system (VMFS) datastores running NetApp storage to one of the following:

- VMware Cloud (VMC) on AWS with Amazon FSx for NetApp ONTAP or
- Another on-premises, NFS-based VMware environment with ONTAP storage

With this release, disaster recovery is supported in a technology preview for on-premises VMware workloads to on-premises VMware environments with VMware vSphere virtual machine file system (VMFS) datastores. NetApp doesn’t charge you for any previewed workload capacity.

BlueXP disaster recovery uses ONTAP SnapMirror technology as the replication transport to the disaster recovery site. This enables industry-best storage efficiency (compression and deduplication) on primary and secondary sites.



Benefits of using BlueXP disaster recovery for VMware

BlueXP disaster recovery offers the following benefits:

- Simplified user experience for vCenter discovery and recovery of applications with multiple point-in-time recovery operations
- Lower total cost of ownership with reduced cost of operations and ability to create and adjust disaster recovery plans with minimal resources
- Continuous disaster recovery readiness with virtual failover testing that does not disrupt operations
- Faster time to value with dynamic changes in your IT environment and ability to address it in your disaster recovery plans

What you can do with BlueXP disaster recovery for VMware

BlueXP disaster recovery provides you with full use of several NetApp technologies to accomplish the following goals:

- Replicate VMware apps on your on-premises production site to a disaster recovery remote site in the cloud or on-premises using SnapMirror replication.
- Migrate VMware workloads from your original site to another site.
- In case of disaster, fail over your primary site on demand to the disaster recovery site, which can be

VMware Cloud on AWS with FSx for NetApp ONTAP or an on-premises VMware environment with ONTAP.

- After the disaster has been resolved, fail back on demand from the disaster recovery site to the primary site.

Configuration of vSphere server is done outside of BlueXP disaster recovery in vSphere Server.

Cost

NetApp doesn't charge you for using the trial version of BlueXP disaster recovery.

The BlueXP disaster recovery service can be used either with a NetApp license or an annual subscription-based plan through Amazon Web Services.

Some releases include a technology preview. NetApp doesn't charge you for any previewed workload capacity. See What's new in BlueXP disaster recovery for information about the latest technology previews.

Licensing

You can use the following license types:

- Sign up for a 90-day free trial.
- Purchase a pay-as-you-go (PAYGO) subscription with Amazon Web Services (AWS) Marketplace.
- Bring your own license (BYOL), which is a NetApp License File (NLF) that you obtain from your NetApp Sales Rep. You can use the license serial number to get the BYOL activated in BlueXP digital wallet.

Licenses for all BlueXP services are managed by the BlueXP digital wallet service. After you set up your BYOL, you can see an active license for the service in the BlueXP digital wallet.

BlueXP disaster recovery charges are based on provisioned capacity of datastores on the source site when there is at least one VM that has a replication plan. Capacity for a failed over datastore is not included in the capacity allowance. For a BYOL, if the data exceeds the allowed capacity, operations in the service are limited until you obtain an additional capacity license or upgrade the license in BlueXP digital wallet.

For details about setting up licensing for BlueXP disaster recovery, refer to Set up BlueXP disaster recovery licensing.

90-day free trial

You can try out BlueXP disaster recovery by using a 90-day free trial.

To continue after the 90-day trial, you'll need to obtain a Pay-as-you-go (PAYGO) subscription from your cloud provider or purchase a BYOL license from NetApp.

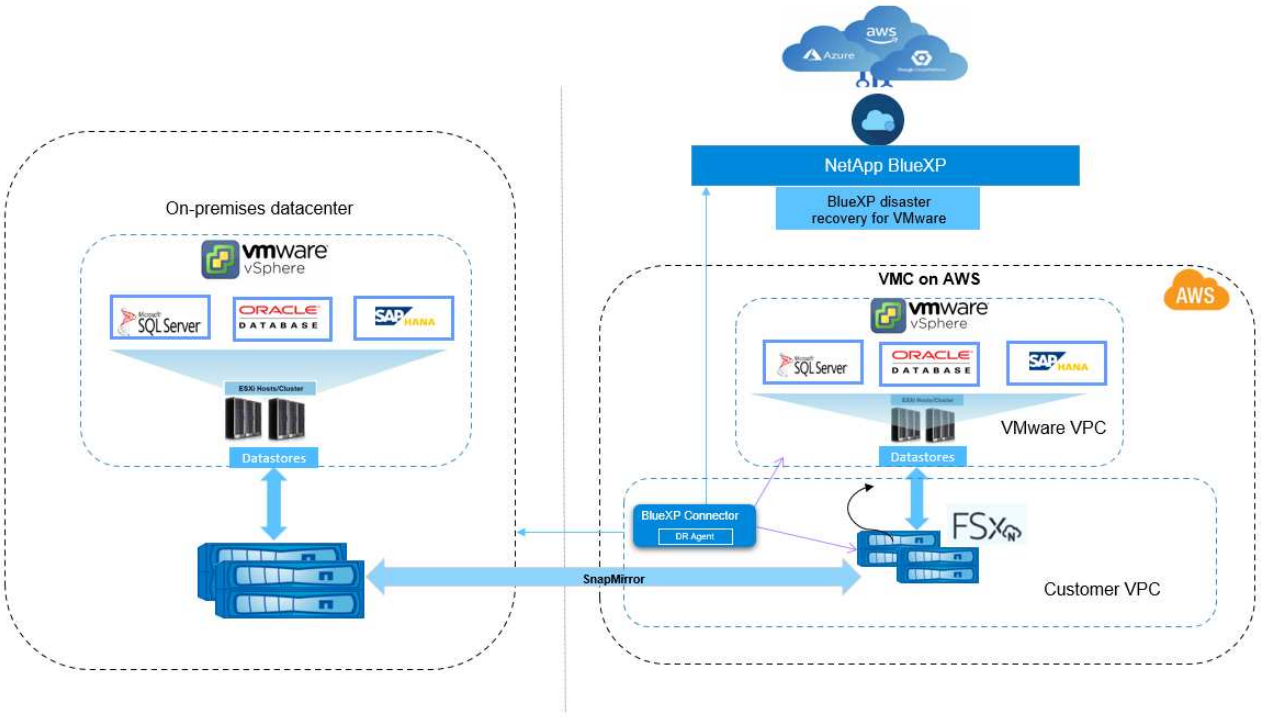
You can purchase a license at any time and you will not be charged until the 90-day trial ends.

How BlueXP disaster recovery works

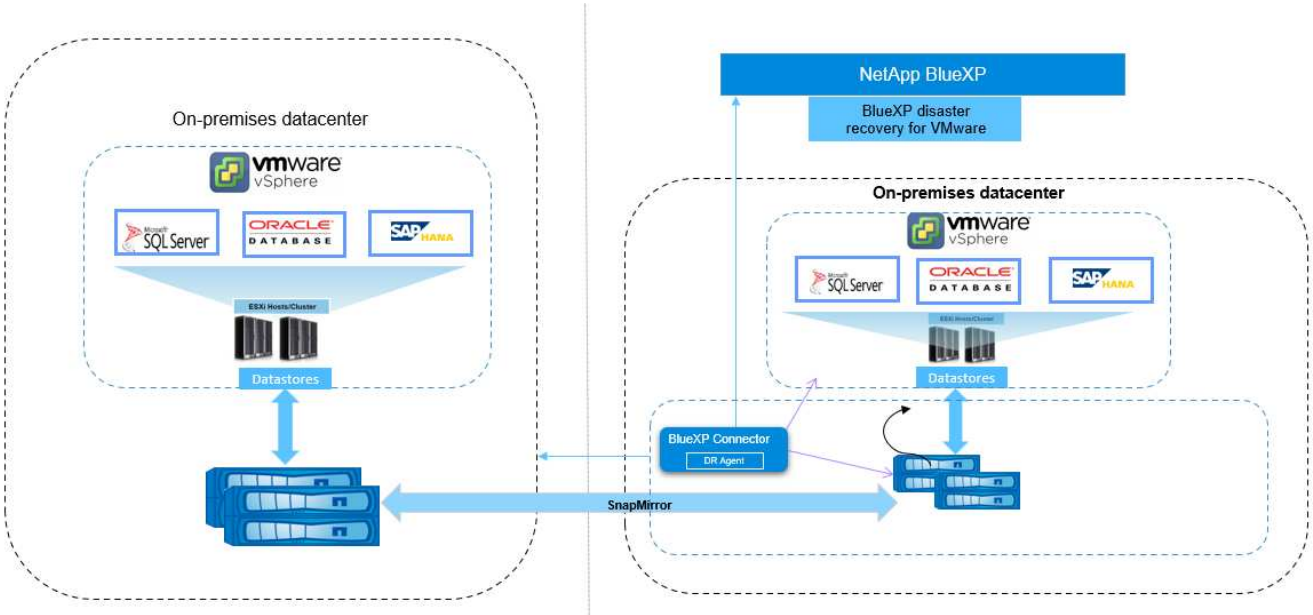
BlueXP disaster recovery can recover workloads replicated from an on-premises site to Amazon FSx for ONTAP or to another on-premises site. This service automates the recovery from the SnapMirror level, through

virtual machine registration to Virtual Machine Cloud (VMC), and to network mappings directly on the VMware network virtualization and security platform, NSX-T. This feature is included with all Virtual Machine Cloud environments.

BlueXP disaster recovery uses ONTAP SnapMirror technology, which provides highly efficient replication and preserves the ONTAP incremental-forever Snapshot efficiencies. SnapMirror replication ensures that application-consistent Snapshot copies are always in sync and the data is usable immediately after a failover.



The following diagram shows the architecture of on-premises to on-premises disaster recovery plans.



When there is a disaster, this service helps you recover virtual machines in the other on-premises VMware environment or VMC by breaking the SnapMirror relationships and making the destination site active.

- The service also lets you fail back virtual machines to the original source location.
- You can test the disaster recovery failover process without disrupting the original virtual machines. The test recovers virtual machines to an isolated network by creating a FlexClone of the volume.
- For the failover or test failover process, you can choose the latest (default) or selected Snapshot from which to recover your virtual machine.

BlueXP disaster recovery prerequisites

Before using BlueXP disaster recovery, you should ensure that your environment meets the ONTAP storage, VMware vCenter cluster, and BlueXP requirements.

ONTAP storage prerequisites

These prerequisites apply to either ONTAP or Amazon FSX for NetApp ONTAP instances.

- Source and destination clusters must have a peer relationship.
- The SVM that will host the disaster recovery volumes must exist on the destination cluster.
- The source SVM and destination SVM must have a peer relationship.

> Disaster recovery volumes in the destination SVM or SVMs should not be created ahead of time. BlueXP disaster recovery will create the destination volumes as needed for the replication plan.

- If deploying with Amazon FSx for NetApp ONTAP, the following prerequisite applies:
  - An Amazon FSx for NetApp ONTAP instance to host VMware DR datastores must exist in your VPC. Refer to Amazon FSx for ONTAP documentation on how to get started.

VMware vCenter clusters prerequisites

These prerequisites apply to both on-premises vCenter clusters and to VMware Cloud for AWS software-defined data center (SDDC).

- All VMware clusters that you want BlueXP disaster recovery to manage must be hosted on ONTAP volumes.
- All VMware datastores to be managed by BlueXP disaster recovery must use one of the following protocols:
  - NFS
  - VMFS using the iSCSI protocol (currently in a technology preview)
- If you are using VMware Cloud SDDC, these prerequisites apply.
  - In the VMware Cloud Console, use the service roles of Administrator and NSX Cloud Administrator. Also use the organization owner for the Organization role. Refer to Using VMware Cloud Foundations with AWS FSx for NetApp ONTAP documentation.
  - Link the VMware Cloud SDDC with Amazon FSx for NetApp ONTAP instance. Refer to VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP deployment information.

BlueXP prerequisites

Gather credentials for ONTAP and VMware

- Amazon FSx for ONTAP and AWS credentials must be added to the working environment within the BlueXP workspace that will be used to manage BlueXP disaster recovery.
- BlueXP disaster recovery requires vCenter credentials. You enter the vCenter credentials when you're adding a site in BlueXP disaster recovery.

  For a list of vCenter privileges needed, refer to vCenter privileges needed for BlueXP disaster recovery. For instructions on how to add a site, refer to Add a site.

Add a BlueXP account

In BlueXP, if you don't already have an account, you'll need to add an account. Refer to the BlueXP documentation on how to add an account.

Create a BlueXP Connector

A BlueXP Connector must be set up in BlueXP. When you use the BlueXP Connector, it will include the appropriate capabilities for the disaster recovery service.

- BlueXP disaster recovery works only with the standard mode Connector deployment. See Getting started with BlueXP in standard mode.
- Type of BlueXP Connector needed:
  - **On-premises to on-premises disaster recovery**: Install the BlueXP on-premises Connector in the disaster recovery site. Refer to Install and set up a Connector on premises.
  - **On-premises to AWS**: Install the BlueXP Connector for AWS in your AWS VPC. Refer to Connector installation options in AWS.

    For on-premises to on-premises, use the BlueXP on-premises Connector. For on-premises to AWS, use the BlueXP AWS Connector, which has access to the source on-premises vCenter and the destination on-premises vCenter.

  - The installed BlueXP Connector must be able to access any VMware cluster that BlueXP disaster recovery will manage.
- All ONTAP arrays to be managed by BlueXP disaster recovery must be added to any working environment within the BlueXP workspace that will be used to manage BlueXP disaster recovery.

  See Discover on-premises ONTAP clusters.

Workload prerequisites

To ensure that application-consistency processes are successful, apply these prerequisites:

- Ensure that VMware tools (or Open VM tools) are running on the VMs that will be protected.
- For Windows VMs running Microsoft SQL Server or Oracle Database or both, the databases should have their VSS Writers enabled.
- Oracle databases that are running on a Linux operating system should have the operating system user authentication enabled for the Oracle database SYSDBA role.

Quick start for BlueXP disaster recovery

Here's an overview of the steps needed to get started with BlueXP disaster recovery. The links within each step take you to a page that provides more details.

1 Review prerequisites

Ensure your environment meets these requirements.

2 Set up the BlueXP disaster recovery service

- Set up the infrastructure for the service.
- Set up licensing.

3 What's next?

After you set up the service, here's what you might do next.

- Add your vCenter sites to BlueXP disaster recovery.
- Create your first resource group.
- Create your first replication plan.
- Replicate applications to another site.
- Fail over applications to a remote site.
- Fail back applications to the original source site.
- Manage sites, resource groups, and replication plans.
- Monitor disaster recovery operations.

Access BlueXP disaster recovery

You use NetApp BlueXP to log in to the BlueXP disaster recovery service.

To log in to BlueXP, you can use your NetApp Support Site credentials or you can sign up for a NetApp cloud login using your email and a password. Learn more about logging in.

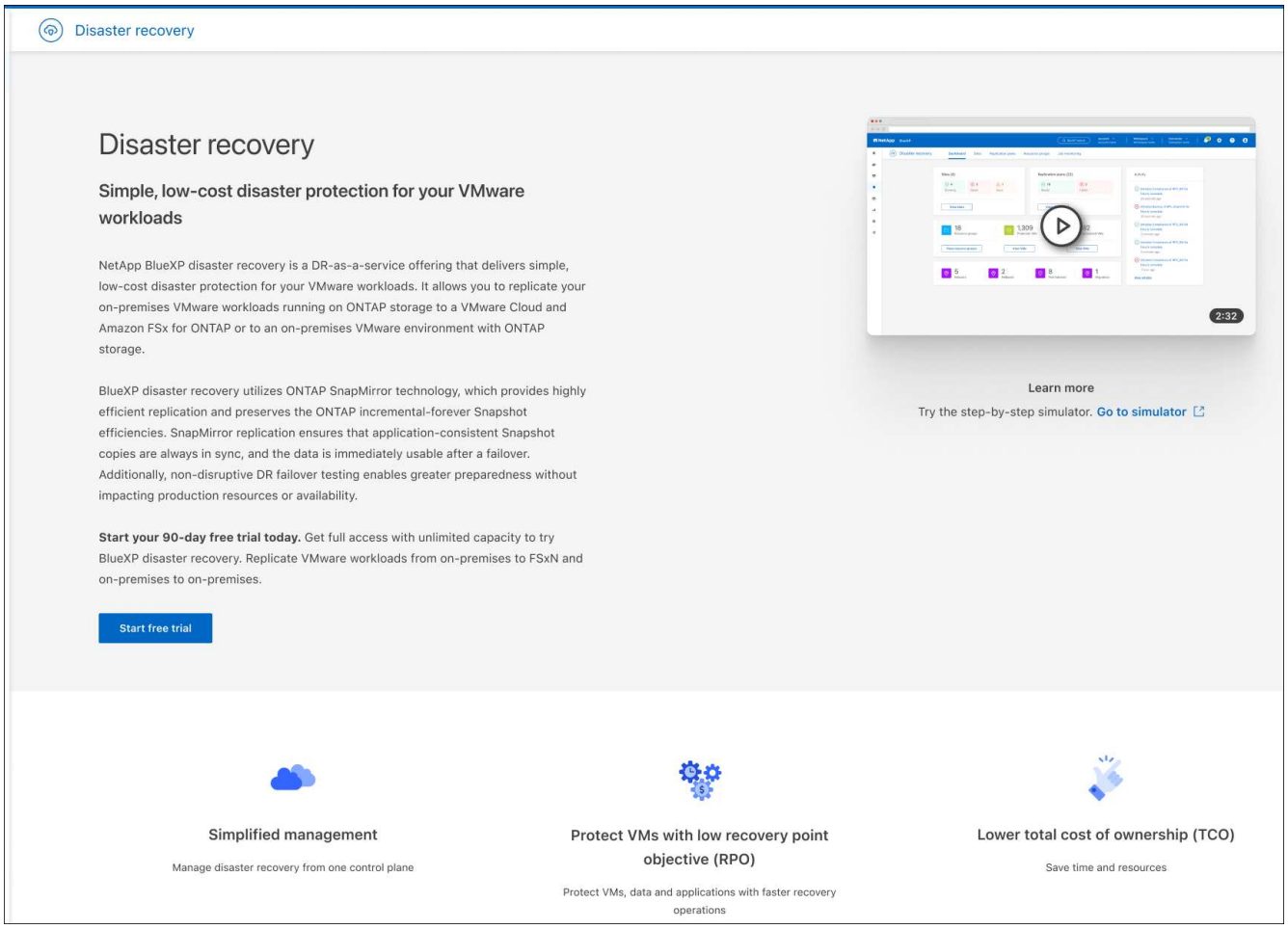
Steps

1. Open a web browser and go to the BlueXP console.

   The NetApp BlueXP login page appears.

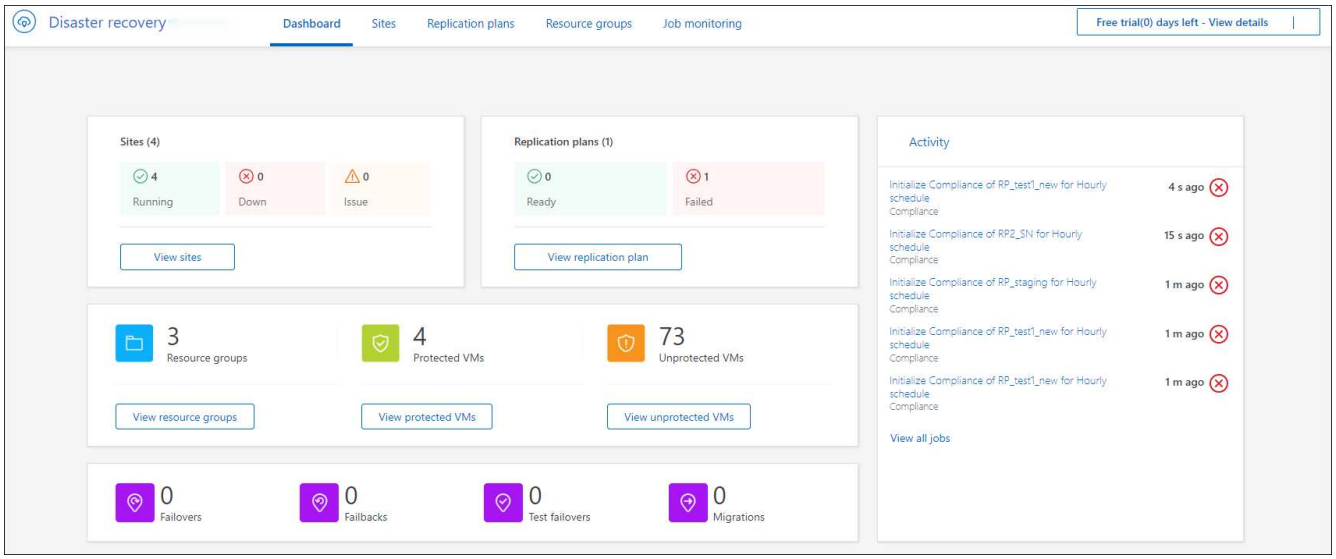
2. Log in to BlueXP.
3. From the BlueXP left navigation, select **Protection** > **Disaster recovery**.

   If this is your first time logging in to this service, the landing page appears and you can sign up for a free trial.



Otherwise, the BlueXP disaster recovery Dashboard appears.

- If you haven't yet added a BlueXP Connector, you'll need to add a Connector. To add a Connector, refer to Learn about Connectors.
- If you are a BlueXP user with an an existing Connector, when you select "Disaster recovery," a message appears about signing up.
- If you are already using the service, when you select "Disaster recovery," the Dashboard appears.



Set up your infrastructure for BlueXP disaster recovery

To use BlueXP disaster recovery, perform a few steps to set it up both in Amazon Web Services (AWS) and in BlueXP.

Review prerequisites to ensure that your environment is ready.

Get ready for BlueXP disaster recovery

- Verify your production environment.
  - Ensure that VMs that you want to protect are hosted on NFS datastores (using ONTAP NFS volumes) or VMFS datastores (using NetApp iSCSI LUNs).
  - Ensure that you have credentials and access keys for your on-premises ONTAP arrays, vCenters and AWS-hosted VMware cloud instances.
- Create or verify your disaster recovery site.
  - Create or verify your Amazon FSx file system is ready.
  - Ensure that your source and destination VMs are peered.

Set up VMware Cloud for AWS SDDC

Set up VMware Cloud for AWS software-defined data center (SDDC).

- Create an Amazon FSx for ONTAP file system. Provision and configure FSx for ONTAP. Amazon FSx for NetApp ONTAP is a fully managed service that provides highly reliable, scalable, high-performing, and feature-rich file storage built on the popular NetApp ONTAP file system.
- Follow the steps at this link and here Quick start for Amazon FSx for NetApp ONTAP to provision and configure FSx for NetApp ONTAP.
- Add Amazon FSx for NetApp ONTAP to the working environment, and add AWS credentials for FSx for ONTAP.
- In AWS, you'll need to do the following steps:
  - Deploy and configure VMware Cloud on AWS.
  - Use a VMware account and provision the SDDC. Ensure that the SDDC has connectivity with FSx for ONTAP.

Deploy VMware Cloud

VMware Cloud on AWS provides a cloud-native experience for VMware-based workloads in the AWS ecosystem. Each VMware software-defined data center (SDDC) runs in an Amazon Virtual Private Cloud (VPC) and provides a full VMware stack (including vCenter Server), NSX-T software-defined networking, vSAN software-defined storage, and one or more ESXi hosts that provide compute and storage resources to the workloads.

To configure a VMC environment on AWS, follow the steps at this link. A pilot-light cluster can also be used for disaster recovery purposes.

Set up licensing

With BlueXP disaster recovery, you can sign up for a 90-day free trial.

You can purchase one of the following:

- A pay-as-you-go (PAYGO) subscription with AWS Marketplace
- Bring Your Own License (BYOL), which is a NetApp License File (NLF).

Refer to Set up BlueXP disaster recovery licensing.

Set up licensing for BlueXP disaster recovery

With BlueXP disaster recovery, you can use different licensing plans including a free trial, a pay-as-you-go subscription, or bring your own license.

You can use the following license types:

- Sign up for a 90-day free trial.
- Purchase a pay-as-you-go (PAYGO) subscription with Amazon Web Services (AWS) Marketplace.
- Bring your own license (BYOL), which is a NetApp License File (NLF) that you obtain from your NetApp Sales Rep. You can use the license serial number to get the BYOL activated in BlueXP digital wallet.

> BlueXP disaster recovery charges are based on provisioned capacity of datastores on the source site when there is at least one VM that has a replication plan. Capacity for a failed over datastore is not included in the capacity allowance. For a BYOL, if the data exceeds the allowed capacity, operations in the service are limited until you obtain an additional capacity license or upgrade the license in BlueXP digital wallet.

After you set up your BYOL, you can see the license in the BlueXP digital wallet **Data service licenses** tab.

After the free trial ends or the license expires, you can still do the following in the service:

- View any resource, such as a workload or replication plan.
- Delete any resource, such as a workload or replication plan.
- Run all scheduled operations that were created during the trial period or under the license.

Try it out using a 90-day free trial

You can try BlueXP disaster recovery out by using a 90-day free trial.

> No capacity limits are enforced during the trial.

You can get a license at any time and you will not be charged until the 90-day trial ends. To continue after the 90-day trial, you'll need to purchase a BYOL license.

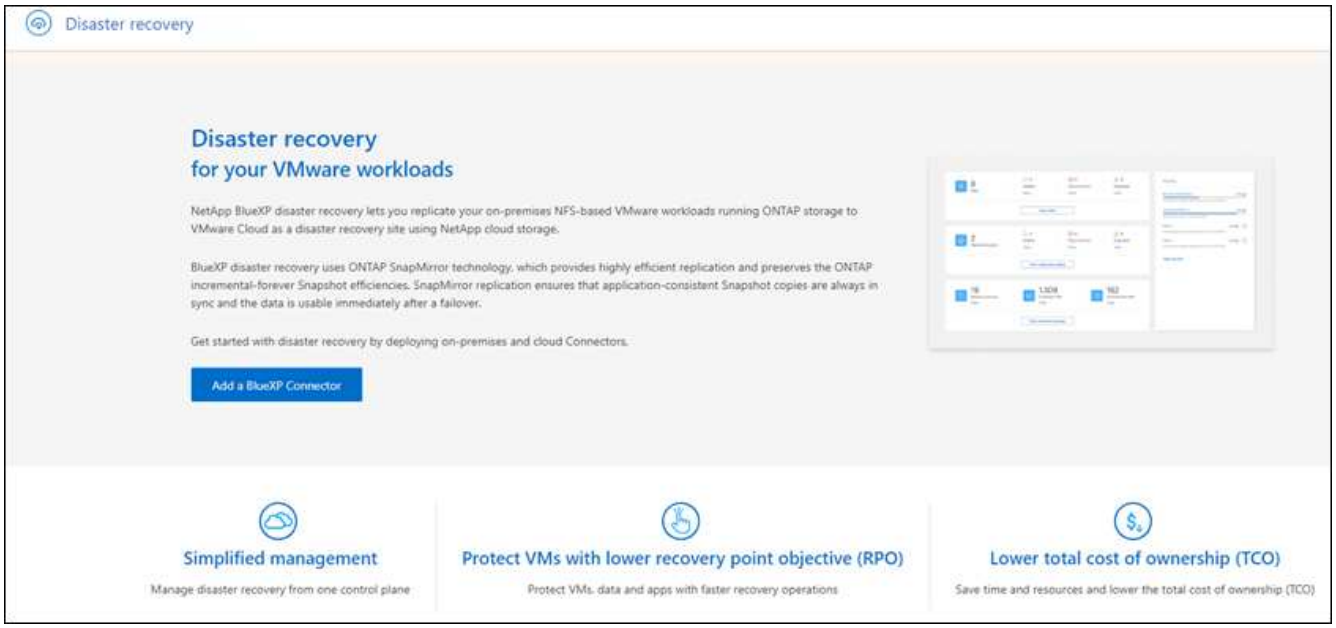
During the trial, you have full functionality.

Steps

1. Access the BlueXP console.

2. Log in to BlueXP.
3. From the BlueXP left navigation, select **Protection** > **Disaster recovery**.

   If this is your first time logging in to this service, the landing page appears.



4. If you haven't already added a Connector for other services, add one.

   To add a Connector, refer to Learn about Connectors.

5. After you set up a Connector, in the BlueXP disaster recovery landing page, the button to add a Connector changes to a button for starting a free trial. Select **Start free trial**.
6. Begin by adding vCenters.

   For details, see Add vCenter sites.

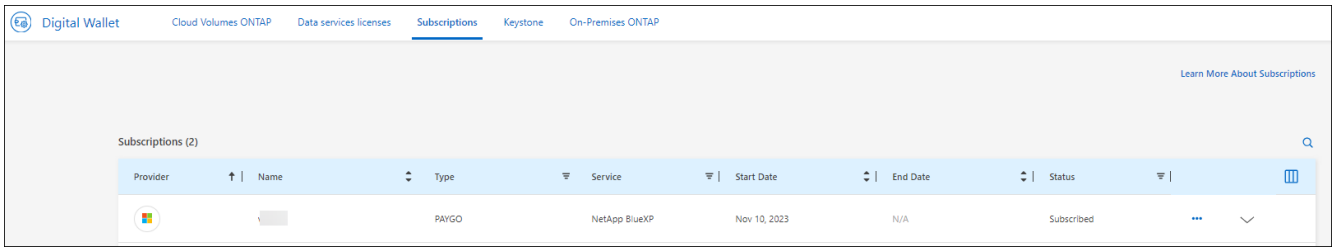
After the trial ends, subscribe through AWS Marketplace

After the free trial ends, you can either purchase a license from NetApp or subscribe through AWS Marketplace. This procedure provides a high level overview of how to subscribe directly in the AWS Marketplace.

Steps

1. In the BlueXP disaster recovery, you see a message that the free trial is expiring. In the message, select **Subscribe or purchase a license**.
2. Select **Subscribe in AWS Marketplace**.
3. In AWS Marketplace, select **View purchase options**. Use AWS Marketplace to subscribe to BlueXP disaster recovery.
4. When you return to BlueXP disaster recovery, a message states that you are subscribed.

   To view subscription details in BlueXP digital wallet, select **View subscription details** and view the active subscription on the **Subscriptions** page.



After the trial ends, purchase a BYOL license through NetApp

After the trial ends, you can purchase a license through your NetApp Sales Rep.

If you bring your own license (BYOL), the set up includes purchasing the license, getting the NetApp License File (NLF), and adding the license to BlueXP digital wallet.

Activate the license

After you've purchased your BlueXP disaster recovery license from your NetApp Sales Rep, you activate the license by entering the BlueXP disaster recovery serial number and NetApp Support Site (NSS) account information.

You'll need to have the following information before you start:

- BlueXP disaster recovery serial number

  Locate this number from your Sales Order, or contact the account team for this information.

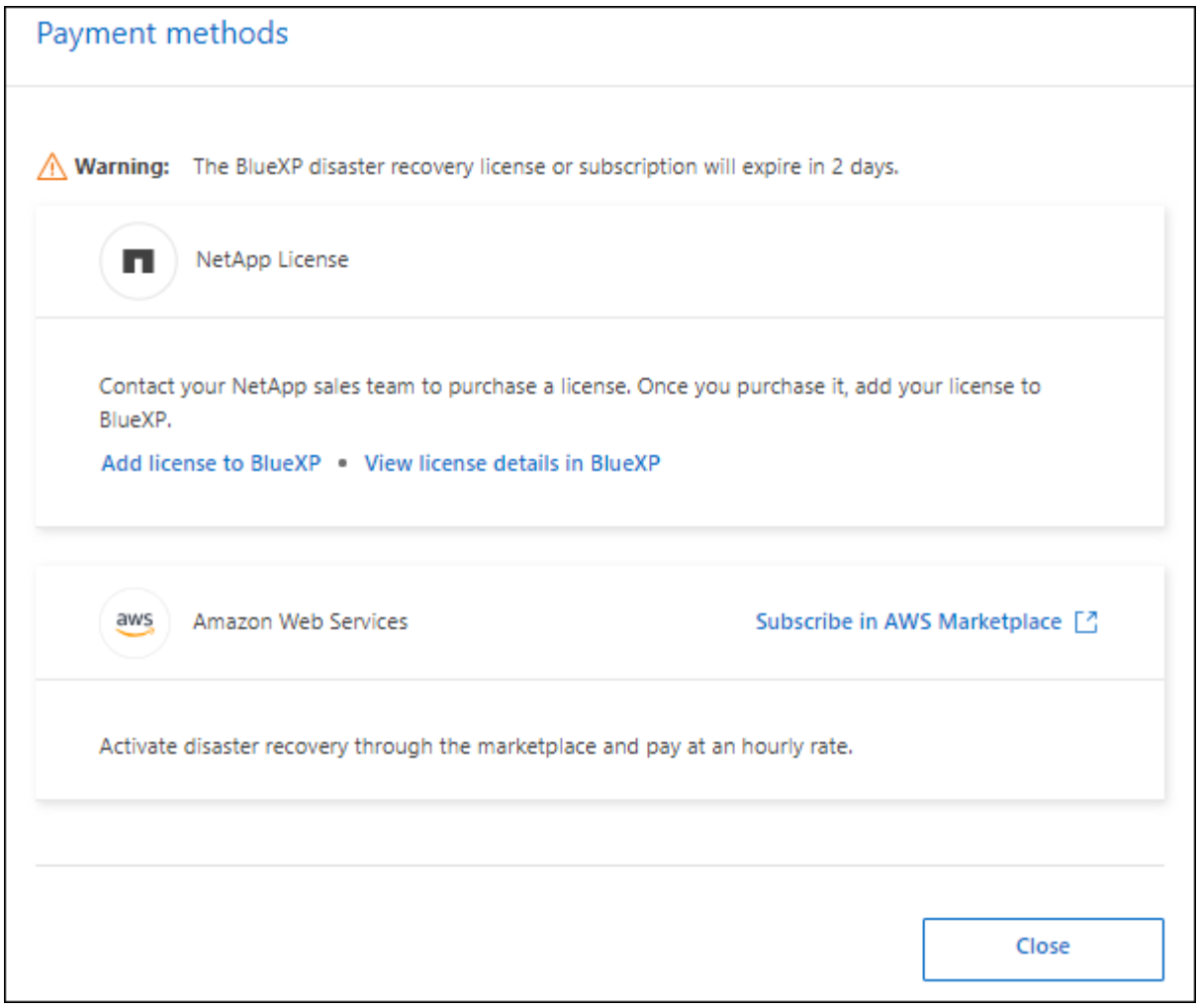
- BlueXP Account ID

  You can find your BlueXP Account ID by selecting the **Account** drop-down from the top of BlueXP, and then selecting **Manage Account** next to your account. Your Account ID is in the Overview tab.

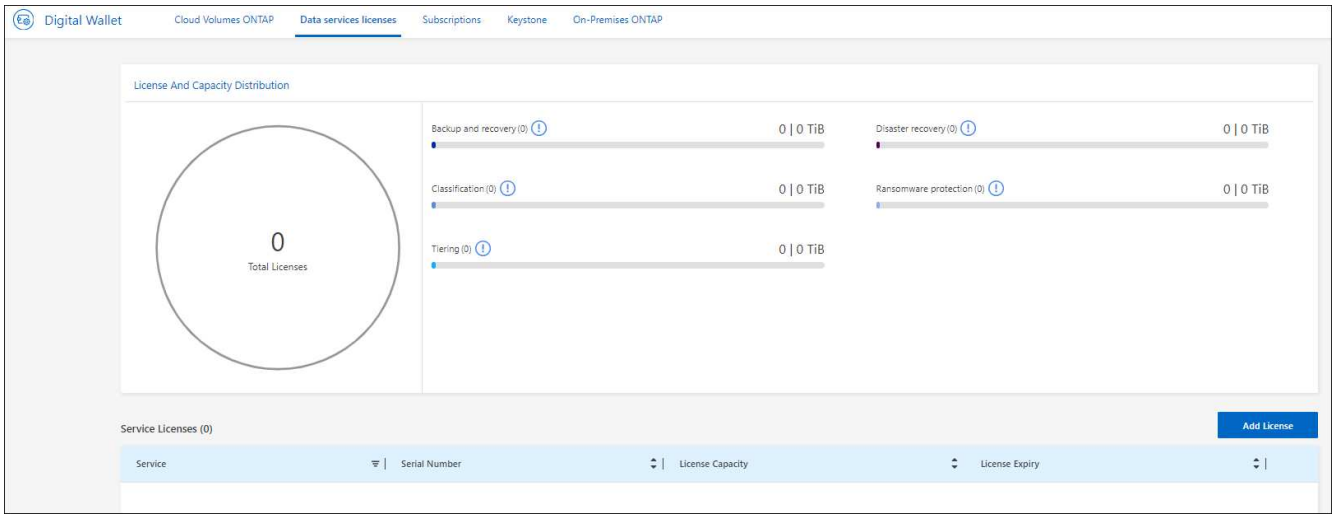
Add the license to BlueXP digital wallet

After you purchase a BlueXP disaster recovery license for your BlueXP account, you need to add the license to the BlueXP digital wallet.

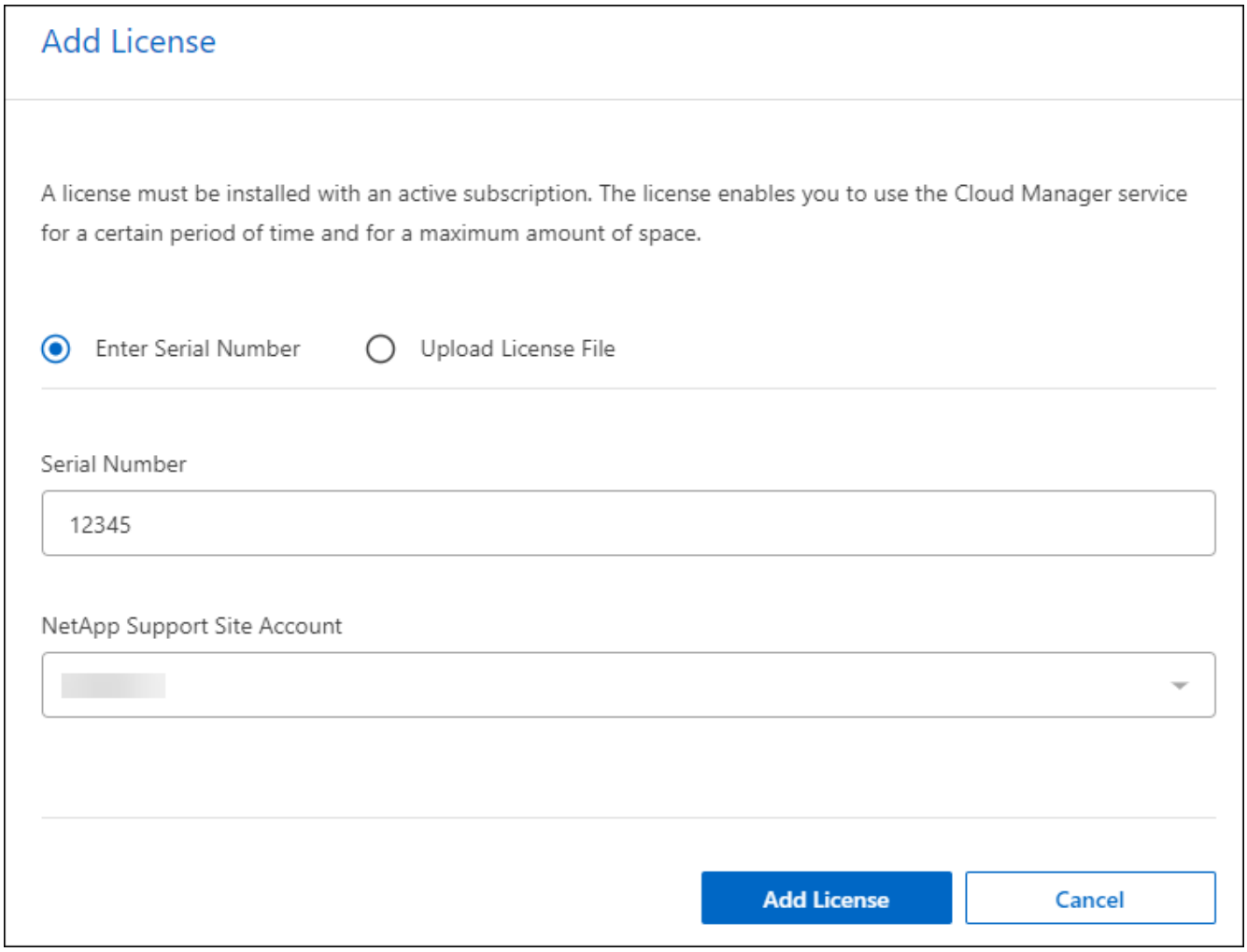
1. After you obtain the license, return to BlueXP disaster recovery. Select the **View payment methods** option in the upper right. Or, in the message that the free trial is expiring, select **Subscribe or purchase a license**.



2. Select **Add license to BlueXP**. You will be directed to BlueXP digital wallet.



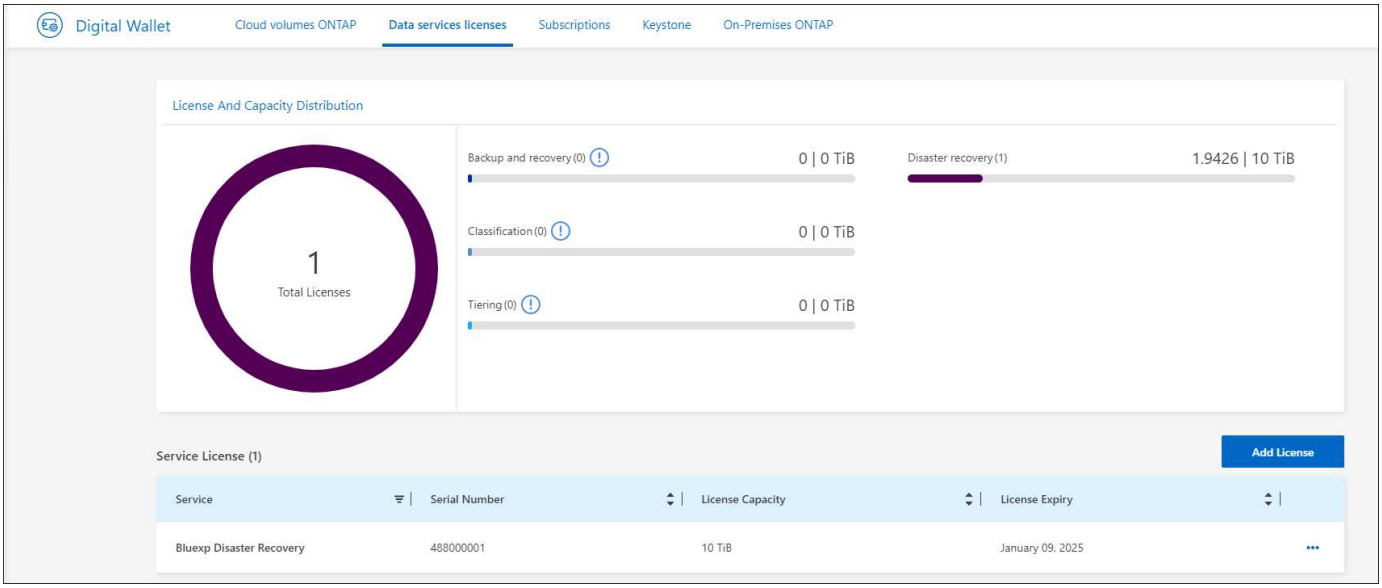
3. In BlueXP digital wallet, from the **Data services licenses** tab, select **Add License**.
4. In the Add License page, enter the serial number and NetApp Support Site account information.



5. Select **Add License**.

Result

BlueXP digital wallet now shows Disaster recovery with a license.



Update your BlueXP license when it expires

If your licensed term is nearing the expiration date, or if your licensed capacity is reaching the limit, you'll be notified in the BlueXP disaster recovery UI. You can update your BlueXP disaster recovery license before it expires so that there is no interruption in your ability to access your scanned data.

This message also appears in BlueXP digital wallet and in Notifications.

Steps

1. Select the chat icon in the lower-right of BlueXP to request an extension to your term or additional capacity to your license for the particular serial number. You can also send an email to request an update to your license.

   After you pay for the license and it is registered with the NetApp Support Site, BlueXP automatically updates the license in the BlueXP digital wallet and the Data Services Licenses page will reflect the change in 5 to 10 minutes.

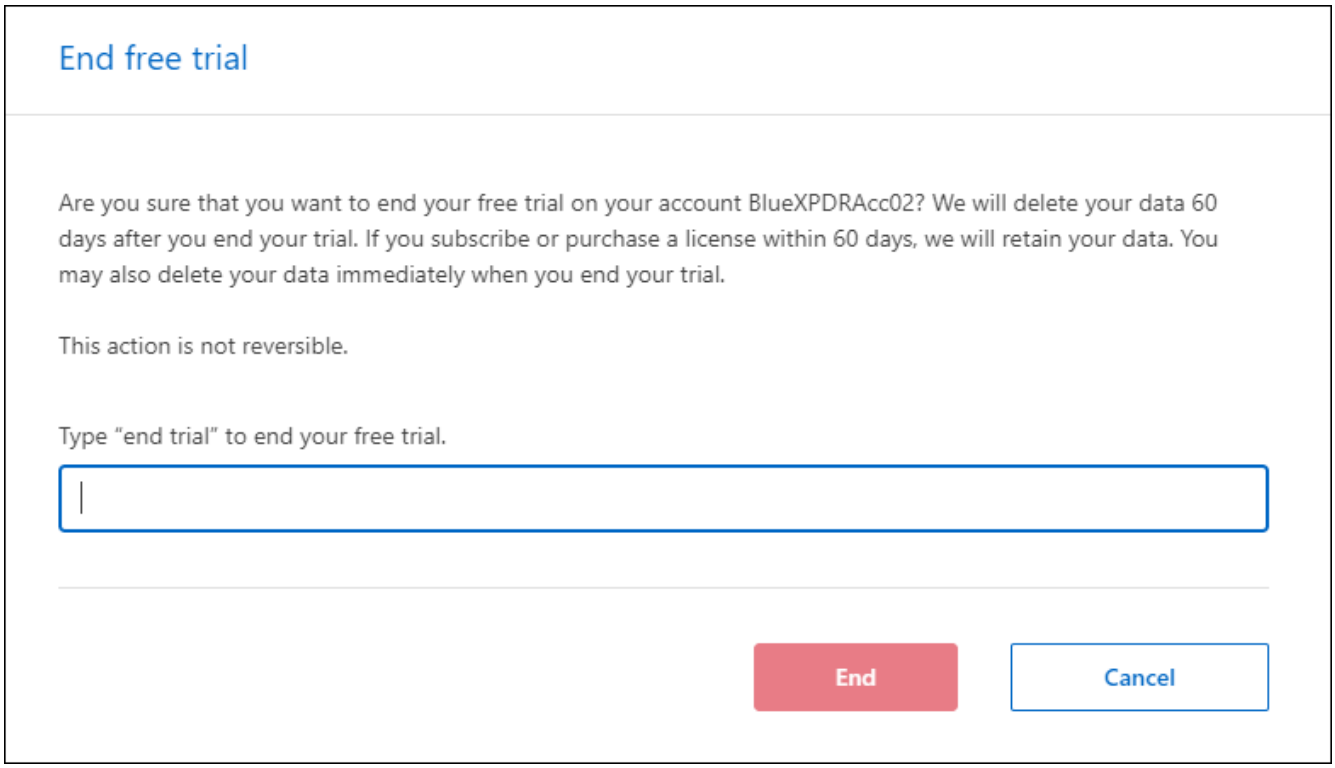
2. If BlueXP can't automatically update the license (for example, when installed in a dark site), then you'll need to manually upload the license file.
   a. You can obtain the license file from the NetApp Support Site.
   b. Access the BlueXP digital wallet.
   c. Select the **Data dervices licenses** tab, select the **Actions …** icon for the service serial number you are updating, and select **Update License**.

End the free trial

You can stop the free trial at any time or you can wait until it expires.

Steps

1. In BlueXP disaster recovery, at the top right, select **Free trial - View details**.
2. In the drop-down details, select **End free trial**.



3. If you want to delete all data, check **Delete all data when my trial ends**.

   This will delete all schedules, replication plans, resource groups, vCenters, and sites. Audit data, operation logs, and jobs history are retained until the end of the life of the product.

   If you end the free trial and not asked to delete data and you don’t purchase a license or subscription, 60 days after the free trial ends, BlueXP disaster recovery deletes all of your data.

4. Type "end trial" in the text box.
5. Select **End**.

Frequently asked questions for BlueXP disaster recovery

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

What’s the BlueXP disaster recovery URL?
For the URL, in a browser, enter: https://console.bluexp.netapp.com/ to access the BlueXP console.

Do you need a license to use BlueXP disaster recovery?
A BlueXP disaster recovery license is required for complete access. However, you can try it out with the free trial.

For details about setting up licensing for BlueXP disaster recovery, refer to Set up BlueXP disaster recovery licensing.

How do you access BlueXP Disaster recovery?
BlueXP disaster recovery does not require any enablement. The disaster recovery option automatically appears on the BlueXP left navigation.

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